

LIFE ACTUARIAL (A) TASK FORCE

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Draft Pending Adoption

Draft: 9/7/23

Life Actuarial (A) Task Force
Seattle, Washington
August 11–12, 2023

The Life Actuarial (A) Task Force met in Seattle, WA, Aug. 11–12, 2023. The following Task Force members participated: Cassie Brown, Chair, represented by Rachel Hemphill (TX); Scott A. White, Vice Chair, represented by Craig Chupp (VA); Lori K. Wing-Heier represented by Sharon Comstock (AK); Mark Fowler represented by Sanjeev Chaudhuri (AL); Ricardo Lara represented by Thomas Reedy (CA); Andrew N. Mais represented by Wanchin Chou (CT); Doug Ommen represented by Mike Yanacheak (IA); Dana Popish Severinghaus represented by Vincent Tsang and Bruce Sartain (IL); Amy L. Beard represented by Scott Shover (IN); Vicki Schmidt represented by Nicole Boyd (KS); Grace Arnold represented by Fred Andersen and Ben Slutsker (MN); Chlora Lindley-Myers represented by William Leung (MO); Eric Dunning represented by Michael Muldoon (NE); D.J. Bettencourt represented by Jennifer Li (NH); Justin Zimmerman represented by Seong-min Eom (NJ); Adrienne A. Harris represented by Amanda Fenwick and Michael Cebula (NY); Judith L. French represented by Peter Weber (OH); Glen Mulready represented by Andrew Schallhorn (OK); Michael Humphreys represented by Steve Boston (PA); Jon Pike represented by Tomasz Serbinowski (UT); and Allan L. McVey represented by Tim Sigman (WV).

1. Adopted its July 20, June 15, June 1, May 18, May 11, May 4, April 27, April 20, and April 13 Minutes and the Reports of the Experience Reporting (A) Subgroup, the IUL Illustration (A) Subgroup, the Longevity Risk (E/A) Subgroup, and the Variable Annuities Capital and Reserve (E/A) Subgroup

The Task Force met July 20, June 15, June 1, May 18, May 11, May 4, April 27, April 20, and April 13. During these meetings, the Task Force took the following action: 1) adopted its Spring National Meeting minutes; 2) exposed the recommendation on Valuation Manual (VM)-20, Requirements for Principle-Based Reserves for Life Products, historical mortality improvement (HMI) and future mortality improvement (FMI) rates; 3) adopted amended charges to remove the Index-Linked Variable Annuity (A) Subgroup and add the Generator of Economic Scenarios (GOES) (E/A) Subgroup; 4) responded to a referral from the Statutory Accounting Principles (E) Working Group (SAPWG) regarding negative interest maintenance reserves (IMRs); 5) exposed a template with additional disclosures related to company IMR; 6) adopted amendment proposal form (APF) 2023-07, which removes the company-specific market path (CSMP) method from VM-21, Requirements for Principle-Based Reserves for Variable Annuities; 7) adopted APF 2023-05, which revises hedge modeling in VM-21 to address index credit hedging; 8) exposed APF 2023-08, which clarifies the treatment of negative IMR; 9) discussed the GOES field test results in joint session with the Life Risk-Based Capital (E) Working Group; 10) adopted APF 2021-08, which removes the one-year lag in mortality experience reporting in VM-51, Experience Reporting Formats; 11) responded to a referral from the Valuation of Securities (E) Task Force regarding bond risk measures; 12) adopted APF 2023-04, which clarifies company mortality experience disclosures in VM-31, PBR Actuarial Report Requirements for Business Subject to a Principle-Based Valuation; and 13) exposed APF 2023-06, which would add a cash surrender value floor to the VM-20 stochastic reserve calculation and change the VM-20 net premium reserve calculation for universal life with secondary guarantees (ULSG) products.

The Task Force reviewed the reports of the Experience Reporting (A) Subgroup, the Indexed Universal Life (IUL) Illustration (A) Subgroup, the Longevity Risk (E/A) Subgroup, and the Variable Annuities Capital and Reserve (E/A) Subgroup.

Chupp made a motion, seconded by Yanacheak, to adopt the Task Force's July 20 (Attachment One), June 15 (Attachment Two), June 1 (Attachment Three), May 18 (Attachment Four), May 11 (Attachment Five), May 4 (Attachment Six), April 27 (Attachment Seven), April 20 (Attachment Eight), and April 13 minutes (Attachment Nine) and the reports of the Experience Reporting (A) Subgroup (Attachment Ten), the IUL Illustration (A)

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Subgroup (Attachment Eleven), the Longevity Risk (E/A) Subgroup (Attachment Twelve), and Variable Annuities Capital and Reserve (E/A) Subgroup (Attachment Thirteen). The motion passed unanimously.

2. Adopted the Report of the VM-22 (A) Subgroup

Slutsker delivered the report of the VM-22 (A) Subgroup.

Slutsker made a motion, seconded by Chupp, to adopt the report of the VM-22 (A) Subgroup (Attachment Fourteen), including its July 26 (Attachment Fifteen), June 13 (Attachment Sixteen), May 24 (Attachment Seventeen), May 10 (Attachment Eighteen), April 26 (Attachment Nineteen), April 19 (Attachment Twenty), and April 12 (Attachment Twenty-One) minutes. The motion passed unanimously.

3. Heard a Presentation on Findings from State Insurance Regulator Reviews of AG 53 Company Filings

Andersen walked through a presentation (Attachment Twenty-Two) on findings from the state insurance regulator reviews of company filings for *Actuarial Guideline LIII—Application of the Valuation Manual for Testing the Adequacy of Life Insurer Reserves* (AG 53). Regarding the 7% net yield threshold, Sartain asked how materiality was brought into the analysis. Andersen said a chart later in the presentation plotted the net yield assumptions of companies compared to their percentage allocation of high-net-yielding assets, and a greater focus was placed on the companies with higher net yields and high-yielding asset allocations. On slide 12 of the presentation, Hemphill asked for clarification on what the corridor lines on the scatterplot illustrated. Andersen replied that companies above the top line are a definite concern, those inside the corridor are a moderate concern, and companies below the corridor either have very low exposure or relatively low net yield assumptions and would not be a concern for this analysis.

Muldoon asked why the 7% net yield threshold was used for all assets, and he suggested varying the threshold by asset class. Andersen responded that the current analysis does not recognize a risk-adjusted variance between asset classes, and the approach aligned with language in VM-21. Eom said he wants clarification on the range of the asset allocations for companies reporting extreme net yields. Andersen replied that state insurance regulators did not receive that information, but it would be included in a proposed guidance document that could be used for second-year AG 53 reports. Serbinowski inquired as to how the asset allocations of companies may change in later durations of their cash flow testing models. Again, Andersen noted that they did not have this information, but it was being considered to be requested in the proposed guidance document.

Leonard Mangini (Mangini Actuarial and Risk Advisory LLC) proposed that a cap on the net asset earned rate (NAER) could be implemented in asset adequacy testing (AAT) in a similar fashion to VM-21, and also noted that Canada had instituted a similar requirement. Andersen noted that although that option was not currently being considered by the Task Force, it could be a possible consideration in the future. Regarding difficult-to-value and/or illiquid assets, Serbinowski asked how state insurance regulators could be comfortable with high net yields for these assets. Andersen noted that this issue was contemplated in the language of AG 53, and it is acceptable for companies to: 1) add more complexity to their modeling to properly quantify the risks associated with these assets; or 2) add additional conservatism. However, Andersen noted that it was not appropriate for companies to simply exclude these assets from their analysis due to the challenges of valuing them.

4. Heard a Presentation on the VM-20 HMI and FMI Factors

Marianne Purushotham (Society of Actuaries—SOA) walked through a presentation (Attachment Twenty-Three) on the American Academy of Actuaries (Academy) Mortality Improvements Life Working Group (MILWG) 2023 recommendation for VM-20 and HMI and FMI rates. Hemphill asked whether mortality deterioration due to the opioid epidemic was being graded off in later durations as the rates transitioned into the long-term FMI

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assumption. Purushotham confirmed that some of the effects of the opioid epidemic were being graded off consistent with the U.S. Social Security Administration (SSA) intermediate mortality projection data, but the SSA was including more of this data in its projections over time. Slutsker asked how frequently the long-term rate was updated. Purushotham said the long-term rate is reset whenever the scale resets. Brian Bayerle (American Council of Life Insurers—ACLI) asked how more mortality experience from insured lives would be incorporated into the analysis in future years, along with the timing. Purushotham replied that work had been done on comparing the life insurance experience data that the NAIC has collected to the different deciles of the general population data ahead of coming up with a recommendation potentially for discussions in 2024 and implementation in 2025.

Scott O’Neal (NAIC) then went over a presentation (Attachment Twenty-Four) that highlighted the NAIC’s plan to perform a model office analysis of the impact of the new set of HMI and FMI rates. Bayerle asked whether the NAIC had the capability to change the weighting of the population in the model office to be more representative of industry life insurance populations. O’Neal said the model office population could be modified, but the plan for this year was to illustrate the impacts separately for 30- and 50-year-olds from the current model population.

5. Exposed APF 2023-09

Hemphill discussed APF 2023-09, which adds guidance on the application of HMI and FMI factors in VM-20. Bayerle asked how the reflection of mortality improvement considerations “identified by the SOA” would work in practice and whether that language needed to be included in the *Valuation Manual*. Hemphill suggested striking the “identified by the SOA” language from APF 2023-09, along with an additional editorial change for the exposed version.

Chupp made a motion, seconded by Reedy, to expose APF 2023-09 (Attachment Twenty-Five) with the edits described above for a 45-day public comment period ending Sept. 27. The motion passed unanimously.

6. Heard a Presentation from the Academy on Interest Rate Acceptance Criteria for the GOES

Jason Kehrberg (American Academy of Actuaries—Academy) and Link Richardson (Academy) went over a presentation (Attachment Twenty-Six) on the interest rate acceptance criteria for the GOES. After Kehrberg noted that the interest rate level criteria for the 30th and 70th percentiles had been removed, Hemphill noted concern that a large portion of scenarios included in the determination of the conditional tail expectancy (CTE)-70 reserve calculation would not be included in the criteria. Kehrberg replied that with any additional criteria that are added, there is a balancing act between meeting the additional criteria and the other criteria that have been prioritized. Weber asked how the buffers that are included in the acceptance criteria were developed. Kehrberg noted that the setting of the buffers was an iterative approach that utilized testing using a reference model and expert judgment.

O’Neal stated that recent United States Treasury (UST) rate experience had included large inversions for a prolonged period, and he asked how this recent experience would look compared to the acceptance criteria. Kehrberg replied that the Academy could take a look at the question and consider whether to add the most recent experience to the acceptance criteria to see how much the criteria would change. Yanacheak noted that the frequency of worse-than-history events was based on judgment, but he asked why historical data could not also be utilized. He further stated that perhaps different periods of time could be looked at, and a frequency of breakout events could be determined. Kehrberg noted that a lack of data could be a problem, as history is just a single scenario, and up to 10,000 scenarios would be produced from the GOES. However, Kehrberg noted that it is something that could be looked at and added to the analysis. After Kehrberg introduced the “sojourn” acceptance criteria where UST rates would need to stay within a corridor for a predefined period of time, Yanacheak questioned whether the currently proposed model would be able to meet this acceptance criteria and how it would fit with the state insurance regulator geometric average-based low-for-long acceptance criteria.

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Kehrberg replied that the sojourn acceptance criteria were not intended to replace the geometric average-based low-for-long acceptance criteria but instead were meant to be complementary and capture product-specific risks that may not be addressed by the geometric average-based low-for-long criteria.

7. Heard a Presentation on the GOES Field Test C-3 Phase I Results

O’Neal went over a presentation (Attachment Twenty-Seven) of the GOES Field Test C3 Phase I results. Slutsker asked if O’Neal incorporated the factor-based floor into his analysis. O’Neal responded that he did make some limited comparisons of the floor, but more work would be needed to understand the model-based results’ relationship to the floor. However, he stated that comparing the range of factors from the factor-based calculation to the average factor from the model-based calculation for each of the baseline and field test runs, it looked like many participants would likely hold the factor-based floor.

Slutsker observed that for the baseline field test run, approximately half of the participants did not hold a positive capital requirement using their cash flow models for C3 Phase I, and he asked O’Neal if he found that to be surprising. O’Neal stated that he did find it surprising, and although additional analysis could be performed, it seemed that there were limited situations where the model-based calculation would dominate over the factor-based calculation. Hemphill said although the comparison to the factor-based floor would be interesting, the fact that some of the model-based calculations were coming in so low needs to be looked into further. Reedy asked whether with more volatile scenario sets and the limited number of scenarios currently used in C3 Phase I, more period-to-period variation in results would be expected. Hemphill responded that the smaller subsets could have had a material effect on the results and muddied the potential impact of the different field test scenario sets. Richardson noted that during an analysis they also looked at the impact of the present value of ending surplus to understand the impact of different scenario sets, and the results could be masked when just looking at a present value of accumulated deficiencies.

8. Heard an Update from the Compact

Katie Campbell (Interstate Insurance Product Regulation Commission—Compact) delivered an update on the activities of the Compact. Serbinowski noted the work that the Compact is doing to develop filing standards for ILVA products and encouraged state insurance regulators to: 1) get involved in the activities of the Product Standards Committee; and 2) try and understand why a company would file a product with their state instead of the Compact. Serbinowski concluded his comments by stating that the Compact does a tremendous job at reviewing product filings.

9. Heard an Update from the Academy on Pre-Tax Versus Post-Tax IMR

Linda Lankowski (Academy) from the Academy’s Life Valuation Committee noted that she would be discussing considerations around using pre-tax versus post-tax IMR in reserve calculations and presenting with Sheldon Summers (Academy), Dave Neve (Academy), Bruce Friedland (Academy), and Maambo Mujala (Academy). Lankowski stated that the committee has recently published a paper called “Pre-Tax vs. Post-Tax Interest Maintenance Reserves in Stochastic Principle-Based Reserves.” She added that in 2021, a comment letter on the VM-22 draft noted that pre-tax IMR in the reserve calculation could mean that reserves posted to the balance sheet might not be sufficient. After discussion of the comment letter at the VM-22 (A) Subgroup, Lankowski said the Academy Life Valuation Committee was asked to investigate.

Friedland provided background on the IMR, noting that formulaic reserves were in place when the IMR was adopted. He stated that the aim of the IMR was to keep consistency between the assets and liabilities when assets are sold in dynamic interest rate environments. Without IMR, he stated that there is a potential inconsistency in which the asset side of the balance sheet would be unlocked, but the liability side would not. He stated that as a

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result, the IMR was introduced to set aside gains and losses arising from asset sales and prevent them from having an immediate impact. He noted, however, that principle-based reserves (PBR) are different from formulaic reserves in that they are effectively unlocked and reset on each valuation date.

Mujala outlined three options for the treatment of IMR in reserving: 1) allocating pre-tax IMR; 2) allocating post-tax IMR; and 3) no IMR used in the determination of reserves. She spoke in favor of allocating pre-tax IMR, noting that using pre-tax IMR in the determination of the reserves allows for a neutral balance sheet impact. Lankowski noted that some view allocating post-tax IMR as more appropriate on a theoretical basis and as more tax efficient. Finally, she noted that some support the removal of IMR from the determination of the reserve, as the deterministic and stochastic reserve calculations are based on future cash flows, which are not affected by IMR. However, she noted that the removal of IMR may be inappropriate for products that use formulaic reserves.

Neve summarized the discussion by noting that there is no recommendation from the Academy on any approach, as there is no perfect answer from an actuarial perspective. He additionally stated that IMR is not expected to be material; although, dropping the IMR completely from the PBR calculation may be material for some companies. However, he stated that this materiality issue probably needs more research and discussion for VM-21.

10. Heard an Update from the SOA on Research and Education

Cindy MacDonald (SOA) delivered a presentation (Attachment Twenty-Eight) on the SOA's research initiatives. Regarding the SOA's lapse study for fixed annuities, Tsang asked if the study included partial withdrawals in addition to full surrenders. MacDonald noted that the study only currently includes full surrenders, to which Tsang responded that he would also like to receive information on partial withdrawals from the study. She also asked state insurance regulators if they would be willing to help solicit participants for experience studies for areas where state insurance regulators want to see more data, and Hemphill and other state insurance regulators noted a willingness to do so.

Stuart Klugman (SOA) then provided a presentation (Attachment Twenty-Nine) on the SOA's planned changes to the SOA's Fellowship Pathway. Hemphill noted several concerns she had with the proposed changes to the Fellowship Pathway, including: 1) more actuaries than just the appointed actuary are involved in the work that supports the actuarial opinion and memorandum, and all of those actuaries need regulatory information; 2) the removal of the regulatory content could cause an actuary not to meet the U.S. Qualification Standards; and 3) a lack of regulatory knowledge could reduce compliance with statutory regulations. Andersen, Reedy, Yanacheak, and Cebula all noted support for Hemphill's comments. Hemphill noted that as a next step, a letter would be drafted noting the concerns with the proposed changes to the Fellowship Pathway for consideration by the Task Force.

11. Heard an Update from the Academy Council on Professionalism and Education

Ken Kent (Academy) introduced Laura Hanson (Actuarial Standards Board—ASB) and Shawna Ackerman (Actuarial Board for Counseling and Discipline—ABCD), who would be jointly delivering the Academy Council on Professionalism and Education's update. Hanson discussed Actuarial Standards of Practice (ASOPs) 24, 40, and 46–47, which are currently exposed to public comment. She additionally noted that ASOPs 7, 12, and 41 are expected to be exposed for comments in the next three to six months, and ASOP 10 and 57 have recently been adopted.

Ackerman said the ABCD received about 100 requests for guidance over the past year. About 20 of those requests, she noted, were in the life practice area.

12. Heard an Update from the Academy Life Practice Council

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Slutsker and Amanda Barry-Moilanen (Academy) delivered a presentation (Attachment Thirty) on the activities of the Academy Life Practice Council.

13. Exposed the GRET

MacDonald walked through a presentation on the 2023 Generally Recognized Expense Table (GRET) recommendation. Chou asked why the direct market and niche marketing expense trends were so different compared to the prior year. MacDonald noted that volatility in the companies participating in the GRET from year to year could cause opposing changes in the trend rather than any underlying expense relationship.

Slutsker made a motion, seconded by Yanacheak, to expose the GRET presentation and recommendation (Attachments Thirty-One and Thirty-Two, respectively) for a 30-day public comment period ending Sept. 12. The motion passed unanimously.

14. Discussed IMR Guidance, APF 2023-08, and the IMR Template

Hemphill led the discussion on IMR guidance (Attachment Thirty-Three), APF 2023-08 (Attachment Thirty-Four), and the IMR template (Attachment Thirty-Five). Bayerle spoke to the ACLI's comment letters (Attachments Thirty-Six and Thirty-Seven), noting concerns including that: 1) the timing of the request for the template could come before it would be able to be reviewed by an external auditor; and 2) some of the items addressed by APF 2023-08, the IMR guidance, and the IMR template would need to be updated depending on the action of the SAPWG. Hemphill responded that she expected that the delivery of the IMR template would be consistent with the April 1 date for PBR actuarial reports and the timing for the asset adequacy memoranda, and she also noted that the Task Force expected to update APF 2023-08, the IMR guidance, and the IMR template to be consistent with the action the Working Group takes on IMR.

Having no further business, the Life Actuarial (A) Task Force adjourned.

SharePoint/NAIC Support Staff Hub/Committees/Member Meetings/A CMTE/LATF/2023-2-Summer/Summer National Meeting/LATF Minutes Packet/LATF Summer National Meeting Minutes

Draft: 8/2/23

Life Actuarial (A) Task Force
Virtual Meeting
July 20, 2023

The Life Actuarial (A) Task Force met July 20, 2023. The following Task Force members participated: Cassie Brown, Chair, represented by Rachel Hemphill; Scott A. White, Vice Chair, represented by Craig Chupp (VA); Lori K. Wing-Heier represented by Sharon Comstock (AK); Ricardo Lara represented by Ahmad Kamil (CA); Andrew N. Mais represented by Wanchin Chou (CT); Doug Ommen represented by Mike Yanacheak (IA); Dana Popish Severinghaus represented by Vincent Tsang (IL); Amy L. Beard represented by Scott Shover (IN); Vicki Schmidt represented by Nicole Boyd (KS); Timothy N. Schott represented by Marti Hooper (ME); Grace Arnold represented by Fred Andersen and Ben Slutsker (MN); Chlora Lindley-Myers represented by William Leung (MO); Eric Dunning represented by Michael Muldoon (NE); D.J. Bettencourt represented by Jennifer Li (NH); Justin Zimmerman represented by Seong-min Eom (NJ); Adrienne A. Harris represented by Bill Carmello (NY); Judith L. French represented by Peter Weber (OH); Glen Mulready represented by Andrew Schallhorn (OK); and Michael Humphreys represented by Steve Boston (PA).

1. Adopted its Spring National Meeting Minutes

Hemphill noted that the Task Force would be considering whether to adopt its Spring National Meeting minutes. Chupp noted two error corrections to the table of contents in the Spring National Meeting minutes packet.

Yanacheak made a motion, seconded by Chupp, to adopt the Task Force's March 20–21 minutes with the error corrections mentioned by Chupp (*see NAIC Proceedings – Spring 2023, Life Actuarial (A) Task Force*). The motion passed unanimously.

2. Exposed the 2023 VM-20 HMI and FMI Recommendation

Marianne Purushotham (Society of Actuaries—SOA) walked through a presentation on the Mortality Improvements Life Working Group (MILWG) 2023 recommendation (Attachment One-A) for the VM-20, Requirements for Principle-Based Reserves for Life Products, historical mortality improvement (HMI) and future mortality improvement (FMI) rates. Chou asked why there was a big difference in the youngest attained ages between the smoothed and unsmoothed rates. Purushotham said that there was a lack of data at those ages and that she would provide additional information on the proportion of data at those ages. Chou then asked about the variation in the COVID-19 shock impact between the attained ages in the FMI rates. Purushotham noted that the data the SOA used to determine the impact showed a lot of variation by age. Chupp asked why the 2026 projection year FMI rate was not zero across all ages, given the earlier description of the methodology. Purushotham stated that she would follow up on that question.

Chupp made a motion, seconded by Chou, to expose the 2023 VM-20 HMI and FMI recommendation for a 30-day public comment period ending Aug 23, 2023. The motion passed unanimously.

Having no further business, the Life Actuarial (A) Task Force adjourned.

SharePoint/NAIC Support Staff Hub/Member Meetings/A CMTE/LATF/2023-2-Summer/LATF Calls/07 20/July 20 Minutes.docx

Mortality Improvements Life Working Group (MILWG): 2023 HMI and FMI Scale Update



Academy Mortality Improvements Life Work Group (MILWG)
SOA Mortality and Longevity Oversight Advisory Council (MLOAC)

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Life Actuarial Task Force (LATF)—7/20/23

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DB1

2023 Plan

Presented at 2023 NAIC Spring Meeting

- Revisit historical HMI methodology in light of recent and expected experience - completed DB0
- Revisit smoothing approach for HMI and FMI—completed
- Approach to COVID-19 impact for 2023—FMI (future mortality improvement) and HMI (historical mortality improvement)—completed
- Insured vs. general population HMI and FMI recommendations (begin work in 2023)
- Revisit FMI margin structure
- Review recommendation for MI with 2008 VBT Limited Underwriting (LU) table



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Slide 2

DB0 This should mirror the other bullets in that it's a en dash or em dash?
Devin Boerm, 2023-07-17T17:03:26.127

DB1 The copyright is outdated at the bottom of the slides, except the first one.
Devin Boerm, 2023-07-17T17:04:12.950

Agenda

- Provide an update on work completed:
 - Revisit historical HMI methodology in light of recent and expected
 - Revisit smoothing approach for HMI and FMI
 - Approach to COVID-19 impact for 2023—FMI (future mortality improvement) and HMI (historical mortality improvement)
- Present recommendation for 2023 HMI and FMI scales
- Provide an update on next steps for remaining 2023 work plan



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Revisit HMI Methodology



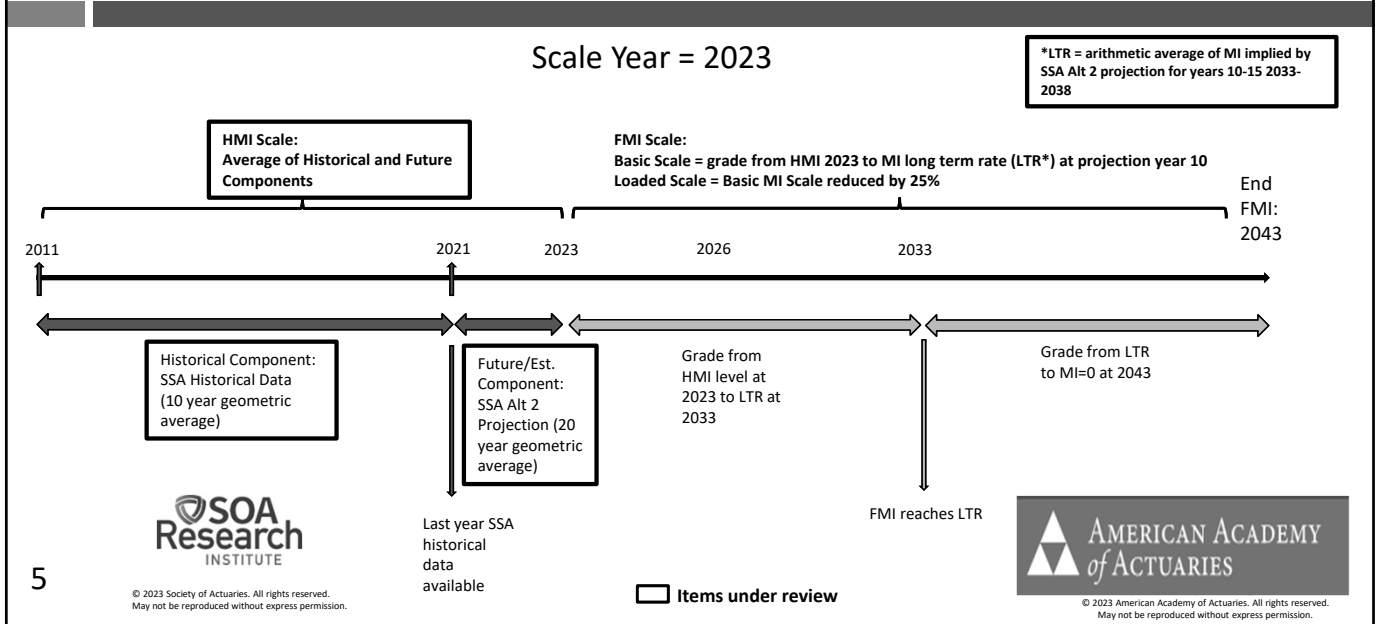
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4

HMI/FMI General Methodology



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HMI Methodology Review Items

1. **Historical averaging period (10 years)**
 - ▣ Mortality improvement between 2011-2021 (last year through which SSA historical data has been compiled and published)
2. **Future averaging period (20 years)**
 - ▣ From last year of historical data available
3. **Averaging method**
 - ▣ Calculation of historical and future averages
 - ▣ Weighting of historical and future



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HMI Methodology Review Items Recommendation: Historical Averaging Period (currently 10 years)

Recommendation: remain at 10 years

- Recent experience (2011-2021)
- Reduces year-to-year potential volatility of shorter periods but experience is relevant



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HMI Methodology Review Items Recommendation: Future Averaging Period (currently 20 years)

Recommendation: remain at 20 years

- Smooths out potential SSA Alt 2 early projection year bumps



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DJNO Hyphenated

David J. Nolan, 2023-07-17T15:58:24.419

HMI Methodology Review Items Recommendation: Averaging Method

Averaging method: currently use geometric average over historical and future periods

Recommendation: continue to use geometric approach for 2023

Consider moving to arithmetic average rather than geometric for both historical and future components (will re-examine for 2024 scale work)

- ❑ Relies less on only the beginning and ending year experience
- ❑ Not much difference between arithmetic and geometric average results for years since we implemented the annual life MI scale updates
- ❑ Consistent with the FMI LTR determination



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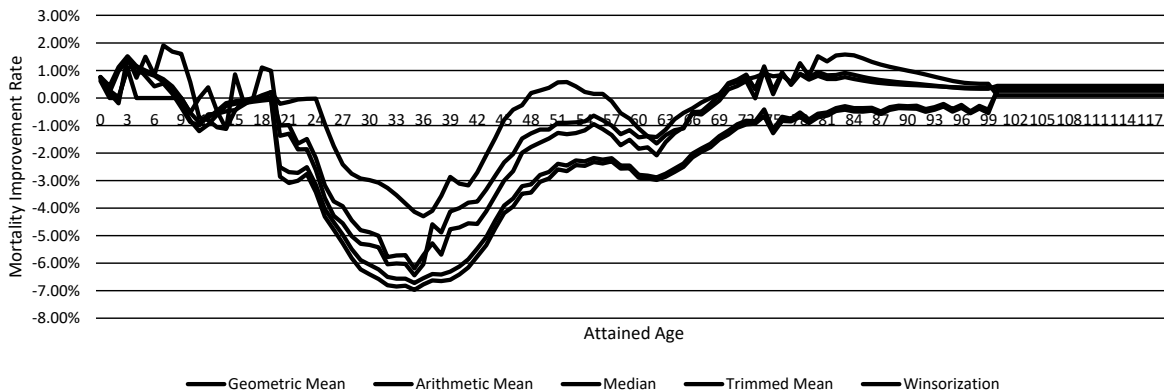
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Calculation of Historical Averages

Male Historical Component—10 year average, Full COVID Impact



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HMI Methodology Review Items Recommendation: Weighting of Historical and Future Components of HMI

Recommendation:

Keep 50/50 weighting on averaging

- No data-focused basis for changing at this point



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Revisit Smoothing Process



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Review Smoothing Approach

	Current Method	Recommendation
1. Ages 0-15 (juvenile)	Use adult average (18-84) x 1.5	Use 0-20 average
2. Ages 16-20	Linear interpolation from juvenile rate to adult rate at age 21	Use 0-20 average
3. Ages 21-84	Use Adult Average 18-84	Break into more detailed age groups: 0-20 25-40 45-60 65-85 Linear interpolation between groups.
4. Ages 85-94	Linear interpolation from adult rate to .0025 per year ultimate level at age 95	Linear interpolation from 65-85 average to .001 per year ultimate level at age 95 (use .001 due to COVID considerations)
5. Ages 95 and later	Use constant .0025 (used .001 for 2022 due to COVID impact considerations)	Use constant .001 due to COVID considerations

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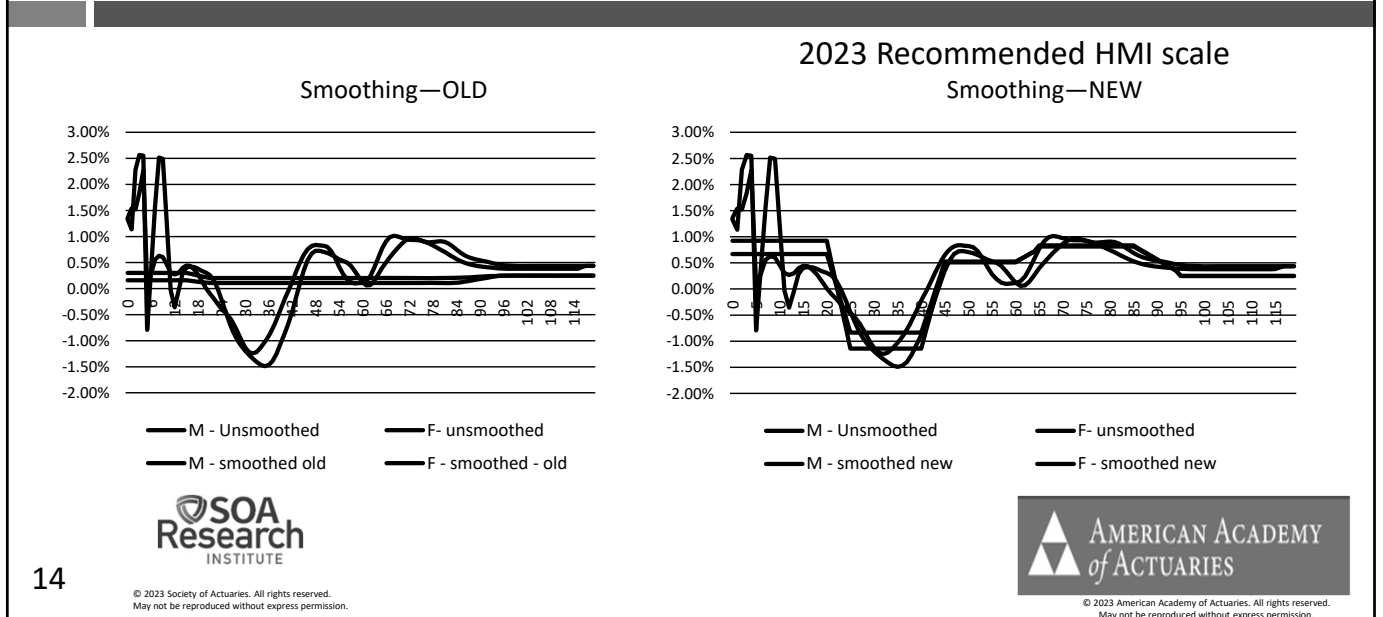
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Comparison of Smoothing Approaches



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COVID-19 Impact—2023 Approach



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COVID-19 Impact

COVID-19 DJN0 impact considerations

- Ensuring COVID-19 impact is considered
- Some companies with high credibility will use their best estimate mortality (including implied historical improvement) for long periods before grading to industry
 - Creates potential disconnect between HMI and the recommended industry FMI scale

Recommendation: COVID impact will be included in the first few years of the FMI scale for 2023 (similar to approach for 2022 scale work)



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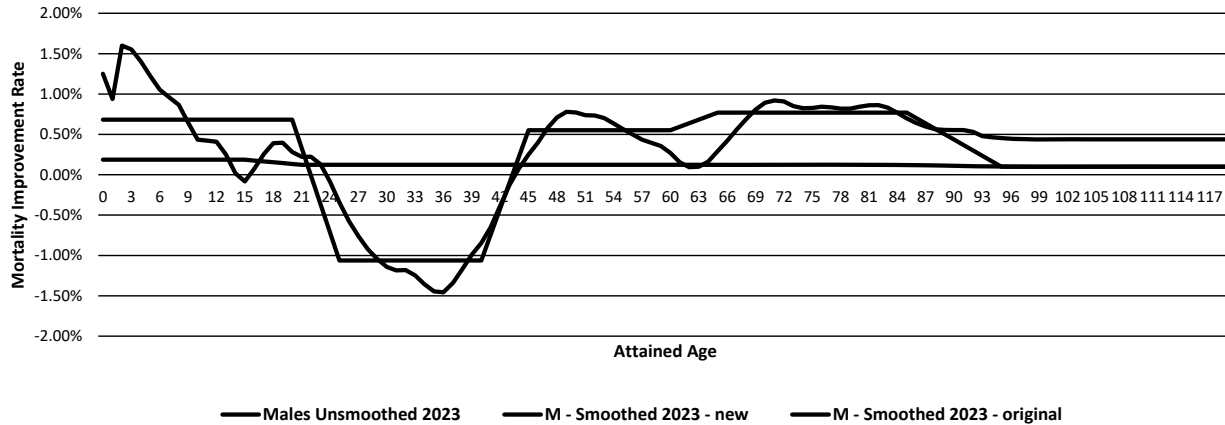
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DJNO Added -19
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HMI 2023 Recommendation Male, Mortality Improvement Rates



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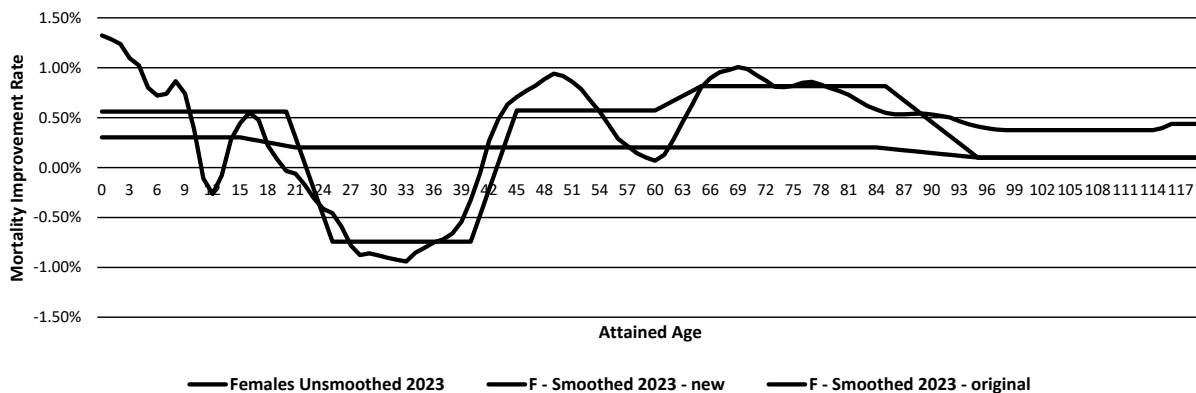


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HMI 2023 Recommendation Female, Mortality Improvement Rates



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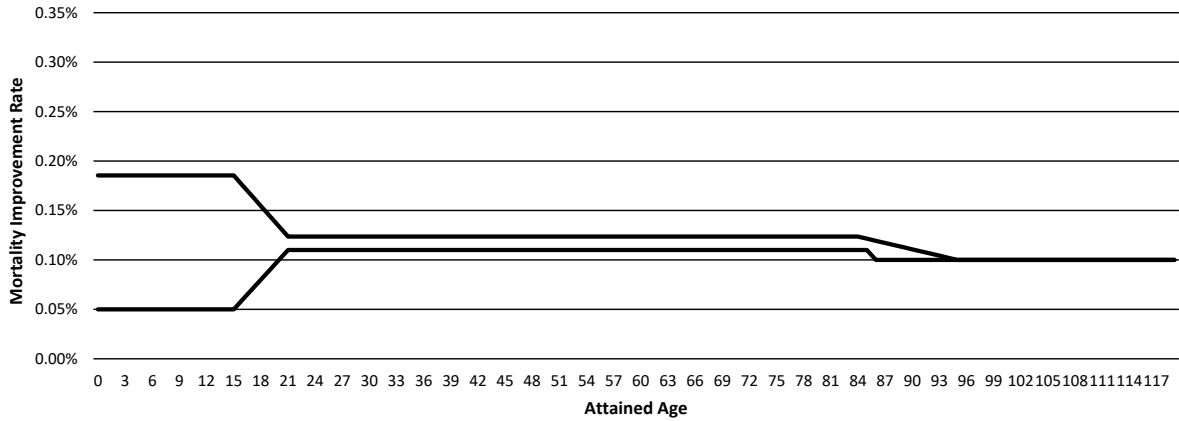


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2023 vs 2022: Male—Old Smoothing Historical Mortality Improvement Rates



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— M - Smoothed 2023 - original — Males 2022 Smoothed

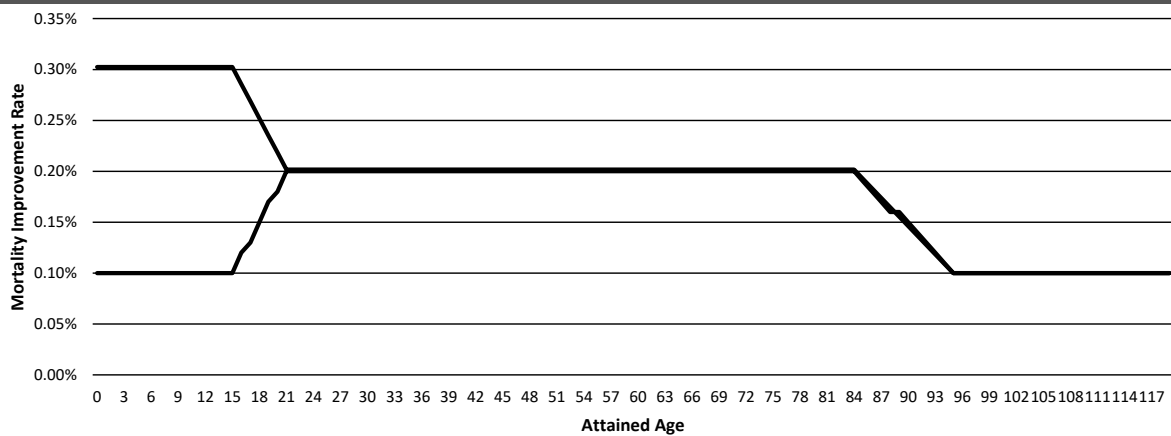


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2023 vs 2022: Female—Old Smoothing Historical Mortality Improvement Rates



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— F - Smoothed 2023 - original — Female 2022 smoothed

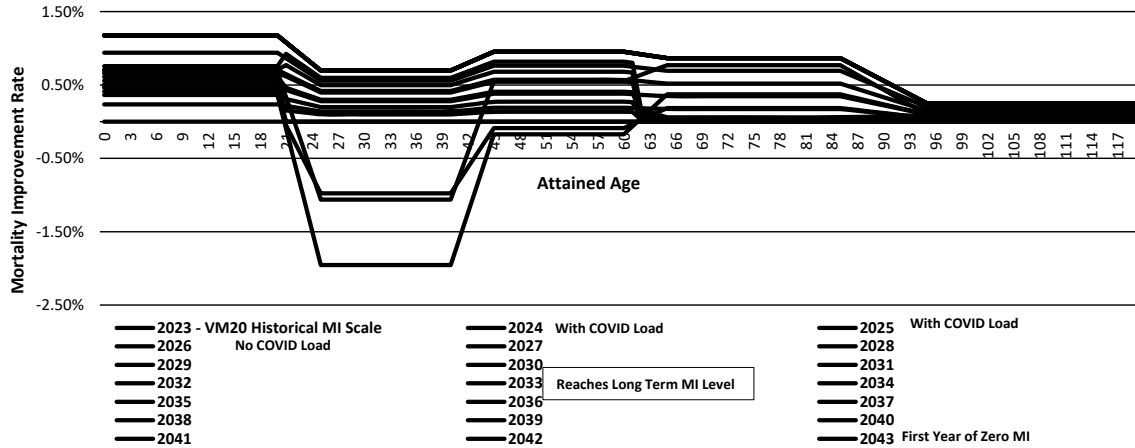


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FMI 2023 Recommendation—Basic Scale Male, Future Mortality Improvement Rates



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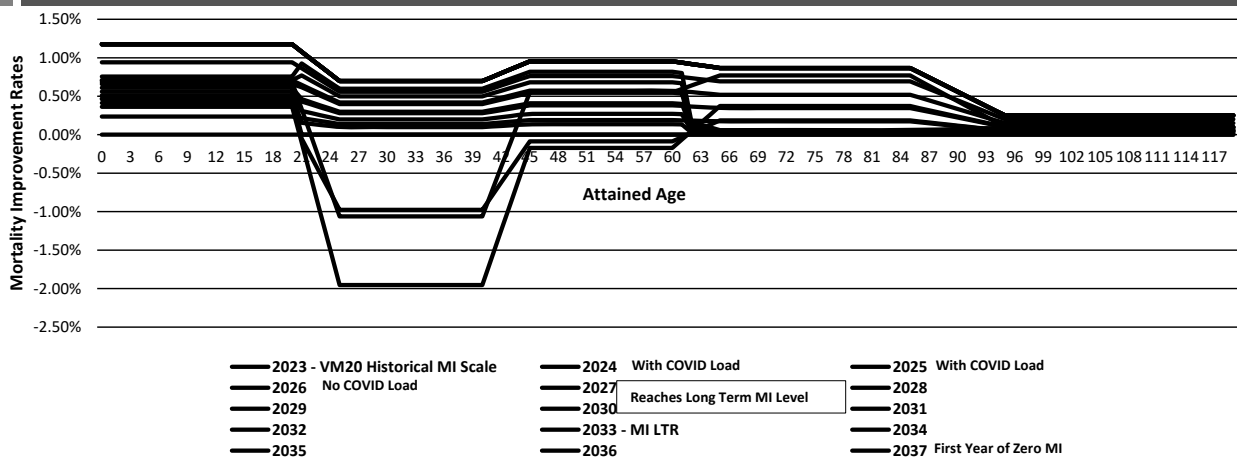


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FMI 2023 Recommendation—Basic Scale Female, Future Mortality Improvement Rates



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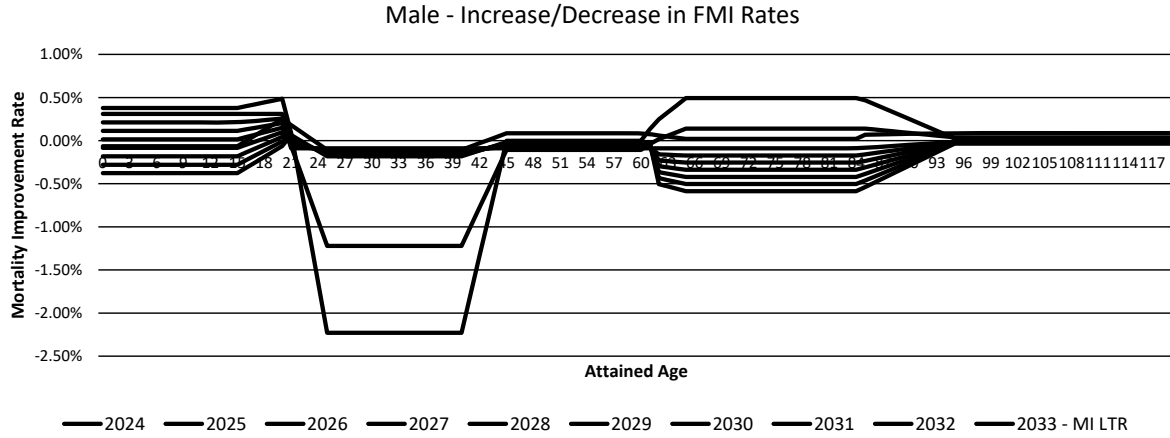


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2023 vs 2022—Male Future Mortality Improvement Rates



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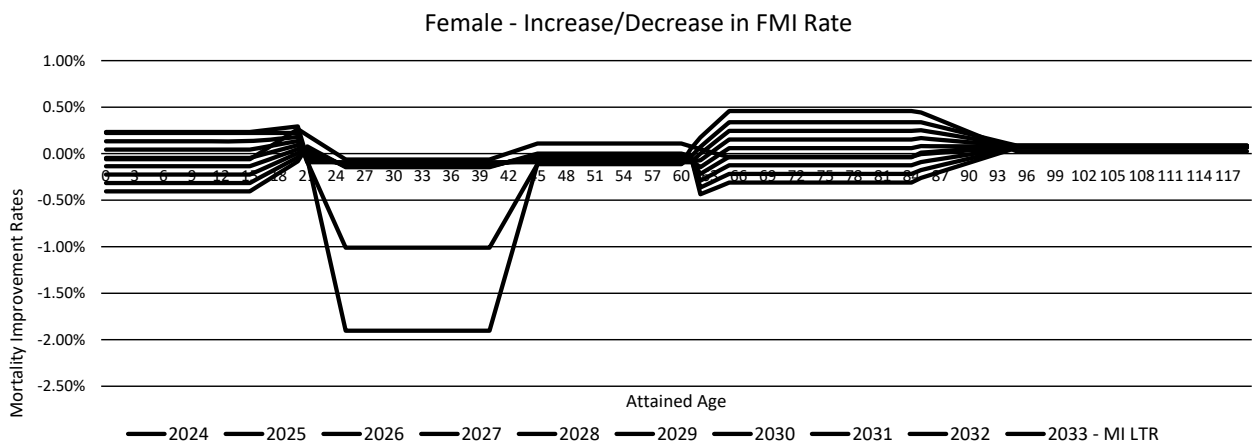


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2023 vs 2022—Female Future Mortality Improvement Rates



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Update on Next Steps for 2023

- Insured vs. general population HMI and FMI recommendations (work continues)
- Revisit FMI margin structure
- Review recommendation for MI with 2008 VBT Limited Underwriting (LU) table
 - Keep the HMI and FMI scales at 0 MI for all ages
 - Look at additional data sources to support this



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Questions?



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Contact Information

Marianne Purushotham, FSA, MAAA
Corporate Vice President, Research Data Services
LLGlobal
mpurushotham@limra.com

Amanda Barry-Moilanen
Life Policy Analyst
American Academy of Actuaries
barrymoilanen@actuary.org



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Life MI Subgroup Members

Marianne Purushotham, FSA, MAAA (Chair)
Cynthia Edwalds, FSA, MAAA
Sam Gutterman, FSA, MAAA
Tim Hoxha, FSA, MAAA
Mary Simmons, FSA, MAAA
Jean-Marc Fix, FSA, MAAA
Larry Stern, FSA, MAAA
Mark Rosa, FSA, MAAA
Cynthia MacDonald, FSA, MAAA

Members available to provide supplementary information and explanation as needed.



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Appendix



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HMI/FMI General Methodology

HMI Scale Year	Historical Component: <i>Historical Data (10 yrs)</i> <i>SSA Data = General Population Mean</i>	Estimated/Future Component: <i>SSA (Social Security Administration)</i> <i>Alt2 Projection (20 yr average)</i>
2023	Averaging Period: 2011-2021	Averaging Period: 2023-2043
FMI Scale Year	Process	Long-Term Rate (LTR)
2023	Basic Scale: <ul style="list-style-type: none"> Grades to LTR at projection yr 10 (2033) Remains at LTR for projection yrs 10-15 Grades to no additional MI at projection yr 20 (2043) Margin for uncertainty included to develop “Loaded Scale” – 25% flat reduction in MI 	Average of SSA Alt 2 MI for projection years 10-15



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Draft: 7/17/23

Life Actuarial (A) Task Force
Virtual Meeting
June 15, 2023

The Life Actuarial (A) Task Force met June 15, 2023. The following Task Force members participated: Cassie Brown, Chair, represented by Rachel Hemphill (TX); Scott A. White, Vice Chair, represented by Craig Chupp (VA); Lori K. Wing-Heier represented by Sharon Comstock (AK); Ricardo Lara represented by Ahmad Kamil (CA); Andrew N. Mais represented by Wanchin Chou (CT); Dana Popish Severinghaus represented by Vincent Tsang (IL); Amy L. Beard represented by Scott Shover (IN); Vicki Schmidt represented by Nicole Boyd (KS); Timothy N. Schott represented by Marti Hooper (ME); Grace Arnold represented by Fred Andersen and Ben Slutsker (MN); Chlora Lindley-Myers represented by William Leung (MO); Eric Dunning represented by Michael Muldoon (NE); Adrienne A. Harris represented by Bill Carmello (NY); Judith L. French represented by Peter Weber (OH); Michael Humphreys represented by Steve Boston (PA); and Jon Pike represented by Tomasz Serbinowski (UT).

1. Adopted its Amended Charges

Hemphill walked through the Task Force's amended charges, noting that the changes reflect the removal of the Index-Linked Variable Annuity (A) Subgroup and the addition of the Generator of Economic Scenarios (GOES) (E/A) Subgroup.

Leung made a motion, seconded by Slutsker, to adopt the amended charges (Attachment Two-A), noting that the charges of the ILVA (A) Subgroup had been met and that the GOES (E/A) Subgroup would have Mike Yanacheak (IA) as Chair and Weber as Vice-Chair. The motion passed unanimously.

2. Considered its Response to the Statutory Accounting Principles (E) Working Group Referral on Negative IMR

Hemphill walked through a written response (Attachment Two-B) to the Statutory Accounting Principles (E) Working Group referral on negative interest maintenance reserve (IMR). Carmello suggested that the impetus for the request from the Working Group to build an IMR reporting template was that the template could then be used to justify admitting negative IMR. Hemphill responded that the Task Force's response would indicate that asset adequacy testing (AAT), given the lack of prescription, was not an effective guardrail to justify admitting negative IMR. Carmello further inquired if part of the functionality of the template would track whether the proceeds from the sales of bonds that drove negative IMR balances were used to reinvest in new bonds. Hemphill noted that the next agenda item would be to discuss the potential exposure of the IMR template and that the purpose of the template was to contain additional disclosures that would allow a reviewing actuary to understand how negative IMR is being handled, regardless of whether the Working Group decides to allow negative IMR to be admitted.

Hearing no objection from Task Force members, Hemphill said that the written response would be referred to the Working Group.

3. Exposed the IMR Template

Hemphill discussed the IMR template (Attachment Two-C) that would be a component of the Task Force's work product related to the negative IMR referral from the Working Group. Leung asked if the template would apply to both companies that have negative total IMR balances and those that have positive overall IMR balances. Hemphill noted that: 1) the focus would be on companies that have total company negative IMR balances but could also be useful for companies with positive total company IMR balances; and 2) initially, the template would be optional

and filled out at the request of regulators. Leung then noted some editorial and error corrections to the template, which Hemphill agreed to change. Brian Bayerle (American Council of Life Insurers—ACLI) requested that the length of the exposure period be the maximum number of days that would still allow for discussion at the Summer National Meeting.

Chupp made a motion, seconded by Leung, to expose the IMR template with the editorial and error corrections that were discussed for a 44-day public comment period ending July 28. The motion passed unanimously.

Having no further business, the Task Force adjourned.

SharePoint/NAIC Support Staff Hub/Member Meetings/A CMTE/LATF/2023-2-Summer/LATF Calls/06 15/June 15 Minutes.docx

2023 Proposed Charges

LIFE ACTUARIAL (A) TASK FORCE

The mission of the Life Actuarial (A) Task Force is to identify, investigate, and develop solutions to actuarial problems in the life insurance industry.

Ongoing Support of NAIC Programs, Products, or Services

1. The **Life Actuarial (A) Task Force** will:
 - A. Work to keep reserve, reporting, and other actuarial-related requirements current. This includes principle-based reserving (PBR) and other requirements in the *Valuation Manual*, actuarial guidelines, and recommendations for appropriate actuarial reporting in blanks. Respond to charges from the Life Insurance and Annuities (A) Committee and referrals from other groups or committees, as appropriate.
 - B. Report progress on all work to the Life Insurance and Annuities (A) Committee and provide updates to the Financial Condition (E) Committee on matters related to life insurance company solvency. This work includes the following:
 - i. Work with the American Academy of Actuaries (Academy) and the Society of Actuaries (SOA) to develop new mortality tables for valuation and minimum nonforfeiture requirements, as appropriate, for life insurance and annuities.
 - ii. Provide recommendations for guidance and requirements for accelerated underwriting (AU) and other emerging underwriting practices, as needed.
 - iii. Evaluate and provide recommendations regarding the VM-21, Requirements for Principle-Based Reserves for Variable Annuities/*Actuarial Guideline XLIII—CARVM for Variable Annuities* (AG 43) standard projection amount (SPA), which may include continuing as a required floor or providing as disclosure. This evaluation is to be completed prior to year-end 2023.
 - iv. Work with the SOA on the annual development of the Generally Recognized Expense Table (GRET) factors.
 - v. Provide recommendations and changes, as appropriate, to other reserve and nonforfeiture requirements to address issues, and provide actuarial assistance and commentary to other NAIC committees relative to their work on actuarial matters.
 - vi. Work with the selected vendor to develop and implement the new economic scenario generator (ESG) for use in regulatory reserve and capital calculations.
 - vii. Monitor international developments regarding life and health insurance reserving, capital, and related topics. Compare and benchmark these with PBR requirements.
2. The **Experience Reporting (A) Subgroup** will:
 - A. Continue the development of the experience reporting requirements within the *Valuation Manual*. Provide input, as appropriate, for the process regarding the experience reporting agent, data collection, and subsequent analysis and use of experience submitted.

LIFE ACTUARIAL (A) TASK FORCE (*continued*)

3. The **Generator of Economic Scenarios (GOES) (E/A) Subgroup** of the Life Risk-Based Capital (E) Working Group and the Life Actuarial (A) Task Force will:
- A. Monitor that the economic scenario governance framework is being appropriately followed by all relevant stakeholders involved in scenario delivery.
 - B. Review material economic scenario generator updates, either driven by periodic model maintenance or changes to the economic environment and provide recommendations.
 - C. Regularly review key economic conditions and metrics to evaluate the need for off-cycle or significant economic scenario generator updates and maintain a public timeline for economic scenario generator updates.
 - D. Support the implementation of an economic scenario generator for use in statutory reserve and capital calculations.
 - E. Develop and maintain acceptance criteria that reflect history as well as plausibly more extreme scenarios.
- 3.4. The **Indexed Universal Life (IUL) Illustration (A) Subgroup** will:
- A. Consider changes to *Actuarial Guideline XLIX-A—The Application of the Life Illustrations Model Regulation to Policies with Index-Based Interest to Policies Sold On or After December 14, 2020 (AG 49-A)*, as needed. Provide recommendations for the consideration of changes to the *Life Insurance Illustrations Model Regulation (#582)* to the Task Force, as needed.
- ~~4. The **Index-Linked Variable Annuity (A) Subgroup** will:~~
- ~~A. Provide recommendations and changes, as appropriate, to nonforfeiture, or interim, value requirements related to index-linked variable annuities (ILVAs).~~
5. The **Longevity Risk (E/A) Subgroup** of the Life Actuarial (A) Task Force and the Life Risk-Based Capital (E) Working Group will:
- A. Provide recommendations for recognizing longevity risk in statutory reserves and/or risk-based capital (RBC), as appropriate.
6. The **Variable Annuities Capital and Reserve (E/A) Subgroup** of the Life Risk-Based Capital (E) Working Group and the Life Actuarial (A) Task Force will:
- A. Monitor the impact of the changes to the variable annuities (VA) reserve framework and RBC calculation and determine if additional revisions need to be made.
 - B. Develop and recommend appropriate changes, including those to improve accuracy and clarity of VA capital and reserve requirements.
7. The **Valuation Manual (VM)-22 (A) Subgroup** will:
- A. Recommend requirements, as appropriate, for non-variable (fixed) annuities in the accumulation and payout phases for consideration by the Task Force. Continue working with the Academy on a PBR methodology for non-variable annuities.

NAIC Support Staff: Scott O'Neal/Jennifer Frasier

SharePoint/NAIC Support Staff Hub/Committee Charges/2023/01_Draft Charges

MEMORANDUM

TO: Dale Bruggeman, Chair of the Statutory Accounting Principles (E) Working Group
Kevin Clark, Vice-Chair of the Statutory Accounting Principles (E) Working Group

FROM: Rachel Hemphill, Chair, Life Actuarial (A) Task Force
Craig Chupp, Vice-Chair, Life Actuarial (A) Task Force

RE: Life Actuarial (A) Task Force Response on Negative IMR

DATE: June 15, 2023

Background

On March 27, 2023 a memorandum from the Statutory Accounting Principles (E) Working Group (SAPWG) was received by the Life Actuarial (A) Task Force (LATF) with a referral for consideration of the Asset Adequacy Testing (AAT) implications of negative IMR. Specifically, the Working Group recommended a referral to the Task Force to consider the following:

1. Development of a template summarizing how IMR (positive and negative) is reflected within AAT.
2. Consideration of the actual amount of negative IMR that is to be used in AAT, noting that as negative IMR is included, there is a greater potential for an AAT liability.
3. Better consideration and documentation of cash flows within AAT, as well as any liquidity stress test considerations.
4. Ensuring that excessive withdrawal considerations are consistent with actual data. (Insurers selling bonds because of excess withdrawals should not use the IMR process.)
5. Ensuring that any guardrails for assumptions in AAT are reasonable and consistent with other financial statement / reserving assumptions.

Recommendation

On its April 27th call, LATF discussed the referral from SAPWG. LATF agreed on the following actions:

Develop IMR Template

LATF is drafting a template with additional disclosures on the reflection of IMR in Principle-Based Reserving (PBR) and AAT. We have requested input from the American Academy of Actuaries and the American Council of Life Insurers on a

Washington, DC 444 North Capitol Street NW, Suite 700, Washington, DC 20001-1509 p | 202 471 3990 f | 816 460 7493

Kansas City 1100 Walnut Street NW, Suite 1500, Kansas City, MO 64106-2197 p | 816 842 3600 f | 816 783 8175

New York One New York Plaza, Suite 4210, New York, NY 20004 p | 212 398 9000 f | 212 382 4207

potential template. The template's disclosures would aim to support verification of the requirements SAPWG is considering for potential admittance of negative IMR, including confirming:

1. That IMR is appropriately allocated for PBR and AAT,
2. That any negative IMR amounts reflected in starting assets do not generate income and so increase reserves in PBR and/or decrease reserve sufficiency in AAT,
3. That admitted negative IMR does not reflect bonds sold due to historical or anticipated future excess withdrawals, and
4. That admitted negative IMR only reflects bonds sold and replaced with similar bonds.

For items three and four above, we note that while LATF can request verification and justification from companies, this may be difficult for companies to demonstrate. For item three, we can require additional disclosures including actual to expected experience for withdrawals. For item four, it is not yet clear what verification companies could provide.

This template would be optional but recommended starting with 2023 reporting and could be required starting in 2025. Individual regulators could request this information during reviews if warranted before 2025.

Issue Guidance on Consistency

LATF is drafting guidance for year-end 2023 and 2024, consistent with the guidance LATF issued for year-end 2022 but updated for SAPWG's potential admittance of some portion of aggregate negative IMR. That is, LATF continues to affirm that a principle-based, reasonable, and appropriate allocation of IMR for PBR and AAT would be consistent with handling of the IMR asset for statutory reporting. LATF will also consider an Amendment Proposal Form to make changes directly in the Valuation Manual to clarify the treatment of negative IMR starting with the 2025 Valuation Manual. This work continues to address the concern raised that there would be a "double hit" if negative IMR were not admitted while being required to be reflected in PBR and/or AAT.

Recommendation to SAPWG Regarding AAT

LATF recommends to SAPWG that any decision to admit or not admit aggregate negative IMR should not rely on AAT at this time. We wish to clarify that AAT is not formulaic, is heavily judgment-based, and generally does not contain prescriptive guardrails on that judgment, such as the reinvestment guardrail and other guardrails that apply in PBR. In response to specific concerns around a lack of consistency in AAT asset assumptions, Actuarial Guideline (AG) 53 was developed to provide regulators with additional disclosures, but again does not contain guardrails. AG 53 review work is currently under way. Moreover, this is not the only area where concerns could arise regarding the reliability of specific AAT results. We do not believe it would be appropriate to admit negative IMR if doing so was depending on AAT as the sole or primary safeguard for any related solvency concerns.

Optional AOM and PBR Actuarial Report Template IMR
Supplemental IMR Reporting
 (All dollar amounts in thousands.)

Company Name:
 NAIC Company Code:
 Valuation Year:

IMR and Relevant Annual Statement Reporting

1	2	3	4	5	6
General Account IMR	Separate Account IMR	RBC	General Account Capital and Surplus	Admitted negative (disallowed) IMR	Comments

RBC Flag: Ok
 Capital and Surplus Flag: Ok

IMR and Relevant 9/30 Statement Reporting (to be completed if 9/30 data is used for AAT)

1	2	3	4	5	6
General Account IMR	Separate Account IMR	RBC	General Account Capital and Surplus	Admitted negative (disallowed) IMR	Comments

RBC Flag: Ok
 Capital and Surplus Flag: Ok

Reflection of IMR in Asset Adequacy Testing and Principle-Based Reserving

1	2	3	4	5	6	7	8
Reporting Basis	As of Quarter	Amount of IMR Allocated	Amount of negative (disallowed) IMR Allocated	IMR Allocation Basis	Included in Starting Assets? (Y/N)	Allocated IMR generates future income? (Y/N)	Comments
VM-30 (AAT)							
VM-21							
VM-20: Term Reserving Category							
VM-20: ULISG Reserving Category							
VM-20: All Other Reserving Category							

Automatic Verification

AAT IMR Flag: Ok

Admitted negative (disallowed) IMR should not reflect asset sales due to excess withdrawals, either historical excess withdrawals or anticipated future excess withdrawals (where the company anticipates future withdrawals that are "excess" as defined by IMR instructions - above 150% of the prior two years). First, discuss and support with Actual to Expected analysis the level of historical excess withdrawals and anticipated future excess withdrawals. This discussion may be supplemented by other analysis and A/E's, such as for lapse data. Second, please confirm and support that any admitted net negative IMR is not due to asset sales related to excess withdrawals. Note that if the company cannot provide strong support, then the Admitted Negative (disallowed) IMR shall be 0.

(Enter summary here, and attach additional documentation as necessary.)

Admitted negative (disallowed) IMR is limited to IMR generated from losses incurred from the sale of bonds, or other qualifying fixed income investments, that were reported at amortized cost prior to the sale, and for which the proceeds of the sale were immediately used to acquire bonds, or other qualifying fixed income investments, that will be reported at amortized cost. Please confirm and support that any admitted net negative IMR is generated by losses that satisfy that requirement. Note that if the company cannot provide strong support, then the Admitted Negative (disallowed) IMR shall be 0.

(Enter summary here, and attach additional documentation as necessary.)

Draft: 6/28/23

Life Actuarial (A) Task Force
Virtual Meeting
June 1, 2023

The Life Actuarial (A) Task Force met June 1, 2023. The following Task Force members participated: Cassie Brown, Chair, represented by Rachel Hemphill; Scott A. White, Vice Chair, represented by Craig Chupp (VA); Lori K. Wing-Heier represented by Sharon Comstock (AK); Mark Fowler represented by Sanjeev Chaudhuri (AL); Ricardo Lara represented by Ahmad Kamil and Thomas Reedy (CA); Andrew N. Mais represented by Wanchin Chou (CT); Doug Ommen represented by Mike Yanacheak (IA); Dana Popish Severinghaus represented by Vincent Tsang (IL); Amy L. Beard represented by Scott Shover (IN); Vicki Schmidt represented by Nicole Boyd (KS); Grace Arnold represented by Fred Andersen and Ben Slutsker (MN); Chlora Lindley-Myers represented by William Leung (MO); Eric Dunning represented by Michael Muldoon (NE); Marlene Caride represented by Seong-min Eom (NJ); Adrienne A. Harris represented by Bill Carmello (NY); Judith L. French represented by Peter Weber (OH); Glen Mulready represented by Andrew Schallhorn (OK); Michael Humphreys represented by Steve Boston (PA); and Jon Pike represented by Tomasz Serbinowski (UT); Allan L. McVey represented by Tim Sigman (WV).

1. Adopted APF 2023-05

Chupp walked through a series of editorial changes that had been made to amendment proposal form (APF) 2023-05 in response to his comment letter (Attachment Three-A). Hemphill noted that the Task Force still needed to decide on the final minimum index credit hedging error. Brian Bayerle (American Council of Life Insurers – ACLI) noted a preference for a 1% minimum hedging error, further stating that a higher minimum error could penalize companies with a very tight hedging strategy. Weber stated that from his experience reviewing Ohio domiciled companies, he has seen hedging errors very close to zero, making the 1% minimum hedging error a reasonable guardrail. Reedy noted a preference for a 2% minimum guardrail and noted it could be revisited at a later date if warranted. Given the disagreement, Hemphill asked Jennifer Frasier (NAIC) to conduct a straw poll. Frasier conducted the poll, then noted that there was a fairly even mix between members supporting a one percent guardrail and members supporting a two percent guardrail.

Weber made a motion, seconded by Tsang, to adopt APF 2023-05 (Attachment Three-B) with a minimum index credit hedging error of 1.5%. The motion passed unanimously.

2. Adopted 2023-07

Bayerle spoke the ACLI’s comment letter (Attachment Three-C) regarding APF 2023-07, noting that the ACLI requests that regulators work closely with any companies that would be impacted by the removal of the Company-Specific Market Path (CSMP) method from VM-21, Requirements for Principle-Based Reserves for Variable Annuities. Hemphill noted that the CSMP method was very infrequently used and that outreach to the affected companies had already begun.

Slutsker made a motion, seconded by Reedy, to adopt APF 2023-07 (Attachment Three-D). During discussion of the motion, Reedy asked to make an editorial adjustment to make the effective date “on or after” January 1st rather than simply “after”. Slutsker agreed to modify the motion for the editorial adjustment suggested by Reedy. The motion passed unanimously.

3. Exposed IMR Guidance and APF 2023-08

Hemphill said given that the Statutory Accounting Principles (E) Working Group is considering admitting some portion of negative interest maintenance reserves (IMRs), the Task Force would consider issuing additional temporary guidance effective starting year-end 2023 to ensure that the NAIC's reserve and capital standards are consistent with the IMR accounting treatment. Hemphill also noted that APF 2023-08 had been developed to clarify the IMR treatment consistent with the guidance but could only be effective for the 2025 Valuation Manual at the earliest. Bayerle requested a 45-day exposure period for the IMR guidance and APF 2023-08.

Leung made a motion, seconded by Chou, to expose the IMR Guidance (Attachment Three-E) and APF 2023-08 (Attachment Three-F) for 45-day public comment period. The motion passed unanimously.

4. Heard Update on VM-20 HMI and FMI Rate Development

Marianne Purushotham (Society of Actuaries – SOA) noted that she intended to present a recommended set of historical and future mortality improvement (HMI and FMI) rates for use in VM-20, Requirements for Principle-Based Reserves for Life Products at the June 29th meeting of the Task Force. Purushotham noted that given the continued impacts of the COVID-19 virus and the VM-20 requirements related to HMI and FMI, the group would recommend continuing with the approach that was used last year where the mortality deterioration resulting from COVID-19 would be included in the FMI rates in the initial projection years. Hemphill noted that the Task Force would consider amendments to the Valuation Manual in the future to allow for potential methodology improvements, but that the approach Purushotham laid out made sense. As no Task Force members objected to the approach, Purushotham said that her group would move forward with developing the recommendation.

5. Heard Update on IMR Template Development

Hemphill noted that a template to gather additional information on how companies report IMR was being developed to help address concerns with total company negative IMR balances. Hemphill further stated that the template had been shared with the American Academy of Actuaries (Academy) to receive feedback and would be exposed on an upcoming call.

Having no other business, the Task Force adjourned.

SharePoint/NAIC Support Staff Hub/Member Meetings/A CMTE/LATF/2023-2-Summer/LATF Calls/06 01/June 01 Minutes.docx

Date: May 15, 2023

Virginia is submitting comments regarding the following exposure:

APF 2023-05 (Index Credit Hedging)

Comments:

1. The language should be consistent with the new definition of “index crediting strategies”. The phrase “indexed interest strategies” is used in two places (VM-21 Section 4.A.4.b.i and VM-31 Section 3.F.8.d.x) and should be replaced with “index crediting strategies”.
2. The capitalization should be consistent with VM-01, in that defined terms are not capitalized unless they are proper nouns. Therefore, the three defined terms should not be capitalized in VM-01 or anywhere else in the document.

Thank you for your consideration of these comments.

Craig Chupp, FSA, MAAA
Life and Health Insurance Actuary
Virginia Bureau of Insurance
craig.chupp@scc.virginia.gov
Phone: (804) 382-3196

Dates: Received	Reviewed by Staff	Distributed	Considered
3/7/23, 5/5/23, 5/10/23, 5/15/23, 6/1/23	SO		
Notes: APF 2023-05			

**Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force
 Amendment Proposal Form***

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Identification:

Brian Bayerle, ACLI

Title of the Issue:

Revise hedge modeling language to address index credit hedging.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

VM-01, VM-21 Section 4.A.4, VM-21 Section 6.B.3, VM-21 Section 9, VM-21 Section 9.C.2, VM-21 Section 9.E.7, VM-31 Section 3.F.8.d

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January 1, 2023 NAIC Valuation Manual, APF 2020-12

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identifying the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

Index credit hedging is fundamentally different than the dynamic GMxB hedging which formed the conceptual underpinnings for VM-21. For example, the relatively fixed parameters of traditional GMxBs drive the hedging approach. In contrast, indexed products (including RILAs) have flexible crediting parameters which are continually reset based on hedge availability and costs, as well as current market conditions. In short, GMxB contract features drive hedging, while index product hedging drives contract features.

Since the reforms of VM-21 and C3P2, ILVA products have experienced major market growth. Several carriers, with the agreement of regulators and auditors, have interpreted the current VM-21 guidance as permitting the effects of index credit hedging to be reflected in product cash flows instead of within the “best efforts” and “adjusted” scenarios. Both regulators and industry would benefit from the codification of this approach within VM-21.

ACLI’s proposal borrows heavily from the Academy’s draft VM-22. The “error” for index credit hedging is describes as a percentage reduction to hedge payoffs. The percentage reduction must be supported by relevant, credible, and documented experience. A minimum of [1%/2%] is proposed as a regulatory guardrail.

The ACLI proposal would subject index credit hedging to the “clearly defined” documentation requirements of VM-21. Substantively, the change would (a) include index credit hedge purchases with the VM-21 “adjusted” run, and (b) permit index credit hedging to reflect a different, and potentially lower, level of ineffectiveness.

Dates: Received	Reviewed by Staff	Distributed	Considered
3/7/23, 5/5/23, 5/10/23, 5/15/23, 6/1/23	SO		
Notes: APF 2023-05			

ACLI supports aligning the index credit hedging guidance between VM-21 and VM-22. We started with draft VM-22 verbiage in creating this APF. In a few areas, our members have suggested technical improvements to the draft VM-22 definitions. It may be appropriate to carry these over to VM-22.

* This form is not intended for minor corrections, such as formatting, grammar, cross-references or spelling. Those types of changes do not require action by the entire group and may be submitted via letter or email to the NAIC staff support person for the NAIC group where the document originated.

NAIC Staff Comments:

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Dates: Received	Reviewed by Staff	Distributed	Considered
3/7/23, 5/5/23, 5/10/23, 5/15/23, 6/1/23	SO		
Notes: APF 2023-05			

VM-01

The term “~~i~~Index ~~c~~Credit ~~h~~Hedge ~~m~~Margin” means a margin capturing the risk of inefficiencies in the company’s hedging program supporting index credits. This includes basis risk, persistency risk, and the risk associated with modeling decisions and simplifications. It also includes any uncertainty of costs associated with managing the hedging program and changes due to investment and management decisions.

The term “~~i~~Index ~~c~~Credit” means any interest credit, multiplier, factor, bonus, charge reduction, or other enhancement to policy or contract values that is directly linked to one or more indices. Amounts credited to the policy or contract resulting from a floor on an index account are included. An ~~i~~Index ~~c~~Credit may be positive or negative.

The term “~~i~~Index ~~c~~Crediting ~~s~~Strategies” means the strategies defined in a contract to determine index credits for a contract. For example, this may refer to underlying index, index parameters, date, timing, performance triggers, and other elements of the crediting method.

VM-21 Section 4.A.4

4. Modeling of Hedges

- a. For a company that does not have a future hedging strategy supporting the contracts:
 - i. The company shall not consider the cash flows from any future hedge purchases or any rebalancing of existing hedge assets in its modeling, since they are not included in the company’s investment strategy supporting the contracts.
 - ii. Existing hedging instruments that are currently held by the company in support of the contracts falling under the scope of these requirements shall be included in the starting assets.
- b. For a company with one or more future hedging strategies supporting the contracts:
 - i. For a future hedging strategy with hedge payoffs that solely offset ~~interest index~~ credits associated with ~~indexed interest strategies~~index crediting strategies (~~indexed interest~~ credits):
 - a) ~~In modeling cash flows, the company shall include the cash flows from future hedge purchases or any rebalancing of existing hedge assets that are intended solely to offset interest index credits to contract holders.~~
 - b) Existing hedging instruments that are currently held by the company for offsetting the indexed credits in support of the contracts falling under the scope of these requirements shall be included in the starting assets.
 - c) An ~~i~~Index ~~c~~Credit ~~h~~Hedge ~~m~~Margin for these hedge instruments shall be reflected in both the “best efforts” and the “adjusted” runs, as applicable, by reducing index ~~interest credit~~ hedge payoffs by a margin multiple that shall be justified by sufficient and credible company experience and account for model error. It shall be no less than ~~1% / 2%~~1.5% multiplicatively of the portion of the ~~interest index credited~~ that is hedged. In the absence of sufficient and credible company experience, a margin of at least 20% shall be assumed. There is no cap on the index credit hedge margin if company experience indicates actual error is greater than these minimums. ~~20%~~

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Commented [A1]: Replace with "these minimums" as rereading this applies to either 2% or 20% scenarios. Not strictly needed if we are trying to be minimal with edits.

Dates: Received	Reviewed by Staff	Distributed	Considered
3/7/23, 5/5/23, 5/10/23, 5/15/23, 6/1/23	SO		
Notes: APF 2023-05			

- ii. For a company with one or more future hedging strategies supporting the contracts that do not solely offset indexed interest credits, the detailed requirements for the modeling of the hedges are defined in Section 9. The following requirements do not supersede the detailed requirements.
 - a) The appropriate costs and benefits of hedging instruments that are currently held by the company in support of the contracts falling under the scope of these requirements shall be included in the projections used in the determination of the SR.
 - b) The projections shall take into account the appropriate costs and benefits of hedge positions expected to be held in the future through the execution of the future hedging strategies supporting the contracts. Because models do not always accurately portray the results of hedge programs, the company shall, through back-testing and other means, assess the accuracy of the hedge modeling. The company shall determine a SR as the weighted average of two CTE values; first, a CTE70 (“best efforts”) representing the company’s projection of all of the hedge cash flows, including future hedge purchases, and a second CTE70 (“adjusted”) which shall use only hedge assets held by the company on the valuation date and only future hedge purchases associated solely with indexed interest credits. These are discussed in greater detail in Section 9. The SR shall be the weighted average of the two CTE70 values, where the weights reflect the error factor determined following the guidance of Section 9.C.4.
 - c) The company is responsible for verifying compliance with all requirements in Section 9 for all hedging instruments included in the projections.
 - d) The use of products not falling under the scope of these requirements (e.g., equity-indexed annuities) as a hedge shall not be recognized in the determination of accumulated deficiencies.

iii. If a company has a more comprehensive hedge strategy combining index credits with guaranteed benefit and/or other risks (e.g., full fair value or economic hedging), no portion of this hedge strategy is eligible for the treatment described in section 4.A.4.b. An appropriate and documented bifurcation method should be used in the application of sections 4.A.4.b.i and 4.A.4.b.ii above for the hedge modeling and justification. Such bifurcation methods may quantify the specific risk exposure attributable to index credit liabilities versus other liabilities such as guaranteed living benefits, and apply such for the basis for allocation.

Commented [A2]: Until industry can provide quantitative evidence on historical hedging errors as a percent of interest credited, suggest no allowing bifurcation.

VM-21 Section 6.B.3 Footnote

¹ Throughout this Section 6, references to CTE70 (adjusted) shall also mean the SR for a company that does not have a future hedging strategy supporting the contracts that does not solely offset index credits as discussed in Section 4.A.4.a.

Dates: Received	Reviewed by Staff	Distributed	Considered
3/7/23, 5/5/23, 5/10/23, 5/15/23, 6/1/23	SO		
Notes: APF 2023-05			

VM-21 Section 9

Section 9: Modeling Hedges under a Future Non-Index Credit Hedging Strategy

A. Initial Considerations

1. This section applies to modeling of hedges other than situations where the company only hedges index credits. ~~If the company clearly separates index credit hedging from other hedging, then this section only applies to the other hedging if the index hedging follows the requirements in Section 4.A.4.b.i. If the company does not clearly separate index credit hedging from other hedging, then this section is applicable for modeling of all hedges.~~
2. Subject to Section 9.C.2, the appropriate costs and benefits of hedging instruments that are currently held by the company in support of the contracts falling under the scope of these requirements shall be included in the calculation of the SR, determined in accordance with Section 3.D and Section 4.D.

Commented [A3]: Delete

(Subsequent sections to be renumbered)

VM-21 Section 9.C.2

2. The company shall calculate a CTE70 (adjusted) by recalculating the CTE70 assuming the company has no future hedging strategies supporting the contracts except hedge purchases solely related to strategies to hedge index credits, therefore following the requirements of Section 4.A.4.a and 4.A.4.b.i.

However, for a company with a future hedging strategy supporting the contracts, existing hedging instruments, except hedging instruments solely related to strategies to hedge index credits, that are currently held by the company in support of the contracts falling under the scope of these requirements may be considered in one of two ways for the CTE70 (adjusted):

- a) Include the asset cash flows from any contractual payments and maturity values in the projection model.
- b) No hedge positions, in which case, the hedge positions held on the valuation date are replaced with cash and/or other general account assets in an amount equal to the aggregate market value of these hedge positions.

VM-21 Section 9.E.7

7. The company may also consider historical experience for similar current or past hedging programs on similar products to support the error factor or ~~index credit hedge margin~~ determined for the projection.

Commented [A4]: Expanding provision for index credit hedging, noting that the index credit adjustment is described as the Index Credit Hedge Margin, not the error factor.

Dates: Received	Reviewed by Staff	Distributed	Considered
3/7/23, 5/5/23, 5/10/23, 5/15/23, 6/1/23	SO		
Notes: APF 2023-05			

VM-31 Section 3.F.8.d.x (new subsection)

- x. Justification for the margin for any future hedging strategy that offsets interest index credits associated with indexed interest strategies index crediting strategies (indexed interest credits), including relevant experience, other relevant analysis, and an assessment of potential model error
- xi. Ten years of historical experience on hedge gains/losses as a percent of index credited for hedge programs supporting index credits.
- xii. If there is less than five years of historical experience of this hedging program or a hedging program on similar products, an explanation of how the company considered increases in the error factor to account for limited historical experience.
- x. The method used to bifurcate comprehensive hedge strategies (i.e., strategies combining index credits, guaranteed benefit, and other risks (e.g., full fair value or economic hedging), per section 4.A.4.b.iii.

Commented [A5]: Modify to "index credits" to be consistent throughout the draft and the additional definition.

Commented [A6]: VM-31 requirement for historical experience to support error factor.

Commented [A7]: Explanation for how margin was increased if there was less than 5 years of experience.

Commented [A8]: Only include if bifurcation is allowed

DRAFT

Brian Bayerle
Chief Life Actuary
202-624-2169
BrianBayerle@accli.com

Colin Masterson
Policy Analyst
202-624-2463
ColinMasterson@accli.com

May 24, 2023

Rachel Hemphill
Chair, NAIC Life Actuarial (A) Task Force (LATF)

Re: APF 2023-07 (CSMP Removal)

Dear Chair Hemphill:

The American Council of Life Insurers (ACLI) appreciates the opportunity to comment on APF 2023-07 on the removal of the Company-Specific Market Path (CSMP) approach for calculating standard projection amount in VM-21.

This APF may have a significant impact on the companies considering or using the CSMP methodology. To mitigate any problems that may arise, we ask that regulators work directly with the impacted companies throughout this process and give them adequate time to make the necessary changes to their systems and processes.

Thank you very much for your consideration of our comments and we are looking forward to continued engagement with regulators on this topic.

Sincerely,



cc: Scott O'Neal, NAIC

American Council of Life Insurers | 101 Constitution Ave, NW, Suite 700 | Washington, DC 20001-2133

The American Council of Life Insurers (ACLI) is the leading trade association driving public policy and advocacy on behalf of the life insurance industry. 90 million American families rely on the life insurance industry for financial protection and retirement security. ACLI's member companies are dedicated to protecting consumers' financial wellbeing through life insurance, annuities, retirement plans, long-term care insurance, disability income insurance, reinsurance, and dental, vision and other supplemental benefits. ACLI's 280 member companies represent 94 percent of industry assets in the United States.

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**Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force
 Amendment Proposal Form***

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Identification:

California Office of Principles-Based Reserving and Minnesota Department of Commerce

Title of the Issue:

Company-Specific Market Path (CSMP) Removal

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

VM-21 Section 6.A.1

January 1, 2024 NAIC *Valuation Manual*

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

The standard projection amount drafting group found that there is very little use of the CSMP method for the VM-21 standard projection amount. Therefore, we recommend removing this method from VM-21 starting in 2025, which gives time to transition to the CTEPA method for the few companies that currently employ the CSMP method.

* This form is not intended for minor corrections, such as formatting, grammar, cross-references or spelling. Those types of changes do not require action by the entire group and may be submitted via letter or email to the NAIC staff support person for the NAIC group where the document originated.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
5/1/2023, 6/1/2023	SO		
Notes: APF 2023-07			

VM-21 Section 6: Requirements for the Additional Standard Projection Amount

A. Overview

1. Determining the Additional Standard Projection Amount

- a. For valuation dates before January 1, 2025, the additional standard projection amount shall be the larger of zero and an amount determined in aggregate for all contracts falling under the scope of these requirements, excluding those contracts to which the Alternative Methodology is applied, by calculating the Prescribed Projections Amount by one of two methods, the Company-Specific Market Path (CSMP) method or the CTE with Prescribed Assumptions (CTEPA) method. The company shall assess the impact of aggregation on the additional standard projection amount.
- ~~a.~~ b. For valuation dates on or after January 1, 2025, the additional standard projection amount shall be the larger of zero and an amount determined in aggregate for all contracts falling under the scope of these requirements, excluding those contracts to which the Alternative Methodology is applied, by calculating the Prescribed Projections Amount by the CTEPA method. The company shall assess the impact of aggregation on the additional standard projection amount.
- ~~b.~~ c. The additional standard projection amount shall be calculated based on the scenario reserves, as discussed in Section 4.B, with certain prescribed assumptions replacing the company prudent estimate assumptions. As is the case in the projection of a scenario in the calculation of the SR, the scenario reserves used to calculate the additional standard projection amount are based on an analysis of asset and liability cash flows produced along certain equity and interest rate scenario paths.

August XX, 2023

To: Members of the Life Actuarial (A) Task Force

From: NAIC Staff

RE: Guidance on Allocating Negative IMR (PIMR) In VM-20, VM-21, and VM-30

Executive Summary

While the potential admittance of some portion of negative Interest Maintenance Reserve (IMR) is being considered by the Statutory Accounting Practices (E) Working Group (SAPWG), continued guidance on the proper practice for allocating IMR for principles-based reserving (PBR) and asset adequacy testing purposes may be helpful for companies in the near term.

Background

LATF issued guidance on November 17, 2022 (Attachment A) on allocating negative IMR (PIMR) in VM-20, VM-30, VM-31. Since then, SAPWG has continued to discuss the potential admittance of some portion of negative IMR. In light of these ongoing discussions, continued guidance is needed to ensure consistent treatment for negative IMR in PBR and asset adequacy testing. Due to the timing of Valuation Manual updates, the earliest that such guidance can practically be added to the Valuation Manual is for year-end 2025. Therefore, LATF is issuing additional guidance for 2023 and 2024.

Recommendation

In order to assist state regulators and companies in achieving uniform outcomes for year-end 2023 and 2024, we have the following recommendation: the allocation of IMR in VM-20, VM-21, and VM-30 should be principle-based, “appropriate”, and “reasonable”. Companies are not required to allocate any non-admitted portion of IMR (or PIMR, as applicable) for purposes of VM-20, VM-21, and VM-30, as being consistent with the asset handling for the non-admitted portion of IMR would be part of a principle-based, reasonable and appropriate allocation. However, any portion of negative IMR that is an admitted asset, should be allocated for purposes of VM-20, VM-21, and VM-30, as again a principle-based, reasonable and appropriate IMR allocation would be consistent with the handling of the IMR asset.

This recommended guidance is for year-end 2023 and 2024, to address the current uncertainty and concerns with the “double-counting” of losses. This recommended guidance will help ensure consistency between states and between life insurers in this volatile rate environment. This guidance is expected to be incorporated in the 2025 Valuation Manual.

Attachment A

November 17, 2022

To: Members of the Life Actuarial (A) Task Force

From: NAIC Staff

RE: Guidance on Allocating Negative IMR (PIMR) In VM-20, VM-21, and VM-30

Executive Summary

With the rapidly rising interest rate environment, companies selling fixed income assets for a loss are seeing their Interest Maintenance Reserve (IMR) balances decrease or even become negative. Current statutory accounting treatment makes negative IMR a non-admitted asset. While a longer-term evaluation of IMR is being considered by the Statutory Accounting Practices (E) Working Group (SAPWG), additional guidance on the proper practice for allocating IMR for Asset Adequacy Testing and Principle-based Reserving purposes may be helpful for companies in the near term.

Background

The letter to SAPWG from the American Council of Life Insurers (ACLI) (Attachment 1) notes that "...with the inclusion of a negative IMR balance in asset adequacy testing, the disallowance of a negative IMR can result in double counting of losses (i.e., through the disallowance on the balance sheet and the potential AAT-related reserve deficiency)." There are several sections of the Valuation Manual and RBC instructions where IMR is referenced in the letter. Some of these references contemplate allocating negative IMR (or pre-tax IMR (PIMR), as applicable) at the level of business that is being analyzed/reserved for. However, these references do not detail what to do when the total company IMR balance is negative – and therefore a non-admitted asset under current statutory guidance.

Other references do provide additional insight as to the allocation of IMR when the total company balance is negative/disallowable. VM-20 Section 7.D.7.b notes that "...the company shall use a reasonable approach to allocate any portion of the total company balance that is disallowable under statutory accounting procedures (i.e., when the total company balance is an asset rather than a liability)." Question 22 of the AAA's Asset Adequacy Practice Note (Attachment 2) states that "... a negative IMR is not an admitted asset in the annual statement. So, some actuaries do not reflect a negative value of IMR in the liabilities used for asset adequacy analysis." However, Question 22 also notes a 2012 survey data that showed varying practices across companies, including some companies that allocated negative IMR.

Recommendation

In order to assist state regulators and companies in achieving uniform outcomes for year-end 2022, we have the following recommendation: the allocation of IMR in VM-20, VM-21, and VM-30 should be principle-based, "appropriate", and "reasonable". Companies are not required to allocate any non-admitted portion of IMR (or PIMR, as applicable) for purposes of VM-20, VM-21, and VM-30, as being consistent with the asset handling for the non-admitted portion of IMR would be part of a principle-based, reasonable and appropriate allocation. However, if a company was granted a permitted practice to admit negative IMR as an asset, the company should allocate the formerly non-admitted portion of negative IMR, as again a principle-based, reasonable and appropriate IMR allocation would be consistent with the handling of the IMR asset. This recommended guidance is for year-end 2022, to address the current uncertainty and concerns with the "double-counting" of losses. This recommended guidance will help ensure consistency between states and between life insurers in this volatile rate environment. Refinement of this guidance may be considered beyond year-end 2022.

Attachment 1



Mike Monahan

Senior Director, Accounting Policy
202-624-2324 t
mikemonahan@acli.com

Paul Graham

Senior Vice President, Chief Actuary
202-624-2164 t
paulgraham@acli.com

October 31, 2022

Mr. Dale Bruggeman, Chairman
Statutory Accounting Principles Working Group
National Association of Insurance Commissioners
1100 Walnut Street, Suite 1500
Kansas City, MO 64106-2197

Dear Mr. Bruggeman:

Re: Proposal for the NAIC to Fulfil the Original Intent of the Interest Maintenance Reserve

The American Council of Life Insurers (ACLI) would like to request urgent action on an issue that was never fully resolved by the NAIC and has become a pressing matter for the industry due to the rapid rise in interest rates—the allowance of a net negative Interest Maintenance Reserve (IMR) balance.

The ACLI proposes the allowance of a negative IMR balance in statutory accounting. Negative IMR balances are expected to become more prevalent in a higher interest rate environment and their continued disallowance will only serve to project misleading optics on insurers' financial strength (e.g. inappropriate perception of decreased financial strength through lower surplus and risk-based capital even though higher rates are favorable to an insurer's financial health) while creating uneconomic incentives for asset-liability management (e.g. discourage prudent investment transactions that are necessary to avoid mismatches between assets and liabilities just to avoid negative IMR).

ACLI believes the necessary changes can be implemented quickly and with minimal changes to the annual statement reporting instructions.

American Council of Life Insurers | 101 Constitution Ave, NW, Suite 700 | Washington, DC 20001-2133

The American Council of Life Insurers (ACLI) is the leading trade association driving public policy and advocacy on behalf of the life insurance industry. 90 million American families rely on the life insurance industry for financial protection and retirement security. ACLI's member companies are dedicated to protecting consumers' financial wellbeing through life insurance, annuities, retirement plans, long-term care insurance, disability income insurance, reinsurance, and dental, vision and other supplemental benefits. ACLI's 280 member companies represent 94 percent of industry assets in the United States.

acli.com

The remainder of this letter expands upon these points.

Historical Context and Background

The IMR, first effective in statutory accounting in 1992, requires that a realized fixed income gain or loss, attributable to changes in interest rates (but not gains or losses that are credit related), be amortized into income over the remaining term to maturity of the fixed income investments (and related hedging programs) sold rather than being reflected in income immediately.

Since statutory accounting practices for life insurance companies are the primary determinant of obtaining an accurate picture for assessing solvency, it was imperative that the accounting practices be consistent for assets, liabilities, and income and that they be reported on a financially consistent basis. If assets and liabilities were not reported on a financially consistent basis, then the financial statements would not be useful in determining an accurate assessment of solvency or whether there were sufficient assets to pay contractual obligations when they become due.

Amortized cost valuation of fixed income investments reflects the outlook at the time of purchase and amortization reflects the yields available at time of purchase. Policy reserve liabilities are established at the same time, and the interest rate assumptions are consistent with the yields at that time. But if fixed income investments are sold, with the proceeds reinvested in new fixed income investments, a new amortization schedule is established which may be based on an entirely different yield environment, which may be inconsistent with the reserve liabilities when they were established.

IMR was created to prevent the timing of the realization of gains or losses on fixed income investments, related to interest rates changes, to affect the immediate financial performance of the insurance company. This recognized that the gains and losses were transitory without any true economic substance since the proceeds would be reinvested at offsetting lower or higher interest rates.

For example, without the IMR, if a company sold all bonds in a declining interest environment (e.g., from 4% to 2%), and reinvested in new bonds, surplus would increase through significant realized gains. The increased surplus would inappropriately reflect increased financial strength that is illusory, due to a now lower yielding portfolio, as there would be no change to the income needed to support the liabilities.

Likewise, if a company sold all bonds in an increasing interest rate environment (e.g., from 2% to 4%), and reinvested in new bonds, surplus would decrease through significant realized losses. The decreased surplus would inappropriately reflect decreased financial strength that is similarly illusory due to the reinvestment at higher yields relative to when the bonds were originally purchased.

A net negative IMR is currently disallowed in statutory accounting. This handling is contrary to its original intent which recognized that interest related gains and losses are both transitory without any true economic substance since the proceeds would be reinvested at offsetting lower or higher interest rates, respectively. See attachment I to this letter that illustrates the financially consistent

treatment of assets, liabilities, and income and how IMR is needed to achieve that objective for both realized gains and losses.

That IMR should conceptually apply to both realized gains and losses was recognized by the NAIC during and after IMR development. The below is a quote from a 2002 report by the NAIC AVR/IMR Working Group to the E-Committee:

*“The basic rationale for the IMR would conclude that neither a maximum nor a minimum is appropriate. If the liability values are based on the assumption that the assets were purchased at about the same time as the liabilities were established, then there should be no bounds to the reserve which corrects for departures from that assumption; **if a company has to set up a large reserve because of trading gains, it is in no worse position that if it had held the original assets. As for negative values of the IMR, the same rationale applies. However, the concept of a negative reserve in the aggregate has not been adopted.**”*

While realized losses can offset realized gains in IMR, the IMR instructions require the disallowance of a net negative IMR balance (e.g., as noted in the last sentence of the aforementioned quote). See attachment II to this letter, which includes the pertinent IMR instructions where negative IMR balances are currently disallowed and in need of amendment.

When IMR was originally developed, it was intended to achieve its purpose in both a declining and rising interest rate environment. The originally adopted disallowed status of a negative IMR was expected to be addressed in subsequent years. However, over time with the persistent declining interest rates, the issue lost urgency since a negative IMR would not have been a significant issue for any company. The NAIC AVR/IMR Working Group ultimately disbanded without ever addressing this longstanding item on their agenda.

With a rising interest rate environment, it is important that the allowance of a negative IMR be addressed to fulfill its original purpose. In general, rising interest rates are favorable to the financial health of the insurance industry as well as for policyowners.

Without a change, the rising interest rate environment will give the inappropriate perception of decreased financial strength through lower surplus and risk-based capital and worse, create incentives for insurance companies to take action, or not take actions, to prevent uneconomic surplus impacts where the actions (or lack thereof) themselves may be economically detrimental.

Symmetrical treatment of a negative IMR (i.e., the allowance of a negative IMR balance) would appropriately not change surplus as a sale and reinvestment would not affect the underlying insurance company liquidity, solvency, or claims paying ability, just like with a positive IMR. See attachment III to this letter that illustrates that the sale of a fixed income investment, and reinvestment in a new fixed income investment, has no bearing on a life insurance company's liquidity, solvency, or claims paying ability.

As it was initially recognized by the NAIC that IMR should apply to both gains and losses, adequate safeguards were already built into the IMR instructions for asset adequacy, risk-based capital, and troubled companies.

Negative IMR – Reserve Adequacy and Risk-Based Capital

When IMR was developed, it was anticipated that a negative IMR balance would be reflected in asset adequacy analysis. This inclusion ensures that the assets, with the appropriate allocation from the IMR (whether negative or positive), would be adequate to fund future benefit obligations and related expenses of the company.

From the standpoint of reserve adequacy, the inclusion of a negative IMR balance appropriately reduces the investment income in asset adequacy testing. Without the inclusion of negative IMR, reserve inadequacies would potentially not be recognized.

Further, with the inclusion of a negative IMR balance in asset adequacy testing, the disallowance of a negative IMR can result in double counting of losses (i.e., through the disallowance on the balance sheet and the potential AAT-related reserve deficiency). The Actuarial Opinion that covers asset adequacy analysis requires the appropriate assessment of negative IMR in its analysis.

If a negative IMR balance is used in the asset adequacy analysis, its allowance is appropriate. Likewise, if only a portion of a company's negative IMR balance is reflected in the asset adequacy analysis, only the allowance for that portion of the negative IMR balance reflected is appropriate. If a negative IMR balance is disallowed, it would be inappropriate to include in asset adequacy analysis. It is imperative there is symmetry between both reserving and accounting considerations, and there is already precedent in the asset adequacy analyses for inclusion of IMR.

Below are the current references to IMR in the valuation manual and risk-based capital calculations.

Regulation	Use	IMR references
Actuarial Opinion and Memorandum Regulation (VM-30)	Asset adequacy analysis for annual reserve opinion	An appropriate allocation of assets in the amount of the IMR, whether positive or negative, shall be used in any asset adequacy analysis.
Life principle-based reserves (VM-20)	Calculation of deterministic reserve	Calculate the deterministic reserve equal to the actuarial present value of benefits, expenses, and related amounts less the actuarial present value of premiums and related amounts, less the positive or negative pre-tax IMR balance at the valuation date allocated to the group of one or more policies being modeled
Life principle-based reserves (VM-20)	Calculation of stochastic reserve	Add the CTE amount (D) plus any additional amount (E) less the positive or negative pre-tax IMR balance allocated to the group of one or more policies being modeled
Variable annuities principle-based reserves (VM-21)	Reserving for variable annuities	The IMR shall be handled consistently with the treatment in the company's cash-flow testing, and the amounts should be adjusted to a pre-tax basis.
C3 Phase 1 (Interest rate risk capital)	RBC for fixed annuities and single premium life	IMR assets should be used for C3 modeling.

Additional IMR Safeguards

The IMR instructions do provide additional safeguards in situations where it would be appropriate to recognize interest-rate related gains and losses immediately rather than be included in the IMR.

They were established to prevent situations where the liability the IMR supports, no longer exists. Examples noted in the annual statement instructions include:

- Major book-value withdrawals or increases in policy loans occurring at a time of elevated interest rates.
- Major book value withdrawals resulting from a “run on the bank” due to adverse publicity.

As a result, the IMR instructions include an IMR Exclusion whereby all gains or losses which arise from the sale of investments related to “Excess Withdrawal Activity” are to be excluded from IMR and reflected in net income. In short, Excess Withdrawal Activity is defined as 150% of the product of the lower of the withdrawal rate in the preceding or in the next preceding year calendar year times the withdrawal reserves at the beginning of the year.

Summary

With a rising interest rate environment, it is important that the allowance of a negative IMR be addressed to fulfill its original purpose. In general, rising interest rates are favorable to the financial health of the insurance industry as well as for policyowners. Without a change, the rising interest rate environment will give the inappropriate perception of decreased financial strength through lower surplus and risk-based capital.

The inability to recognize negative IMR could also impact the rating agency view of the industry, or worse, incentivize companies to avoid prudent investment transactions that are necessary to avoid mismatches between assets and liabilities. Furthermore, there are adequate safeguards in place to ensure that allowing a negative IMR does not cause any unrecognized reserve or capital inadequacies or any overstatement of claims paying ability.

Current statutory accounting guidance creates two equally objectionable alternatives for insurers and their policyowners. Following the current statutory guidance will improperly reflect financial strength through understating surplus, so additional surplus may need to be retained. Alternatively, one could take steps to manage the current situation by limiting trading of fixed income investments and related hedging programs, which would diminish significant economic value for policyowners, as well as create a mismatch between assets and liabilities.

Both scenarios encourage short-term non-economic activity not in the best long-term interest of the insurance company’s financial health or its policyowners. For insurers with diminishing IMR balances due to the rapid increase in interest rates, this dilemma is either here or fast approaching and can only be resolved now with certainty of the appropriate treatment of IMR by the NAIC.

The ACLI looks forward to urgently working with the NAIC toward fulfilling the original intent of IMR. It is imperative that insurers receive relief for year-end 2022.

If you have any questions regarding this letter, please do not hesitate to contact us.

Sincerely,

A handwritten signature in cursive script that reads "Monahan".

Mike Monahan
Senior Director, Accounting Policy

A handwritten signature in cursive script that reads "Paul A. Dunham" followed by a stylized monogram.

Paul Graham
Senior Vice President, Chief Actuary

Simplified Example – Need for Reporting Assets, Liabilities, and Income on a Consistent Basis:

- This example shows the appropriate interrelationship of IMR on assets, reserve liabilities, and income.
- Assume a bond is held with the following characteristics:
 - Par Value: \$1,000
 - Coupon: 3%
 - Term-to-maturity: 10 years
- Assume the bond is then sold at “time zero” and the proceeds are immediately reinvested in a bond with the same characteristics (e.g., term-to maturity, credit quality, coupon equivalent to market rate, etc.).
- Assume a simplified example with no existing IMR balance, where the bond supports a fixed insurance liability with the same duration as the original bond, as well as a present value of \$1,000.

Table 1: Market Interest Rate Scenario			
	Same	Lower	Higher
Market interest rate	3%	2%	4%
Bond’s market value	\$1,000	\$1,090	\$919
Realized gain/(loss) if sold	\$0	\$90	(\$81)*

Realized gain/(loss) deferred to balance sheet IMR and amortized into income over remaining life of bond sold (i.e., 10 years).

Table 2: Statutory Investment Income			
IMR amortization	\$0	\$9	(\$8)
Interest income on new bond	\$30	\$21	\$38
Total annual stat income	\$30	\$30	\$30

On average, future income is approximately the same in each interest rate scenario as the IMR gets reduced through amortization to income.

Table 3: Statutory Balance Sheet			
Balance Sheet Bonds	\$1,000	\$1,090	\$919
IMR	\$0	(\$90)	\$0*
Stat assets net of IMR	\$1,000	\$1,000	\$919*
Reserves	\$1,000	\$1,000	\$1,000
Surplus	\$0	\$0	(\$81)*

Even though the sale of the bond (and subsequent reinvestment) is non-economic, and the same income is being produced to support the liability, a negative surplus position makes it appear there is now a deficiency. Allowing the negative IMR appropriately would show no surplus impact, as is shown when a gain occurs, as there is no change in reported reserve liabilities. Appropriately consistent financial results require the allowance of negative IMR

***The negative IMR balance is currently disallowed and directly reduces surplus. This treatment is not supported by theoretical rationale and gives a distorted view of solvency.**

Pertinent Annual Statement Instructions

Line 6 – Reserve as of December 31, Current Year

Record any positive or allowable negative balance in the liability line captioned “Interest Maintenance Reserve” on Page 3, Line 9.4 of the General Account Statement and Line 3 of the Separate Accounts Statement. A negative IMR balance may be recorded as a negative liability in either the General Account or the Separate Accounts Statement of a company only to the extent that it is covered or offset by a positive IMR liability in the other statement.

If there is any disallowed negative IMR balance in the General Account Statement, include the change in the disallowed portion in Page 4, Line 41 so that the change will be appropriately charged or credited to the Capital and Surplus Account on Page 4. If there is any disallowed negative IMR balance in the Separate Accounts Statement, determine the change in the disallowed portion (prior year less current year disallowed portions), and make a direct charge or credit to the surplus account for the “Change in Disallowed Interest Maintenance Reserve” in the write -in line, in the Surplus Account on Page 4 of the Separate Accounts Statement.

The following information is presented to assist in determining the proper accounting:

General Account IMR Balance	Separate Account IMR Balance	Net IMR Balance
Positive	Positive	Positive (see rule a)
Negative	Negative	Negative (see rule b)
Positive	Negative	Positive (see rule c)
Positive	Negative	Negative (see rule d)
Negative	Positive	Positive (see rule e)
Negative	Positive	Negative (see rule f)

Rules:

- a. If both balances are positive, then report each as a liability in its respective statement.
- b. If both balances are negative, then no portion of the negative balances is allowable as a negative liability in either statement. Report a zero for the IMR liability in each statement and follow the above instructions for handling disallowed negative IMR balances in each statement.
- c. If the general account balance is positive, the separate accounts balance is negative and the combined net balance is positive, then all of the negative IMR balance is allowable as a negative liability in the Separate Accounts Statement.
- d. If the general account balance is positive, the separate account balance is negative, and the combined net balance is negative, then the negative amount not covered by the positive amount is not allowable. Report only the allowable portion as a negative liability in the Separate Accounts Statement and follow the above instructions for handling the disallowed portion of negative IMR balances in the Separate Accounts Statement.
- e. If the general account balance is negative, the separate account balance is positive, and the combined net balance is positive, then all of the negative IMR balance is allowable as a negative liability in the General Account Statement.
- f. If the general account balance is negative, the separate account balance is positive, and the combined net balance is negative, then the negative amount not covered by the positive amount is not allowable. Report only the allowable portion as a negative liability in the General Account Statement and follow the above instructions for handling the disallowed portion of negative IMR balances in the General Account Statement.

Attachment III

IMR Illustration – Liquidity, Solvency and Claims Paying Ability

Essentially, a negative IMR balance from an individual trade represents the present value of the future positive interest rate differential, from the new investment compared to the old investment, that puts one in the same economic position, when compared to before the trade, including total liquid assets available to pay claims.

This phenomenon can be illustrated in the following table where a 10-year bond is sold, one year after purchase, and immediately reinvested in another 10-year bond with equivalent credit quality in an interest rate environment where market interest rates increased from 2% to 4% in the intervening year.

	Coupon Rate of Bond	Market Interest Rate @ Purchase	Par Value of Bond	Fair Value @ Purchase	Fair Value @ Time of Sale	Loss on Sale	Claims Paying Liquidity
Old Bond	2%	2%	100	100	85.13	14.87	85.13
New Bond	4%	4%	85.13	85.13	85.13	N/A	85.13

The short-term acceleration of negative IMR to surplus (e.g., its disallowance) is strictly a timing issue and not a true loss of financial strength or claims paying liquidity, but it does present a temporary and inappropriate optics issue in surplus/financial strength until the IMR is fully amortized.

This phenomenon can further be illustrated by comparing two separate hypothetical companies. Assume Company A and B both have the exact same balance sheets. Then assume Company A keeps the old bond and Company B affects the trade mentioned above.

With the disallowance of a negative IMR balance, Company B now has a balance sheet that shows a relative decline of financial strength of \$14.87. This weakened balance sheet contrasts with both the principle behind the development of IMR, the relative actual economic financial strength, and claims paying ability of the two entities.

There is no difference in balance sheet economics of the two entities. The negative IMR balance for Company B essentially represents the difference between cost and fair value of the investment sold, that is already embedded on Company A's balance sheet based on the existing interest rate environment. The negative IMR balance should be recognized as there is no change in economics pre and post trade (or in this instance between Company A and Company B) which is consistent with the overall principle behind IMR.

Attachment 2

Some actuaries test the option risk in assets (e.g., calls) by assuming an immediate drop in the discount rate used in the GPV. The drop test is often set as severe as needed to represent a drop in earned rate that would occur if all options were exercised.

Q22. The AOMR states that the interest maintenance reserve (IMR) should be used in asset adequacy analysis. Why?

The IMR is part of the total reported statutory reserves. The IMR typically defers recognition of the portion of realized capital gains and losses resulting from changes in the general level of interest rates. These gains and losses are amortized into investment income over the expected remaining life of the investments sold, rather than being recognized immediately. This amortization is after tax.

The purpose of the IMR usually is to maintain the original matching between assets and liabilities that might be weakened by the sale of an asset. Originally, it was anticipated that the IMR would be allowed to become negative, as long as the asset adequacy analysis showed that the total statutory reserves, including the negative IMR, were sufficient to cover the liabilities. However, a negative IMR is not an admitted asset in the annual statement. So, some actuaries do not reflect a negative value of IMR in the liabilities used for asset adequacy analysis.

In the 2012 survey of appointed actuaries, more than 80 percent of the respondents indicated they include the IMR in their testing. Some actuaries use a starting IMR of zero if IMR is negative. Other actuaries use negative IMR to adjust starting assets and therefore model future lower asset yields than if zero IMR were assumed. Half of the respondents who indicated they used IMR in testing also indicated they lower assets by the absolute value of a negative IMR balance; the other half indicated they use a value of zero for the starting IMR if it is negative at the beginning of the projection period. There is no prohibition regarding the use of negative IMR within asset adequacy analysis. So, a number of actuaries allow the IMR to fall below zero within the testing period. About 60 percent of actuaries responding to the survey indicated they do not have to deal with a negative IMR.

Q23. How does the actuary determine which portion of the IMR can be used to support certain products? How is the portion of the IMR used?

If the actuary allocates the assets and IMR by line, then one possible approach is line of business-level inclusion of starting assets in the amount of the unamortized portion of the IMR relating to those assets that were owned by the line prior to being sold. Another possible approach is the allocation of company-level IMR proportionately to starting assets. An advantage of this second approach is that it is generally simpler, while a disadvantage is that longer liabilities probably have longer assets, which usually produce higher capital gains when sold, after a given drop in interest rates, than shorter assets do,

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form*

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Identification:

Rachel Hemphill, FSA, FCAS, MAAA, Ph.D.

Title of the Issue:

Clarifying guidance for allocation of negative IMR.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

VM- 20 Section 7.D.7, VM-30 Section 3.B.5

January 1, 2023 NAIC Valuation Manual

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

Clarify allocation of negative IMR for VM-20 and VM-30; in particular, non-admitted IMR is excluded. Note that VM-21 Section 4.A.7 currently requires a treatment consistent with VM-30, and so additional guidance is not needed for VM-21.

* This form is not intended for minor corrections, such as formatting, grammar, cross-references or spelling. Those types of changes do not require action by the entire group and may be submitted via letter or email to the NAIC staff support person for the NAIC group where the document originated.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
<u>05/22/23</u>	<u>SO</u>		
Notes: <u>APF 2023-08</u>			

VM-20 7.D.7

7. Under Section 7.D.1, any PIMR balance allocated to the group of one or more policies being modeled at the projection start date is included when determining the amount of starting assets and is then subtracted out, under Section 4 and Section 5, as the final step in calculating the modeled reserves. The determination of the PIMR allocation is subject to the following:

- a. The amount of PIMR allocable to each model segment is the approximate statutory interest maintenance reserve liability that would have developed for the model segment, assuming applicable capital gains taxes are excluded. The allocable PIMR may be either positive or negative.
- b. In performing the allocation to each model segment, ~~the company shall use a reasonable approach to allocate any portion of the total company IMR balance that is disallowable not admitted under statutory accounting procedures (i.e., when the total company balance is an asset rather than a liability), shall first be removed.~~ The company shall use a reasonable approach to allocate the total company balance, after removing any non-admitted portion thereof, between PBR and non-PBR business and then allocate the PBR portion among model segments in an equitable fashion.
- c. The company may use a simplified approach to allocate the PIMR, if the impact of the PIMR on the minimum reserve is minimal.

VM-30 Section 3.B.5

5. An appropriate allocation of assets in the amount of the IMR, whether positive or negative, shall be used in any asset adequacy analysis. In performing the allocation, any portion of the total company IMR balance that is not admitted under statutory accounting procedures shall first be removed. Analysis of risks regarding asset default may include an appropriate allocation of assets supporting the asset valuation reserve; these AVR assets may not be applied for any other risks with respect to reserve adequacy. Analysis of these and other risks may include assets supporting other mandatory or voluntary reserves available to the extent not used for risk analysis and reserve support.

Draft: 7/3/23

Life Actuarial (A) Task Force
and the Life Risk-Based Capital (E) Working Group
May 18, 2023

The Life Actuarial (A) Task Force met May 18, 2023, in joint session with the Life Risk-Based Capital (E) Working Group of the Capital Adequacy (E) Task Force. The following Task Force members participated: Cassie Brown, Chair, represented by Rachel Hemphill (TX); Scott A. White, Vice Chair, represented by Craig Chupp (VA); Lori K. Wing-Heier represented by Sharon Comstock (AK); Mark Fowler represented by Sanjeev Chaudhuri (AL); Ricardo Lara represented by Ahmad Kamil (CA); Andrew N. Mais represented by Wanchin Chou (CT); Doug Ommen represented by Mike Yanacheak (IA); Dana Popish Severinghaus represented by Vincent Tsang (IL); Amy L. Beard represented by Scott Shover (IN); Vicki Schmidt represented by Nicole Boyd (KS); Grace Arnold represented by Fred Andersen and Ben Slutsker (MN); Chlora Lindley-Myers represented by William Leung (MO); Marlene Caride represented by Seong-min Eom (NJ); Adrienne A. Harris represented by Bill Carmello (NY); Judith L. French represented by Peter Weber (OH); Glen Mulready represented by Andrew Schallhorn (OK); Michael Humphreys represented by Steve Boston (PA); and Jon Pike represented by Tomasz Serbinowski (UT). The following Working Group members participated: Philip Barlow, Chair (DC); Sanjeev Chaudhuri (AL); Thomas Reedy (CA); Wanchin Chou (CT); Dalora Schafer (FL); Mike Yanacheak (IA); Vincent Tsang (IL); Fred Andersen (MN); William Leung (MO); Seong-min Eom (NJ); Bill Carmello (NY); Andrew Schallhorn (OK); Rachel Hemphill (TX); and Tomasz Serbinowski (UT).

1. Discussed VM-20, Requirements for Principle-Based Reserves for Life Products, GOES Field Test Results

Hemphill said that Scott O'Neal (NAIC) would present results from the generator of economic scenarios (GOES) field test. O'Neal walked through the presentation of results (Attachment Four-A). Mark Tenney (Mathematical Finance Company) asked whether the universal life with secondary guarantee (ULSG) model office results that Matt Kauffman (Moody's Analytics) presented showing approximately a doubling of reserves were consistent with the GOES field test participant results. O'Neal replied that although the average results of the participants were much less significant than the increases shown in the model office testing, there were some participants with ULSG products that did experience reserve increases in line with those shown in the model office testing.

Having no further business, the Life Actuarial (A) Task Force and Life Risk-Based Capital (E) Working Group adjourned.

SharePoint/NAIC Support Staff Hub/Member Meetings/A CMTE/LATF/2023-2-Summer/LATF Calls/05 18/May 18 Minutes.docx



NAIC Economic Scenario Generator Field Test: VM-20 Quantitative Results

Scott O'Neal FSA, MAAA

May 18, 2023



Agenda

1. Background and Purpose
2. Limitations
3. Field Test Run Descriptions
4. Field Test Participation
5. High-Level Observations
6. Quantitative Results
 - A. DR/SR Baseline Comparisons
 - B. DR/SR Valuation Date Comparisons
 - C. VM-20 Minimum Reserve Impact
7. Next Steps

Appendix 1: SERT Scenario Overview
Appendix 2: Treasury and Equity Scenario Overview



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Background and Purpose

- The purpose of this presentation is to summarize quantitative information from the VM-20 field test participants to:
 - Understand the impact on reserves and capital,
 - Review the range of results across field test participants,
 - Compare the stability of results over time, and
 - Inform regulator decision-making on model and calibration choices.

Limitations

- The NAIC took steps to review the quantitative results for reasonableness, including reviewing qualitative survey responses, sending questions to participants, and asking participants to confirm that the NAIC compilations matched their intended result submission. However, the accuracy and reliability of the results are ultimately dependent on the quality of participant submissions.
- The field test analytics (average reserves, range of impacts, etc.) can be strongly dependent on a subset of the participants. Results shown today for the different field test runs will include varying numbers of participants corresponding to the levels of participation for that run. The lack of participation in some of the runs will limit their applicability to the overall industry.
- A number of comparisons between company-provided field test or baseline runs are made in the presentation. These comparisons are limited to the participation of whichever run had the least participation. For example, as Baseline 2 (as of 12/31/19 + 200 BP) had significantly lower participation than run 2A, many of the 2A results will not be included in the baseline comparison.
- Only three of the 15 companies made changes to their models to account for different features of the field test scenario sets (e.g. negative interest rates). Therefore, field test results may not be fully representative of company results post-implementation of the new GOES.
- Some companies mentioned that they would assess the need for changes to their assumptions prior to implementation of the new GOES but had not done so for the field test.
- Some of the field test SERT scenario sets contained errors, including the deterministic reserve (DR) scenario #12. Therefore, deterministic results cannot be shared for field test runs 5A, 5B, and 6.
- The VM-20 portion of the qualitative survey did not ask companies to specifically comment on the drivers of their results as was done for VM-21/C3 Phase II. Most companies did not comment on the drivers of their results.
- Variable and indexed products are included in the GOES field test VM-20 results, but isolating the specific impacts is challenging as some participants included those products with others in the same reserving category in one model (e.g. a model containing VULSG with ULSG). Further, we do not have data on the participants' separate account fund mapping.

Field Test Run Descriptions

Note: Bold = Required Run

Run #	Description	Purpose of Run
Baseline #1	Scenario set(s) the company used for 12/31/21 statutory reporting	Baseline used as comparative basis for 12/31/21 runs
Baseline #2	ESG the company used for 12/31/21 statutory reporting of reserves and RBC, but modified to produce scenario sets with a 12/31/19 yield curve modified using a 200 BP increase across all maturities	Baseline used as comparative basis for 12/31/19 + 200 BP runs
Test #1a	GEMS Baseline Equity and Corporate model scenarios as of 12/31/21, and Conning Treasury model calibration with generalized fractional floor as of 12/31/21	Tests Conning Treasury model w/ GFF and Baseline Equity at YE 2021
Test #1b	Same as Test #1a, but with Alternative Treasury model calibration with shadow floor as of 12/31/21	Tests Alternative Treasury model with shadow floor and Baseline Equity at YE 2021
Test #2a	Same as Test #1a, but with Equity, Corporate, and Treasury models with a 12/31/19 starting yield curve modified using a 200 BP increase across all maturities. All other initial market conditions are unchanged. The Equity model parameters would be adjusted from #1a so that the year 30 median Large Cap Equity gross wealth factors remain consistent with #1a.	Stresses the starting Treasury rates using the same calibration as 1a to evaluate whether the model produces appropriate results in different economic environments
Test #2b	Same as Test #2a, but with the Alternative Treasury model calibration with shadow floor instead of the Conning Treasury model calibration with generalized fractional floor	Same as 2a, but designed to stress the 1b calibration

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Field Test Run Descriptions

Note: Bold = Required Run

Run #	Description	Purpose of Run
Test #3	Conning Treasury model calibration with generalized fractional floor as of 12/31/21, GEMS Corporate model as of 12/31/21, and GEMS Baseline Equity model corresponding to a 12/31/19 yield curve with a 200 BP increase across all maturities	Attribution analysis that will illustrate how much of the difference between runs #1a and #2a is driven by the equity model vs the Treasury and Corporate models
Test #4	Same as Test #3, but using Alternative Treasury model calibration with shadow floor as of 12/31/21	Same as #3, but with respect to runs #1b and #2b.
Test #5a	Same as #1a, but with Conning's original Equity model calibration that had significantly lower Gross Wealth Factor's (GWFs) than the AIRG Equity Model.	Tests Conning Treasury model w/ GFF and original equity model as of year-end 2021.
Test #5b	Same as #5a but using a 12/31/19 starting yield curve modified using a 200 BP increase across all maturities. The parameters of Conning's original Equity model are used without any adjustment.	Stresses the starting Treasury rates to understand the full impact of equity-Treasury linkage in Conning's original equity model
Test #6	Same as #1a, but with the ACLI's GEMS® Equity Calibration	Tests the ACLI's GEMS® Equity Calibration that assumes a constant mean equity return independent of rates and increases alignment with AIRG equity model GWFs

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Field Test Participation

- The chart below shows the number of legal entities that submitted VM-20 results for the field test by reserving category and reserve component.
- Many companies submitted multiple products, and some submitted multiple model segments for a given reserving category. Other companies aggregated products with distinct risks (e.g. Variable Universal Life with Secondary Guarantee, vanilla Universal Life with Secondary Guarantee) into a single model segment (e.g. ULSG). Ranges of results shown in the presentation are reflective of a legal entity view, rather than a model segment view.
- There are two basic types of comparisons of the field test results in this presentation; 1) comparisons of field test runs to their respective baseline run, and 2) comparisons of field test runs across the two tested valuation dates. These comparisons are limited by the run with the least participation (e.g. comparisons to the baseline for the 12/31/19 + 200 BP valuation date are limited to Baseline 2 participation).

Participation by Legal Entity

VM-20 Reserving Category	SR/DR	Baseline 1*	Baseline 2	1A*	1B*	2A*	2B*	5A*	5B*	6
Term	DR	11	<5	11	10	9	9	10	10	<5
ULSG	DR	11	<5	11	11	11	11	9	9	<5
Other	DR	<5	<5	<5	<5	<5	<5	<5	<5	<5
Combined	DR	15	6	15	14	14	14	11	11	6
Term	SR	<5	<5	<5	<5	<5	<5	<5	<5	<5
ULSG	SR	9	<5	10	10	10	10	8	8	<5
Other	SR	<5	<5	<5	<5	<5	<5	<5	<5	<5
Combined	SR	11	<5	11	11	11	11	8	8	<5

Participation by Model Segment

Product	Number of Model Segments	Variable?	Indexed?
Term	15	N/A	N/A
ULSG	20	7	4
Whole Life	3	N/A	N/A
Universal Life	1	0	0

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Valuation Dates:

12/31/21

12/31/19 + 200 BP

*Required Run

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High-Level Observations

- When directly comparing baseline DR to field test DR results or baseline SR to field test SR results, there was a wide range of impacts across participating legal entities. Some legal entities saw large increases to their modeled reserves, and others experienced decreases. The range of results was in some cases greater when looking at a model segment level, with some model segments exhibiting much larger increases than were seen at a legal entity level. The range of modeled results by legal entity, however, was much smaller than it was for the VM-21/C3 Phase II GOES field test.
- While the range of modeled results was wide, the average increase to VM-20 minimum reserves by legal entity was muted given the domination of the NPR for many participants, even with large increases to modeled reserves. As VM-20 only became mandatory in 2020, the dominance of the NPR could be related to how recently the business was issued and may not be reflective of a mature block.
- Valuation date comparisons across baseline and field test runs were challenging given the limited participation in Baseline 2. For the DR considering all reserve categories combined, the field test runs were not, on average, more variable across valuation dates compared to the baseline runs. For SR, there was not enough participation in Baseline 2 to compare the change in valuation date results for field test runs to the baseline runs. However, for both DR and SR, the average change across valuation dates and the range of results were significantly smaller in magnitude than the results shown for VM-21.

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Baseline Reserve Comparisons: Term Reserving Category

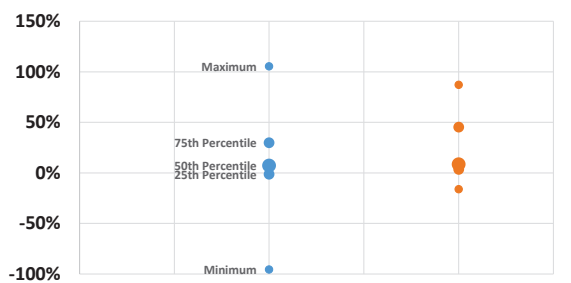
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Change in Deterministic Reserve by Legal Entity

Field Test	1A	1B
Average % Increase	29%	19%
# of Participants	11	10

Percentage Increase: Range and Percentile Statistics



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- Limited participation and SERT scenario errors did not allow for public sharing of DR baseline comparisons for 2A, 2B, 5A, 5B, and 6.
- Approximately half of the participant's Baseline 1 Term deterministic reserves were negative. Comparisons between relatively small negative values, or values that change signs between field test runs require adjustments to the standard (B-A)/A formula that typically is used for percentage change. The formula that was used was as follows: **Absolute Value** [(B-A)/A] * IF(B<A, -1, 1)
- The 1A (Conning Treasury and Baseline Equity scenario set as of 12/31/21) average DR increase of 29% was significantly larger than the 19% average DR increase seen in 1B (Alternative Treasury with Baseline Equity parameters).
- Field test participants saw more variation in the field test 1A reserve impacts, with a higher maximum (105%) and lower minimum (-96%) than what was seen in 1B.
- For both 1A and 1B,
 - the maximum end of the range was from a positive baseline reserve increasing, and
 - The minimum end of the range was from a negative baseline reserve becoming more negative.

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Baseline Reserve Comparisons: ULSG Reserving Category

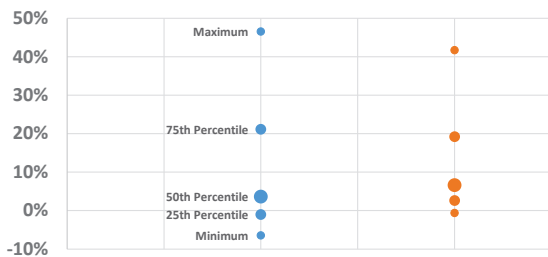
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ULSG Reserve Category: Deterministic Reserve (DR) Change from Baseline by Legal Entity

Field Test	1A	1B
Average % Increase	2%	6%
# of Participants	11	11

Percentage Increase: Range and Percentile Statistics



- Limited participation and SERT scenario errors did not allow for public sharing of DR baseline comparisons for 2A, 2B, 5A, 5B, and 6.
- The 1A (Conning Treasury and Baseline Equity scenario set as of 12/31/21) average DR increase of 2% was relatively smaller than the 6% average DR increase seen in 1B (Alternative Treasury with Baseline Equity parameters). A partial explanation for the higher average DR in 1B could be related to lower S&P 500 equity gross wealth factors (GWFs) present in 1B in later years of the projection compared to 1A.
- Field test participants saw more variation in the field test 1A results, with a higher maximum (47%) and lower minimum (-6%) than in 1B.
- Model segment level results fell within the legal entity level ranges for all but one of the participants.

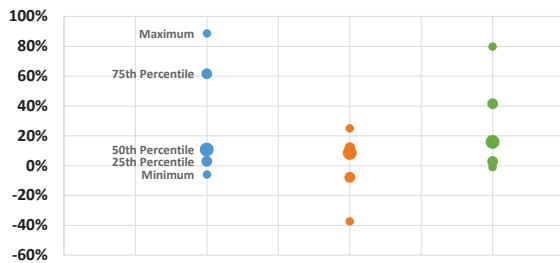
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Change in Stochastic Reserve by Legal Entity

Field Test	1A	1B	5A
Average % Increase	19%	11%	21%
# of Participants	9	8	7

Percentage Increase: Range and Percentile Statistics



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- Limited participation did not allow for public sharing of SR baseline comparisons for 2A, 2B, 5B, and 6.
- The 1A (Conning Treasury and Baseline Equity scenario set as of 12/31/21) average SR increase of 19% was significantly larger than the 11% average SR increase seen in 1B (Alternative Treasury with Baseline Equity parameters).
- Field test 5A (Conning Treasury and original Conning Equity calibration with lower equity GWFs) saw the highest average stochastic reserve increase. The treasury scenarios in 5A were the same as 1A, but the lower equity GWFs present in 5A resulted in larger reserve increases for indexed and variable life products in 5A compared to 1A.
- There was a higher maximum reserve increase in the field test 1A results compared to 1B, and 5A.
- When looking at the range of results at the individual model segment level, there were a number of reserve increases that were greater than those shown in the chart on the left. A company with one of these large model segment impacts noted that the increases would put their reserves higher than AXXX reserves.

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Baseline Reserve Comparisons: Combined Reserving Categories

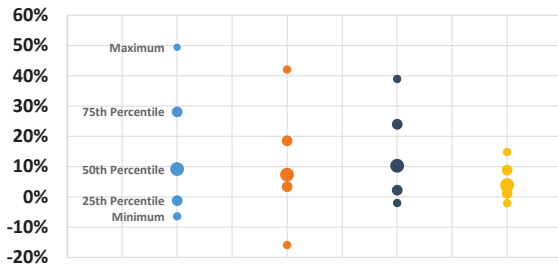
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Combined Reserve Categories: Deterministic Reserve Change from Baseline by Legal Entity

Field Test	1A	1B	2A	2B
Average % Increase	3%	7%	8%	2%
# of Participants	15	14	6	6

Percentage Increase: Range and Percentile Statistics



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- The results shown on this page are reflective of the aggregated Term, ULSG, and Other (as applicable) model segment results by legal entity. Combining reserve categories increases the number of participants, allowing 2A and 2B results to be shared.
- Limited participation and SERT scenario errors did not allow for public sharing of DR baseline comparisons for 5A, 5B, and 6.
- ULSG represented over 97% of the Baseline 1 deterministic reserves in the combined category, and just over half of the model segments.
- The 1A (Conning Treasury and Baseline Equity scenario set as of 12/31/21) average DR increase of 3% was smaller than the 7% average DR increase for 1B (Alternative Treasury with Baseline Equity parameters). However, the relationship flipped for the 12/31/19 + 200BP field test runs shown, with a larger average DR increase of 8% for 2A compared to a smaller increase of 2% for 2B (both compared to Baseline 2).

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Valuation Date Reserve Comparisons: Combined Reserving Categories

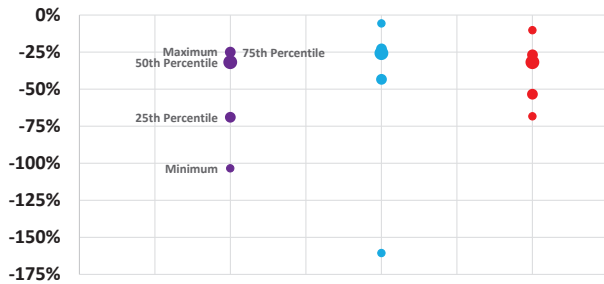
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Change in Deterministic Reserve by Legal Entity

Field Test	B2 vs B1	2A vs 1A	2B vs 1B
Average % Increase	-29%	-22%	-28%
# of Participants	6	14	14

Percentage Decrease: Range and Percentile Statistics



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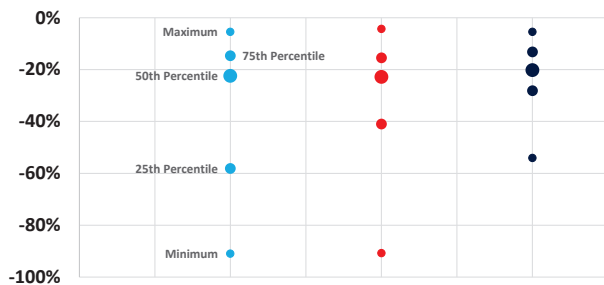
- Limited participation and SERT scenario errors did not allow for public sharing of DR valuation date comparisons for 5B vs 5A
- Across the baseline and field test runs, reserves significantly decreased in the 12/31/19 + 200 BP (higher starting interest rate level) runs compared to the 12/31/21 (lower starting interest rate) runs.
- The average percentage decrease was similar across the field test runs, although the comparison to the Baseline runs was challenging given the limited participation.
- The range of results was highest for the 2A vs 1A comparison. The largest decreases were driven by comparisons where the term DR was negative in both the 1A and 2A runs.

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Change in Stochastic Reserve by Legal Entity

Field Test	2A vs 1A	2B vs 1B	5B vs 5A
Average % Increase	-24%	-22%	-22%
# of Participants	11	11	8

Percentage Decrease: Range and Percentile Statistics



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- Limited participation did not allow for public sharing of SR valuation date comparisons for Baseline 2 vs. Baseline 1.
- Across the baseline and field test runs, reserves significantly decreased in the 12/31/19 + 200 BP (higher starting interest rate level) runs compared to the 12/31/21 (lower starting interest rate) runs.
- The average percentage decrease in the SR was similar across the different field test run comparisons.
- The large range of results was similar across the 2A vs 1A and 2B vs 1B comparisons, but somewhat narrower in the 5B vs 5A (same UST as 1A/2A, but Conning original equity model with equity Treasury Linkage) comparison. This result is somewhat counterintuitive, given the additional variation in the Equity GWFs between valuation dates present in the 5B vs 5A comparison. This can be partially explained by:
 - Some companies included variable, indexed, and/or “vanilla” ULSG in the same model segment making it challenging to isolate impacts,
 - Limited indexed and variable product participation, and
 - There were less participants in the 5B vs 5A comparison.

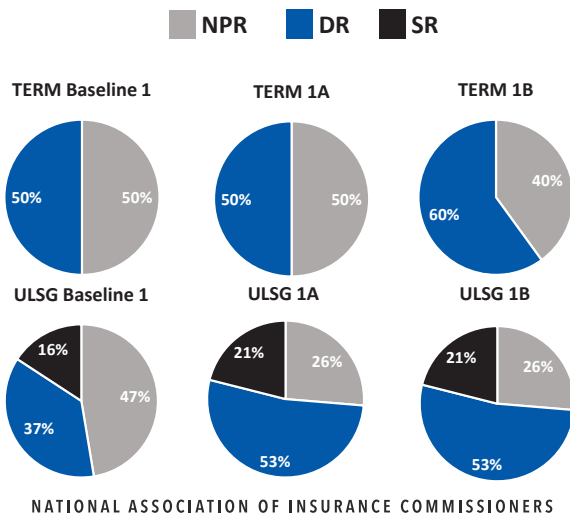
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VM-20 Minimum Reserve Impact

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Proportion of Reserve Category/Model Segments by Dominant Reserve Type



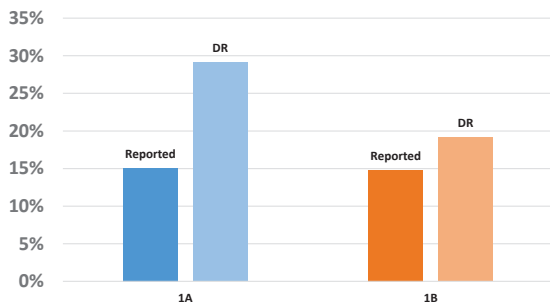
- A partial survey of 2021 PBR Actuarial Reports indicated that:
 - Of 99 companies that included Term results, 63% held the DR, 35% held the NPR, and the remaining 2% had the stochastic reserve as the dominant reserve, and
 - Of 68 companies that included ULSG results, 57% held the NPR, 31% held the DR, and the remaining 12% held the SR as the dominant reserve.
- For the term reserving category, approximately half of the participants held negative deterministic reserves for their Baseline 1 submission.
- While the chart for Term 1B seems to indicate a switch from NPR to DR, the change in proportion of NPR/DR is entirely due to less participation in 1B.
- Almost half of the participant ULSG products held a net premium reserve as their minimum reserve for Baseline 1. For field tests 1A and 1B, there was a large shift to the deterministic reserve and a smaller shift to the stochastic reserve as the dominant reserve.
- Although the proportions of winning NPR, DR, and SR are the same across ULSG 1A and 1B, there was movement in the winning reserve type for some model segments between 1A and 1B.

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Term Reserve Category: VM-20 Minimum Reserve Change from Baseline

Field Test	1A	1B
# of Participants	11	10

Average % Reserve Increase: Minimum and DR



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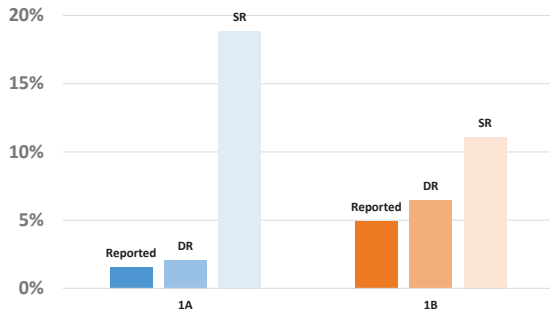
- The graph on the left shows average percentage increases in the VM-20 minimum reserve and DR for the Term Reserving Category.
- Despite reserve increases for many of the participants for their field test modeled reserve runs (DR), the effect on the legal entity level minimum reserve was muted due to the net premium reserve still dominating in many cases.
- Field test 1A saw a larger increase to DR than 1B, but the change to the average reported (minimum) reserve was very similar due to:
 - There were no companies that switched dominant reserves from their Baseline 1 result to either the 1A or 1B for the Term Reserving Category. For the companies where the NPR was the dominant reserve, the change in reported reserve was zero.
 - When the DR was the winning reserve, some companies had larger increases in 1A and others saw larger increases in the 1B run.
- The dominant reserve may change throughout a product's lifecycle. PBR only became mandatory in 2020, so all of the business was recently issued. Therefore, these results may not be applicable to business that is in a more mature phase.

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ULSG Reserve Category: VM-20 Minimum Reserve Change from Baseline

Field Test	1A	1B
# of Participants	11	11

Average % Reserve Increase: Minimum, DR, and SR



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- The graph on the left shows average percentage increases in the VM-20 minimum reserve, DR and SR for the ULSG Reserve Category.
- Despite reserve increases for many of the participants for their field test modeled reserve runs (DR and SR), the effect on the legal entity level minimum reserve was muted due to:
 - the net premium reserve still dominating in many cases, and
 - several of the largest increases to modeled reserves did not end up being the winning reserve.
- The dominant reserve may change throughout a product's lifecycle. PBR only became mandatory in 2020, so all of the business was recently issued. Therefore, these results may not be applicable to business that is in a more mature phase.

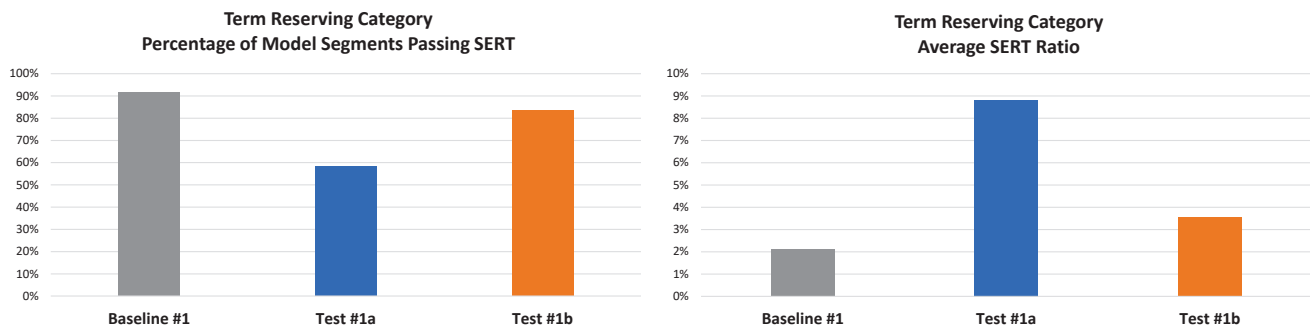
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Stochastic Exclusion Ratio Test (SERT) Scenario Results

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Field Test SERT Results - Term

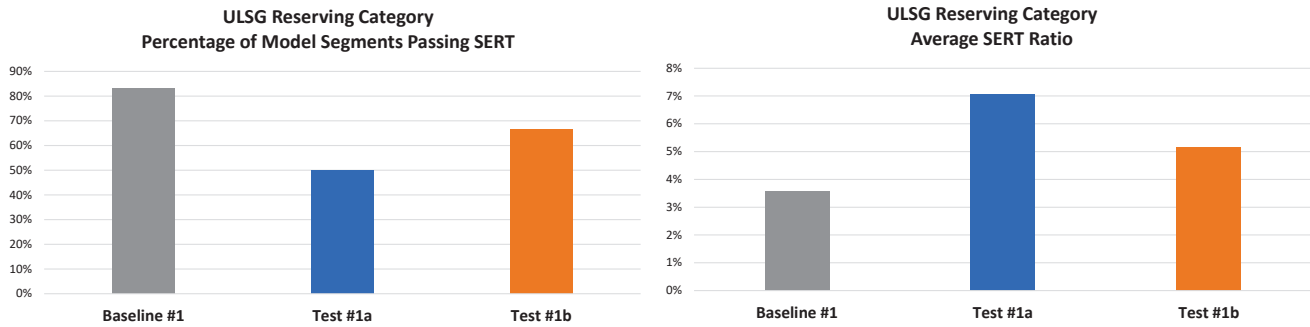


- As compared to company Baseline #1 results, less of the field test run term model segments passed the SERT, with the biggest drop-off seen for the Conning Calibration w/ GFF (1A).
- The average (non-weighted) SERT result for term model segments increased for the field test runs compared to Baseline #1. Average SERT ratios increased the most for the Conning Calibration w/ GFF (1A).
- For the term model segment, the “b” largest adjusted DR scenario was mostly consistent for a given model segment between the different field test runs. However, across model segments/legal entities, different “b” SERT scenarios were constraining.

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Field Test SERT Results - ULSG

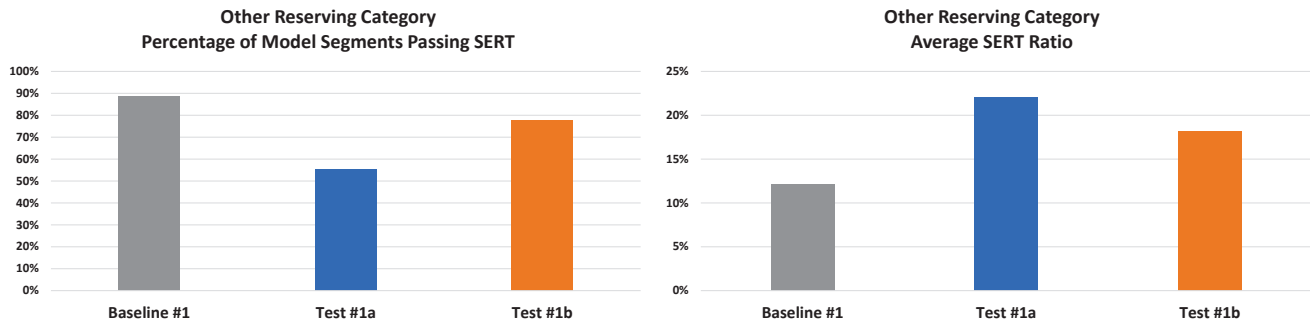


- As compared to company Baseline #1 results, less of the field test run ULSG model segments passed the SERT, with the biggest drop-off seen for the Conning Calibration w/ GFF (1A).
- The average (non-weighted) SERT result for term model segments increased for the field test runs compared to Baseline #1. Average SERT ratios increased the most for the Conning Calibration w/ GFF (1A).
- The “b” scenario in the SERT calculation fluctuated between field test runs for some ULSG model segments but was stable in others

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Field Test SERT Results - Other



- As compared to company Baseline #1 results, less of the field test run ULSG model segments passed the SERT, with the biggest drop-off seen for the Conning Calibration w/ GFF (1A).
- The average (non-weighted) SERT result for term model segments increased for the field test runs compared to Baseline #1. Average SERT ratios increased the most for the Conning Calibration w/ GFF (1A).
- For the Other model segment, the “b” scenario frequently changed between the baseline and field test runs. Of those that change, most switched to a pop-down UST SERT scenario. Across model segments/legal entities, different “b” SERT scenarios were constraining.

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Next Steps

- The NAIC will look to present economic scenario generator field test results for the C3 Phase I in late June. Additional time for follow-up discussions may be necessary.
- Regulators will continue to work with interested parties in economic scenario generator drafting groups to continue progress on reserve/capital framework specific implementation tasks.
- The Life Actuarial (A) Task Force will engage with the American Academy of Actuaries and other interested parties to decide on stylized facts and acceptance criteria ahead of a recalibration of the economic scenario generator and a second field test.



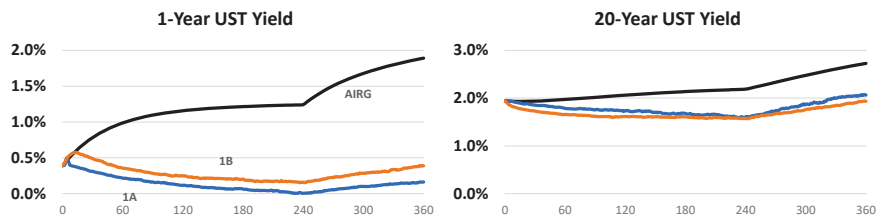
Appendix 1: Stochastic Exclusion Test Ratio (SERT) Scenario Overview

Deterministic Reserve 12/31/21 Scenario Statistics

- SERT Scenario 12 (the DR scenario) has significantly lower UST rates for 1A/5A/6* and 1B compared to the AIRG. Lower and longer interest rates can tend to increase VM-20 reserves due to, for example, challenges with companies being able to reinvest in assets with enough yield to support minimum crediting rates and/or a lower discount rate on future claim payments.
- The deterministic reserves for variable insurance products with direct investment in equity funds and indexed products are also impacted by equity scenarios. The table below shows the Gross Wealth Factors (GWFs) for the 12/31/21 AIRG and field test runs. 1A, 1B, and 6 have similar GWFs to the AIRG, but the 5A field test run that utilized the original Conning equity calibration with the equity-Treasury linkage had significantly lower GWFs given the low starting interest rate environment.

Large Cap (S&P 500) Equity Gross Wealth Factors

	12	60	120	240	360
AIRG	1.04	1.22	1.48	2.19	4.52
1A	1.03	1.16	1.38	2.01	4.29
1B	1.04	1.19	1.40	2.00	4.04
5A	1.03	1.09	1.17	1.36	2.47
6	1.06	1.27	1.56	2.29	4.77

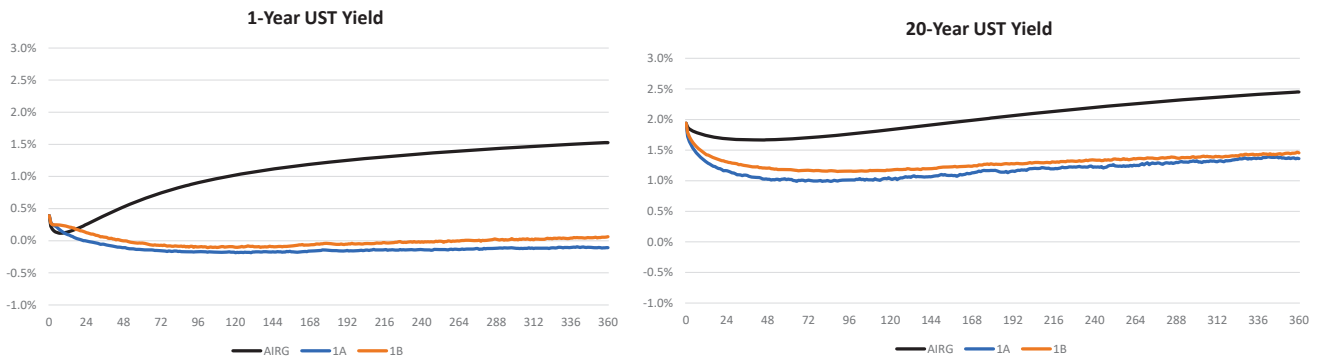


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*Note: 5A and 6 have the same UST scenarios as 1A.

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UST SERT Scenario 3 (Pop-down) at 12/31/21

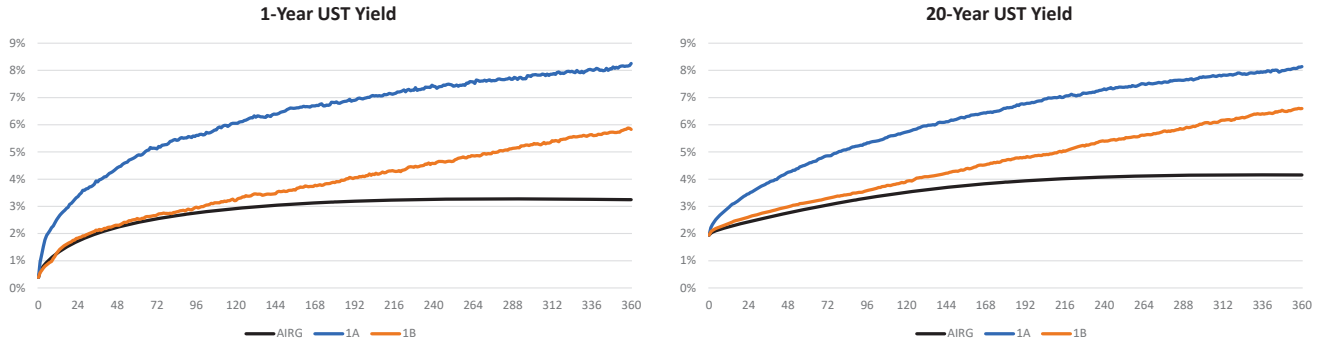


- The pop-down UST scenario for field test runs 1A and 1B are significantly lower than those produced by the AIRG
- Pop-down description:** Interest rate shocks are selected to maintain the cumulative shock at the 10% level (1.282 standard errors).

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UST SERT Scenario 1 (Pop-up) at 12/31/21



- The pop-up UST scenario for field test runs 1A and 1B are significantly higher than those produced by the AIRG. However, in the pop-up scenarios, field test 1A is also materially higher than field test 1B
- **Pop-up description:** Interest rate shocks are selected to maintain the cumulative shock at the 90% level (1.282 standard errors).

Appendix 2: Treasury and Equity Scenario Overview

Field Test 1A: US Treasury Overview

- Field Test 1A (as of 12/31/21) included a recalibration of the Conning GEMS® US Treasury model that was designed to meet the regulator's acceptance criteria related to low for long, the prevalence of high interest rates, upper and lower bounds, initial yield curve fit, and yield curve shape. The frequency and severity of negative interest rates were controlled using a generalized fractional floor.
- The 1A UST scenario set as of 12/31/21 had a much higher prevalence of low UST rates, including negative interest rates, compared to the scenarios produced by the AIRG as of 12/31/21, which is floored at 1 BP.
- The 1A UST scenario set also included greater and more frequent high UST rates, with maximum UST rates greatly exceeding that of the AIRG. While a floor was employed in all of the field test UST scenario sets, no cap was employed on how high rates could get.

1A: 10,000 1-yr UST Scenario Percentiles by Projection Month as of 12/31/21

Percentile	12	60	120	240	360
Min	-0.49%	-0.97%	-0.94%	-0.91%	-0.93%
1%	-0.17%	-0.51%	-0.58%	-0.56%	-0.56%
10%	0.10%	-0.14%	-0.19%	-0.13%	-0.11%
25%	0.25%	0.14%	0.14%	0.19%	0.25%
50%	0.62%	0.84%	1.18%	1.61%	2.09%
75%	1.63%	2.83%	3.59%	4.39%	4.93%
95%	3.15%	6.14%	7.78%	9.35%	10.38%
99%	4.32%	8.86%	11.38%	13.53%	14.47%
Max	7.93%	14.36%	19.89%	25.18%	26.72%

AIRG: 10,000 1-yr UST Scenario Percentiles by Projection Month as of 12/31/21

Percentile	12	60	120	240	360
Min	0.01%	0.01%	0.01%	0.01%	0.01%
1%	0.01%	0.21%	0.33%	0.32%	0.32%
10%	0.27%	0.66%	0.87%	0.98%	0.99%
25%	0.47%	0.96%	1.22%	1.41%	1.45%
50%	0.69%	1.35%	1.68%	1.99%	2.10%
75%	0.92%	1.78%	2.27%	2.74%	2.90%
95%	1.29%	2.57%	3.40%	4.29%	4.66%
99%	1.59%	3.37%	4.75%	6.17%	6.31%
Max	2.31%	5.82%	10.94%	13.22%	12.76%

1A-AIRG: 10,000 1-yr UST Scenario Percentiles by Projection Month

Difference	12	60	120	240	360
Min	-0.5%	-1.0%	-0.9%	-0.9%	-0.9%
1%	-0.2%	-0.7%	-0.9%	-0.9%	-0.9%
10%	-0.2%	-0.8%	-1.1%	-1.1%	-1.1%
25%	-0.2%	-0.8%	-1.1%	-1.2%	-1.2%
50%	-0.1%	-0.5%	-0.5%	-0.4%	0.0%
75%	0.7%	1.0%	1.3%	1.7%	2.0%
95%	1.9%	3.6%	4.4%	5.1%	5.7%
99%	2.7%	5.5%	6.7%	7.4%	8.2%
Max	5.6%	8.5%	8.9%	12.0%	14.0%

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Field Test 1A: Equity Overview

- The 1A equity scenario set used a calibration that targeted the median gross wealth factor (GWF) produced by the AIRG at the end of 30 years. This recentering of the equity return distribution with changes to the starting interest environment partially mitigates the impact of the GEMS® equity-Treasury linkage functionality.
- While the GWF's between the AIRG and field test 1A are consistent at the 50th percentile at the end of the 30th projection year, the 1A scenario set generally has somewhat lower GWFs in the lower percentiles and earlier projection years compared to the AIRG.
- In the later durations and higher percentiles, the 1A GWFs are greater than those produced by the AIRG.

1A: 10,000 SP500 GWF %-tiles by Projection Month

	12	60	120	240	360
Min	0.50	0.28	0.24	0.39	0.39
1.0%	0.71	0.59	0.59	0.83	1.17
2.5%	0.77	0.68	0.75	1.06	1.60
5.0%	0.82	0.78	0.87	1.34	2.11
10.0%	0.87	0.89	1.05	1.69	2.86
25.0%	0.97	1.09	1.40	2.54	4.88
50.0%	1.07	1.35	1.88	4.01	8.99
75.0%	1.16	1.64	2.57	6.49	16.98
90.0%	1.25	1.96	3.41	10.26	31.70
95.0%	1.31	2.20	4.04	13.67	47.46
97.5%	1.35	2.45	4.70	17.57	66.83
99.0%	1.41	2.77	5.65	23.45	101.58
Max	1.81	4.53	13.89	55.97	457.07

AIRG: 10,000 SP500 GWF %-tiles by Projection Month

	12	60	120	240	360
Min	0.41	0.32	0.26	0.35	0.38
1.0%	0.70	0.62	0.66	0.83	1.22
2.5%	0.76	0.72	0.77	1.10	1.69
5.0%	0.82	0.81	0.92	1.41	2.25
10.0%	0.89	0.93	1.12	1.83	3.09
25.0%	0.98	1.16	1.51	2.74	5.11
50.0%	1.09	1.45	2.09	4.27	8.84
75.0%	1.19	1.81	2.88	6.80	15.35
90.0%	1.30	2.22	3.81	10.15	24.98
95.0%	1.37	2.48	4.44	12.92	34.25
97.5%	1.44	2.72	5.17	15.65	45.88
99.0%	1.52	3.06	6.18	20.49	60.45
Max	1.92	4.77	11.86	66.94	235.95

1A/AIRG: GWF Ratios by Projection Month

SP500	12	60	120	240	360
Min	123%	90%	94%	113%	101%
1.0%	101%	96%	90%	100%	95%
2.5%	102%	95%	97%	96%	95%
5.0%	100%	96%	95%	95%	94%
10.0%	99%	96%	93%	92%	92%
25.0%	98%	94%	92%	93%	96%
50.0%	98%	93%	90%	94%	102%
75.0%	98%	90%	90%	95%	111%
90.0%	97%	88%	90%	101%	127%
95.0%	95%	89%	91%	106%	139%
97.5%	94%	90%	91%	112%	146%
99.0%	93%	90%	92%	114%	168%
Max	94%	95%	117%	84%	194%

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Field Test 1B: US Treasury Overview

- Field Test 1B (as of 12/31/21) included a calibration of the Conning GEMS® US Treasury model that was designed to meet regulator acceptance criteria but placed additional emphasis on maintaining realistic term premiums throughout the projection. Towards that end, there was a significantly lower frequency of inversions (e.g. ~5% of 1B scenarios had 10 year/2year UST inversions at the end of year 30 compared to ~12% seen in 1A). The average level of inversion was also significantly lower (e.g. in 1B 10 year/2 year UST inversions average ~30 BP at the end of year 30, compared to ~90 BP average inversion level for 1A).
- 1B also included lower and less frequent high interest rates than 1A, but still contained greater and more frequent high interest rates than the AIRG.
- The frequency and severity of negative interest rates were controlled using a shadow floor that preserves the arbitrage free nature of the scenarios. The 1B UST scenario set has a comparable amount of low/negative UST rates to 1A, but significantly more severe and frequent low (and negative) UST rates compared to the AIRG.

1B: 10,000 1-yr UST Scenario Percentiles by Projection Month

Percentile	12	60	120	240	360
Min	-0.59%	-1.08%	-1.24%	-1.18%	-1.19%
1%	-0.10%	-0.51%	-0.61%	-0.59%	-0.58%
10%	0.22%	-0.04%	-0.10%	-0.02%	0.06%
25%	0.42%	0.26%	0.27%	0.37%	0.49%
50%	0.65%	0.65%	0.71%	0.88%	1.28%
75%	0.88%	1.24%	1.67%	2.60%	3.52%
95%	1.76%	3.38%	4.38%	5.99%	7.49%
99%	2.57%	4.89%	6.44%	8.90%	10.64%
Max	4.25%	10.28%	11.63%	17.99%	22.87%

AIRG: 10,000 1-yr UST Scenario Percentiles by Projection Month

Percentile	12	60	120	240	360
Min	0.01%	0.01%	0.01%	0.01%	0.01%
1%	0.01%	0.21%	0.33%	0.32%	0.32%
10%	0.27%	0.66%	0.87%	0.98%	0.99%
25%	0.47%	0.96%	1.22%	1.41%	1.45%
50%	0.69%	1.35%	1.68%	1.99%	2.10%
75%	0.92%	1.78%	2.27%	2.74%	2.90%
95%	1.29%	2.57%	3.40%	4.29%	4.66%
99%	1.59%	3.37%	4.75%	6.17%	6.31%
Max	2.31%	5.82%	10.94%	13.22%	12.76%

Difference	12	60	120	240	360
Min	-0.6%	-1.1%	-1.2%	-1.2%	-1.2%
1%	-0.1%	-0.7%	-0.9%	-0.9%	-0.9%
10%	0.0%	-0.7%	-1.0%	-1.0%	-0.9%
25%	-0.1%	-0.7%	-1.0%	-1.0%	-1.0%
50%	0.0%	-0.7%	-1.0%	-1.1%	-0.8%
75%	0.0%	-0.5%	-0.6%	-0.1%	0.6%
95%	0.5%	0.8%	1.0%	1.7%	2.8%
99%	1.0%	1.5%	1.7%	2.7%	4.3%
Max	1.9%	4.5%	0.7%	4.8%	10.1%

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Field Test 1B: Equity Overview

- The 1B equity scenario set used the same calibration as 1A. However, due to the equity-Treasury linkage, the resulting GWFs are different. The largest differences between the 1A and 1B equity GWFs are seen at the upper percentiles at the end of the 30th projection year, with the 1B being substantially lower and more in line with the AIRG.
- The median GWF at the end of the 30th projection year for 1B (7.99) is materially lower than both 1A (8.99) and the AIRG (8.84).
- Finally, the 1st percentile GWF at the end of the 30th projection year for 1b (1.19) was consistent with those of 1A (1.17) and the AIRG (1.22).

1B: 10,000 SP500 GWF %-tiles by Projection Month

	12	60	120	240	360
Min	0.51	0.30	0.26	0.34	0.27
1.0%	0.71	0.61	0.61	0.82	1.19
2.5%	0.78	0.70	0.76	1.05	1.59
5.0%	0.83	0.80	0.90	1.33	2.07
10.0%	0.88	0.92	1.08	1.68	2.72
25.0%	0.98	1.12	1.42	2.47	4.57
50.0%	1.08	1.38	1.90	3.78	7.99
75.0%	1.17	1.68	2.56	5.85	13.71
90.0%	1.26	2.00	3.32	8.61	23.14
95.0%	1.32	2.24	3.94	10.91	32.00
97.5%	1.36	2.50	4.53	13.70	43.02
99.0%	1.42	2.80	5.44	17.25	61.86
Max	1.83	4.67	14.21	76.72	258.35

AIRG: 10,000 SP500 GWF %-tiles by Projection Month

	12	60	120	240	360
Min	0.41	0.32	0.26	0.35	0.38
1.0%	0.70	0.62	0.66	0.83	1.22
2.5%	0.76	0.72	0.77	1.10	1.69
5.0%	0.82	0.81	0.92	1.41	2.25
10.0%	0.89	0.93	1.12	1.83	3.09
25.0%	0.98	1.16	1.51	2.74	5.11
50.0%	1.09	1.45	2.09	4.27	8.84
75.0%	1.19	1.81	2.88	6.80	15.35
90.0%	1.30	2.22	3.81	10.15	24.98
95.0%	1.37	2.48	4.44	12.92	34.25
97.5%	1.44	2.72	5.17	15.65	45.88
99.0%	1.52	3.06	6.18	20.49	60.45
Max	1.92	4.77	11.86	66.94	235.95

1B/AIRG: GWF Ratios by Projection Month

SP500	12	60	120	240	360
Min	124%	94%	102%	98%	71%
1.0%	102%	98%	93%	99%	98%
2.5%	103%	98%	99%	95%	94%
5.0%	101%	99%	97%	94%	92%
10.0%	100%	99%	96%	92%	88%
25.0%	99%	97%	94%	90%	89%
50.0%	99%	95%	91%	88%	90%
75.0%	99%	93%	89%	86%	89%
90.0%	97%	90%	87%	85%	93%
95.0%	96%	90%	89%	84%	93%
97.5%	95%	92%	88%	88%	94%
99.0%	94%	91%	88%	84%	102%
Max	95%	98%	120%	115%	109%

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Field Test 2A: US Treasury Overview

- Field Test 2A (as of 12/31/19 + 200 BP) used the same calibration as 1A (Conning Calibration with a Generalized Fractional Floor) but with a 12/31/19 starting yield curve modified using a 200 BP increase across all maturities.
- The higher starting interest environment leads to greater and more frequent high interest rates and less severe and less frequent low interest rates in 2A compared to 1A.
- Compared to the AIRG with a 12/31/19 + 200 BP starting interest environment, the 2A scenario set has a greater frequency and severity of high UST rates and more prevalent and severe low (and negative) UST rates.

2A (12/31/19 + 200 BP): 10,000 1-yr UST Scenario Percentiles by Projection Month

Percentile	12	60	120	240	360
Min	-0.13%	-0.78%	-0.82%	-0.89%	-0.92%
1%	0.29%	-0.27%	-0.42%	-0.49%	-0.53%
10%	1.34%	0.19%	0.02%	-0.04%	-0.06%
25%	2.26%	0.87%	0.39%	0.31%	0.32%
50%	3.34%	2.89%	2.69%	2.43%	2.54%
75%	4.49%	5.15%	5.38%	5.47%	5.53%
95%	6.19%	8.80%	10.06%	10.86%	11.30%
99%	7.44%	11.88%	13.61%	15.32%	15.70%
Max	11.48%	17.62%	22.91%	27.07%	28.97%

AIRG (12/31/19 + 200 BP): 10,000 1-yr UST Scenario Percentiles by Projection Month

Percentile	12	60	120	240	360
Min	0.31%	0.01%	0.01%	0.01%	0.01%
1%	1.25%	0.47%	0.34%	0.29%	0.31%
10%	1.82%	1.22%	1.06%	1.04%	1.00%
25%	2.16%	1.72%	1.58%	1.53%	1.50%
50%	2.53%	2.35%	2.24%	2.21%	2.18%
75%	2.92%	3.06%	3.08%	3.10%	3.05%
95%	3.55%	4.39%	4.77%	4.96%	4.94%
99%	4.06%	5.66%	6.73%	7.29%	6.73%
Max	5.24%	9.85%	16.66%	15.13%	13.59%

2A-AIRG: 10,000 1-yr UST Scenario Percentiles by Projection Month

Difference	12	60	120	240	360
Min	-0.4%	-0.8%	-0.8%	-0.9%	-0.9%
1%	-1.0%	-0.7%	-0.8%	-0.8%	-0.8%
10%	-0.5%	-1.0%	-1.0%	-1.1%	-1.1%
25%	0.1%	-0.8%	-1.2%	-1.2%	-1.2%
50%	0.8%	0.5%	0.4%	0.2%	0.4%
75%	1.6%	2.1%	2.3%	2.4%	2.5%
95%	2.6%	4.4%	5.3%	5.9%	6.4%
99%	3.4%	6.2%	6.9%	8.0%	9.0%
Max	6.2%	7.8%	6.3%	11.9%	15.4%

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Field Test 2A: Equity Overview

- The targets of the 2A equity scenarios is designed to align the GWF at the end of the 30th projection year (8.97) with those produced by the AIRG (8.84) no matter the starting interest rate environment. However, there is still an impact to the 2A equity scenarios due to the increased starting interest rate environment and the equity-Treasury linkage compared to the 1A equity scenarios.
- The largest differences between the 2A and 1A equity GWFs are seen at the upper percentiles at the end of the 30th projection year, for example the 99th percentile GWF for 1b is 127.28 at the end of the 30th year compared to 101.58 for the 1A scenario set.
- The same considerations apply when comparing 2A to the AIRG with a 12/31/19 + 200 BP starting interest rate environment, with the largest differences between the GWFs of 2A and the AIRG occurring in the higher percentiles and later projection years.

2A: 10,000 SP500 GWF %-tiles by Projection Month

	12	60	120	240	360
Min	0.51	0.30	0.26	0.40	0.36
1.0%	0.73	0.65	0.64	0.83	1.07
2.5%	0.79	0.75	0.80	1.08	1.46
5.0%	0.84	0.85	0.95	1.34	1.93
10.0%	0.90	0.97	1.15	1.73	2.63
25.0%	1.00	1.20	1.54	2.64	4.71
50.0%	1.10	1.48	2.11	4.38	8.97
75.0%	1.20	1.82	2.96	7.42	18.20
90.0%	1.29	2.19	4.01	12.10	35.66
95.0%	1.35	2.46	4.74	16.60	54.53
97.5%	1.39	2.73	5.63	22.33	83.32
99.0%	1.45	3.10	7.00	30.39	127.28
Max	1.87	5.11	15.80	86.26	817.22

AIRG: 10,000 SP500 GWF %-tiles by Projection Month

	12	60	120	240	360
Min	0.41	0.32	0.26	0.35	0.38
1.0%	0.70	0.62	0.66	0.83	1.22
2.5%	0.76	0.72	0.77	1.10	1.69
5.0%	0.82	0.81	0.92	1.41	2.25
10.0%	0.89	0.93	1.12	1.83	3.09
25.0%	0.98	1.16	1.51	2.74	5.11
50.0%	1.09	1.45	2.09	4.27	8.84
75.0%	1.19	1.81	2.88	6.80	15.35
90.0%	1.30	2.22	3.81	10.15	24.98
95.0%	1.37	2.48	4.44	12.92	34.25
97.5%	1.44	2.72	5.17	15.65	45.88
99.0%	1.52	3.06	6.18	20.49	60.45
Max	1.92	4.77	11.86	66.94	235.95

2A/AIRG: GWF Ratios by Projection Month

SP500	12	60	120	240	360
Min	124%	95%	99%	116%	94%
1.0%	104%	104%	97%	100%	88%
2.5%	105%	103%	103%	98%	87%
5.0%	103%	105%	103%	95%	86%
10.0%	101%	104%	102%	94%	85%
25.0%	101%	103%	102%	96%	92%
50.0%	101%	102%	101%	103%	101%
75.0%	101%	100%	103%	109%	119%
90.0%	100%	99%	105%	119%	143%
95.0%	98%	99%	107%	129%	159%
97.5%	97%	100%	109%	143%	182%
99.0%	96%	101%	113%	148%	211%
Max	98%	107%	133%	129%	346%

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Field Test 5A: Treasury and Equity Overview

- The 5A scenario set uses the exact same UST scenarios as 1A.
- For the 5A equity scenario set, the Conning's original equity model calibration is used that includes the full impact of the equity-Treasury linkage. With 5A's lower overall UST rates, the equity GWFs at the lower percentiles are much more severe than the AIRG and other field test scenario sets. For example, the 1st percentile of equity GWFs for 5A is .39, compared to 1.22 for the AIRG and 1.19 for 1A.
- The median GWF at the end of the 30th projection year for 5A (5.88) is significantly lower than with both 1A (8.99) and the AIRG (8.84).

5A: 10,000 SP500 GWF %-tiles by Projection Month

	12	60	120	240	360
Min	0.47	0.13	0.06	0.04	0.05
1.0%	0.71	0.45	0.36	0.38	0.39
2.5%	0.76	0.57	0.48	0.54	0.65
5.0%	0.82	0.67	0.63	0.73	0.95
10.0%	0.87	0.80	0.82	1.04	1.48
25.0%	0.96	1.02	1.20	1.79	2.93
50.0%	1.05	1.28	1.69	3.09	5.88
75.0%	1.14	1.56	2.31	5.11	11.43
90.0%	1.21	1.85	3.02	8.11	21.44
95.0%	1.26	2.04	3.59	10.76	32.94
97.5%	1.30	2.23	4.11	13.83	47.77
99.0%	1.35	2.50	4.83	18.95	71.23
Max	1.68	3.79	10.89	64.69	494.22

AIRG: 10,000 SP500 GWF %-tiles by Projection Month

	12	60	120	240	360
Min	0.41	0.32	0.26	0.35	0.38
1.0%	0.70	0.62	0.66	0.83	1.22
2.5%	0.76	0.72	0.77	1.10	1.69
5.0%	0.82	0.81	0.92	1.41	2.25
10.0%	0.89	0.93	1.12	1.83	3.09
25.0%	0.98	1.16	1.51	2.74	5.11
50.0%	1.09	1.45	2.09	4.27	8.84
75.0%	1.19	1.81	2.88	6.80	15.35
90.0%	1.30	2.22	3.81	10.15	24.98
95.0%	1.37	2.48	4.44	12.92	34.25
97.5%	1.44	2.72	5.17	15.65	45.88
99.0%	1.52	3.06	6.18	20.49	60.45
Max	1.92	4.77	11.86	66.94	235.95

5A/AIRG: GWF Ratios by Projection Month

SP500	12	60	120	240	360
Min	114%	40%	24%	11%	13%
1.0%	101%	73%	54%	46%	32%
2.5%	100%	79%	62%	49%	39%
5.0%	100%	83%	68%	51%	42%
10.0%	99%	86%	73%	57%	48%
25.0%	98%	88%	79%	65%	57%
50.0%	97%	88%	81%	72%	66%
75.0%	96%	86%	80%	75%	74%
90.0%	94%	83%	79%	80%	86%
95.0%	92%	82%	81%	83%	96%
97.5%	91%	82%	80%	88%	104%
99.0%	89%	82%	78%	92%	118%
Max	87%	80%	92%	97%	209%

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Field Test 6: Treasury and Equity Overview

- The field test 6 scenario set uses the exact same UST scenarios as 1A.
- The equity calibration for scenario set 6 assumes a constant mean equity return independent of rates and increases alignment with AIRG equity model GWFs.
- The median GWF at the end of the 30th projection year for 6 is 9.49, which is close but somewhat higher than the the corresponding GWFs for both 1A (8.99) and the AIRG (8.84).
- While there are differences (somewhat lower GWFs in low percentiles, lower GWFs at higher percentiles), the equity scenarios from 6 overall are more consistent with those produced by the AIRG than other field test scenario sets.

6: 10,000 SP500 GWF %-tiles by Projection Month

	12	60	120	240	360
Min	0.43	0.14	0.13	0.31	0.23
1.0%	0.71	0.57	0.59	0.79	1.20
2.5%	0.77	0.68	0.76	1.08	1.73
5.0%	0.83	0.80	0.92	1.41	2.32
10.0%	0.89	0.94	1.14	1.85	3.20
25.0%	0.99	1.19	1.58	2.90	5.41
50.0%	1.09	1.50	2.17	4.55	9.49
75.0%	1.19	1.82	2.90	6.83	15.89
90.0%	1.28	2.15	3.66	9.85	24.35
95.0%	1.33	2.34	4.22	12.01	31.70
97.5%	1.38	2.52	4.76	14.36	39.68
99.0%	1.43	2.75	5.37	17.19	52.06
Max	1.79	3.97	9.38	33.26	135.23

AIRG: 10,000 SP500 GWF %-tiles by Projection Month

	12	60	120	240	360
Min	0.41	0.32	0.26	0.35	0.38
1.0%	0.70	0.62	0.66	0.83	1.22
2.5%	0.76	0.72	0.77	1.10	1.69
5.0%	0.82	0.81	0.92	1.41	2.25
10.0%	0.89	0.93	1.12	1.83	3.09
25.0%	0.98	1.16	1.51	2.74	5.11
50.0%	1.09	1.45	2.09	4.27	8.84
75.0%	1.19	1.81	2.88	6.80	15.35
90.0%	1.30	2.22	3.81	10.15	24.98
95.0%	1.37	2.48	4.44	12.92	34.25
97.5%	1.44	2.72	5.17	15.65	45.88
99.0%	1.52	3.06	6.18	20.49	60.45
Max	1.92	4.77	11.86	66.94	235.95

6/AIRG: GWF Ratios by Projection Month

SP500	12	60	120	240	360
Min	106%	44%	50%	88%	60%
1.0%	101%	92%	89%	95%	98%
2.5%	102%	95%	99%	98%	102%
5.0%	101%	100%	100%	100%	103%
10.0%	100%	101%	102%	101%	103%
25.0%	101%	103%	104%	106%	106%
50.0%	100%	103%	104%	107%	107%
75.0%	100%	100%	101%	101%	104%
90.0%	99%	97%	96%	97%	97%
95.0%	97%	95%	95%	93%	93%
97.5%	96%	92%	92%	92%	86%
99.0%	94%	90%	87%	84%	86%
Max	93%	83%	79%	50%	57%

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Draft: 7/3/23

Life Actuarial (A) Task Force
Virtual Meeting
May 11, 2023

The Life Actuarial (A) Task Force met May 11, 2023. The following Task Force members participated: Cassie Brown, Chair, represented by Rachel Hemphill (TX); Scott A. White, Vice Chair, represented by Craig Chupp (VA); Lori K. Wing-Heier represented by Sharon Comstock (AK); Mark Fowler represented by Sanjeev Chaudhuri (AL); Ricardo Lara represented by Ahmad Kamil (CA); Andrew N. Mais represented by Wanchin Chou (CT); Doug Ommen represented by Mike Yanacheak (IA); Dana Popish Severinghaus represented by Vincent Tsang (IL); Amy L. Beard represented by Scott Shover (IN); Vicki Schmidt represented by Nicole Boyd (KS); Grace Arnold represented by Fred Andersen and Ben Slutsker (MN); Chlora Lindley-Myers represented by William Leung (MO); Adrienne A. Harris represented by Bill Carmello (NY); Judith L. French represented by Peter Weber (OH); Glen Mulready represented by Andrew Schallhorn (OK); Michael Humphreys represented by Steve Boston (PA); and Jon Pike represented by Tomasz Serbinowski (UT).

1. Adopted APF 2021-08

Hemphill said that the Task Force would be considering adoption of amendment proposal form (APF) 2021-08. Brian Bayerle (American Council of Life Insurers—ACLI) walked through the ACLI’s comment letter (Attachment Five-A), noting a concern with the language that could potentially not allow companies wishing to choose a claim cutoff date later than April 1. Angela McNabb (NAIC) explained that the language in APF 2021-08 would allow for companies to use a claim cutoff date later than April 1. Bayerle agreed and thanked McNabb for looking into the concern.

Weber made a motion, seconded by Leung, to adopt APF 2021-08 (Attachment Five-B). The motion passed unanimously.

2. Re-Exposed APF 2023-05

Hemphill said that APF 2023-05, which revised the modeling of hedging for index-based crediting, had been modified after the prior exposure to address comments that the Task Force received. Bayerle walked through the ACLI’s comment letters (Attachment Five-C and Attachment Five-D). Chupp noted issues with the currently proposed language in Section 4.A.4.b.iii of the APF where it could be implied that only a company with a strategy that combined index credits, guaranteed benefits, and other risks would not be eligible for the hedge treatment in Section 4.A.4.b.i, rather than the intent of a company that combined any of those elements. The Task Force discussed the issue, and Hemphill suggested replacing the language with “and/or” to imply that any combination of the previously mentioned benefits would not be eligible for the hedge treatment in 4.A.4.b.i. Chupp then pointed out an incorrect reference and another error correction in the APF language.

Maambo Mujala (American Academy of Actuaries—Academy) spoke about the Academy’s comment letter (Attachment Five-E), specifically noting that margin accounting for hedge error should only be applied to the portion of the index that is hedged given that many companies do not hedge 100% of their index-based credited interest. Bayerle noted that he supports making a language change in the re-exposure of 2023-05 to capture the comment from the Academy. Slutsker asked for an example of hedging less than 100% of the index credit. Mujala responded that companies do not typically hedge 100% of the index credit due to expected decrements.

Hemphill noted that an additional comment letter was received from Risk & Regulatory Consulting (RRC) (Attachment Five-F). The letter was generally supportive of APF 2023-05, but it had questions on the rationale behind the parameters.

Slutsker made a motion, seconded by Leung, to expose APF 2023-05 (Attachment Five-G) with the edits that Chupp and the Academy suggested for a 16-day public comment period ending May 26. The motion passed unanimously.

Having no further business, the Task Force adjourned.

SharePoint/NAIC Support Staff Hub/Member Meetings/A CMTE/LATF/2023-2-Summer/LATF Calls/05 11/May 11 Minutes.docx

Brian Bayerle
Chief Life Actuary
202-624-2169
BrianBayerle@accli.com

Colin Masterson
Policy Analyst
202-624-2463
ColinMasterson@accli.com

May 5, 2023

Rachel Hemphill
Chair, Life Actuarial (A) Task Force (LATF)

Re: Re-Exposure of APF 2021-08 (VM-51 Data Call Lag Reduction)

Dear Ms. Hemphill:

The American Council of Life Insurers (ACLI) appreciates the opportunity to submit comments on the re-exposure of APF 2021-08 on reducing the VM-51 Data Call Lag reduction from two years to one year. We support this update, but we have a clarifying question and a request.

The updated language for reported terminations suggests that companies can use any date so long as it is on or after 4/1/20XX+1. We wanted to confirm that the flexibility for the reporting cutoff will not generate any errors in submission or processing. Perhaps to accommodate companies that currently are comfortable with their existing processes, the language defaults to the current with the allowance for the earlier cutoff:

- i. Report terminations that were incurred in calendar year 20XX and reported before July 1, 20XX+1. **Companies may report terminations through April 1, 20XX+1, if they choose.** However, exclude rescinded policies (e.g., 10-day free look exercises) from the data submission.

Consistent with the prior occurrence in which two years of data were submitted concurrently, we request the NAIC continue to provide flexibility around the timing of individual company submissions to account for this one-time impact.

Thank you once again for consideration of our comments and we are looking forward to continued conversations with LATF on this topic.

American Council of Life Insurers | 101 Constitution Ave, NW, Suite 700 | Washington, DC 20001-2133

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accli.com

Sincerely,

Handwritten signature of Colin Masterson in cursive script.

cc: Scott O'Neal, NAIC

Dates: Received	Reviewed by Staff	Distributed	Considered
4/21/23	SO		
Notes: APF 2021-08			

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force

Amendment Proposal Form*

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Society of Actuaries Valuation Basic Table Team – Chair Larry Bruning

Revisions to VM-51 to allow for the data experience reporting observation calendar year to be one year prior to the reporting calendar year.
2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

January 1, ~~2021~~ 2023, version of the Valuation Manual – VM-51 Section 2.D.
3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

Section 2: Statistical Plan for Mortality

D. Process for Submitting Experience Data Under This Statistical Plan

Data for this statistical plan for mortality shall be submitted on an annual basis. Each company required to submit this data shall submit the data using the Regulatory Data Collection (RDC) online software submission application developed by the Experience Reporting Agent. For each data file submitted by a company, the Experience Reporting Agent will perform reasonability and completeness checks, as defined in Section 4 of VM-50, on the data. The Experience Reporting Agent will notify the company within 30 days following the data submission of any possible errors that need to be corrected. The Experience Reporting Agent will compile and send a report listing potential errors that need correction to the company.

Data for this statistical plan for mortality will be compiled using a calendar year method. The reporting calendar year is the calendar year that the company submits the experience data. The observation calendar year is the calendar year of the experience data that is reported. The observation calendar year will be ~~two~~ one years prior to the reporting calendar year. For example, if the current calendar year is ~~2018~~ 2024 and that is the reporting calendar year, the company is to report the experience data that was in-force or issued in calendar year ~~2016~~ 2023, which is the observation calendar year. For the 2024 reporting calendar year, companies who are required to submit data for this statistical plan for mortality will be required to submit two observation calendar years of data, namely observation calendar year 2022 and observation calendar year 2023. For reporting calendar years after 2024, companies who are required to submit data for this statistical plan for mortality will be required to submit one observation calendar year of data.

Given an observation calendar year of 20XX, the calendar year method requires reporting of experience data as follows:

- i. Report policies in force during or issued during calendar year 20XX.
- ii. Report terminations that were incurred in calendar year 20XX and reported before ~~July~~ April 1, 20XX+1. Companies may report terminations reported after April 1, 20XX+1 if they choose to do so. However, exclude rescinded policies (e.g., 10-day free look exercises) from the data submission.

For any reporting calendar year, the data call will occur during the second quarter, and the data is to be submitted according to the requirements of the *Valuation Manual* in effect during that calendar year. Data submissions must be made by Sept. 30 of the reporting calendar year. Corrections of data submissions must be completed by ~~Dec. 31~~ Feb. 28 of the year following the reporting calendar year. The NAIC may extend either of these deadlines if it is deemed necessary.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

This APF is needed for the following reasons:

1. There is a need to shorten the time period between data observation and data collection to facilitate more timely analysis and reporting of mortality experience.
2. Under a Principle Based Reserving methodology, valuation basic tables should reflect recent and current mortality experience.

Brian Bayerle
Chief Life Actuary
202-624-2169
BrianBayerle@accli.com

Colin Masterson
Policy Analyst
202-624-2463
ColinMasterson@accli.com

April 18, 2023

Rachel Hemphill
Chair, NAIC Life Actuarial (A) Task Force (LATF)

Re: APF 2023-05

Dear Ms. Hemphill:

The American Council of Life Insurers (ACLI) appreciates the opportunity to comment on APF 2023-05 (VM-21 Index Hedging) which was exposed by LATF during the Spring National Meeting in Louisville. ACLI supports the exposure with the changes proposed by LATF and the following one non-substantive change:

We observed small grammatical error in Section VM-21 4.A.4.b.ii.b and suggest striking “no” as a correction:

“...a second CTE70 (“adjusted”) which shall use only hedge assets held by the company on the valuation date and only ~~no~~ future hedge purchases associated solely with indexed interest credited.”

Regarding the 1% minimum suggested in the APF, we have a few points reflecting why we believe this is more appropriate than the current 5% minimum for VA hedging:

- Index hedging is tighter than dynamic VA hedging.
- The percentage used must be supported by company experience and would be subject to ongoing regulatory scrutiny. The 1% is not a safe harbor, but rather a floor.
- The higher the percentage, the more companies doing the tightest hedging would be penalized.
- We also do not think a survey of company experience would be fruitful because it would be aggregating apples and oranges. For example, some companies may employ a static hedging strategy, while others may use a dynamic strategy, and still others may hedge only certain Greeks, e.g., delta. The assumption should be based on the company’s specific strategy, not on an aggregation of different company strategies.

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accli.com

Thank you once again for considering our comments and we look forward to future discussions with LATF to develop this APF.

Life Actuarial (A) Task Force

8/11-12/23

Sincerely,

A handwritten signature in cursive script that reads "Colin Masterson". The signature is written in dark ink on a white background.

cc: Scott O'Neal, NAIC

Brian Bayerle
Chief Life Actuary
202-624-2169
BrianBayerle@acli.com

Colin Masterson
Policy Analyst
202-624-2463
ColinMasterson@acli.com

May 5, 2023

Rachel Hemphill
Chair, NAIC Life Actuarial (A) Task Force (LATF)

Re: Regulator Edits to APF 2023-05 (Index Credit Hedging)

Dear Ms. Hemphill:

The American Council of Life Insurers (ACLI) appreciates the opportunity to submit comments to LATF regarding APF 2023-05.

Based on informal feedback from regulators as well as additional input from ACLI members, we are submitting an updated APF and requesting re-exposure once the changes have been reviewed by LATF.

Among these changes, the APF incorporates for consideration a regulator suggestion to change the minimum Index Credit Hedge Margin from 1% to 2%. Our members have concerns about this and request that a re-exposure include both 1% and 2% as alternatives.

ACLI received other regulator suggestions to eliminate the provision that would allow for separation of strategies that combine index credit hedging and other objectives and provide additions to VM-31 documentation. We are amenable to these suggestions and have modified the APF accordingly. The APF also incorporates other regulator-suggested textual edits of a “clean up” nature.

ACLI is also proposing to add language to Section 9.E.7 to confirm that it is appropriate to use experience on similar products for purposes of the Index Credit Hedge Margin as well as the error factor.

Thank you once again for your consideration of our comments and we look forward to continued dialogue with regulators on this APF.

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acli.com

Sincerely,



B. Banerji Colin Masterson

cc: Scott O'Neal, NAIC



April 18, 2023

Rachel Hemphill
Chair, Life Actuarial Task Force (LATF)
National Association of Insurance Commissioners (NAIC)

Re: APF 2023-05; Hedging language to address index credit hedging in VM-21

Dear Chair Hemphill,

The Variable Annuity Reserves and Capital Working Group (VARCWG) of the American Academy of Actuaries¹ (the “Academy”) appreciates the opportunity to provide comments on the proposed changes to VM-21 as outlined in APF 2023-05.

VARCWG offers the following comments and proposals:

Recommendation for a principle-based approach

First, the VARCWG wishes to reiterate what has been stated in the past, including the most recent [comment letter from the Academy’s Life Valuation Committee](#) on APF 2020-12 in reference to modeling hedges. The VARCWG believes companies should model their investment strategies as part of a principle-based reserve calculation, which includes the modeling of hedging activities with appropriate margins.

The ideal approach for index credit hedging would be to follow the VM-20 approach, where hedge cash flows are modeled consistently with how other cash flows are projected. Any “error” to hedge cash flows can be reflected in margins that are added to best estimate cash flows with the hedges reflecting the level of uncertainty in the modeled cash flows.

It should also be noted that the current VM-21 approach could result in an error/residual risk of \$0 when CTE70 (adjusted) is less than CTE70 (best efforts). This approach may not capture the underlying risk and may underestimate the level of margin that would be appropriate for statutory valuation purposes.

Proposed revisions to exposed APF

Second, the VARCWG would propose the following redline revisions to the exposed APF:

¹ The American Academy of Actuaries is a 19,500-member professional association whose mission is to serve the public and the U.S. actuarial profession. For more than 50 years, the Academy has assisted public policymakers on all levels by providing leadership, objective expertise, and actuarial advice on risk and financial security issues. The Academy also sets qualification, practice, and professionalism standards for actuaries in the United States.

- *VM-01*: The term “Index Credit” means any interest credit, multiplier, factor, bonus, charge reduction, or other enhancement to policy or contract values that is directly linked to one or more indices. Amounts credited to the policy or contract resulting from a floor on an index account are included. An Index Credit may be positive or negative.
- *VM-21 Section 4.A.4*: An Index Credit Hedge Margin for these hedge instruments shall be reflected in both the “best efforts” and the “adjusted” runs by reducing index interest credit hedge payoffs by a margin multiple that shall be justified by sufficient and credible company experience and account for model error. It shall be no less than [1%] multiplicatively of the portion of the interest credited that is hedged. In the absence of sufficient and credible company experience, a margin of at least [20%] shall be assumed. There is no cap on the index credit hedge margin if company experience indicates actual error is greater than [20%].

The VARCWG suggests that the margin be applied only to the portion of interest credit that is hedged.

Determining the minimum index credit hedge margins

Regarding the determination of the minimum index credit hedge margins, the Academy is currently deliberating on this topic. An approach to determine the minimum hedge error is being designed for the VM-22 field test, which will be a joint effort between the Academy, NAIC, and The American Council of Life Insurers. VARCWG would propose the same approach be used for VM-21 when that approach is finalized.

Other comments for consideration

In any field test to determine level of hedge margins, the VARCWG suggests testing alternative methodologies as well, such as the VM-20 principle-based approach.

We thank you for your consideration of these comments and would be pleased to answer corresponding questions or provide additional support as needed. Should you have questions or comments in response to this letter, please contact Amanda Barry-Moilanen, life policy analyst (barrymoilanen@actuary.org).

Sincerely,

Maambo Mujala, MAAA, FSA
Chairperson, Variable Annuity Reserves and Capital Work Group
American Academy of Actuaries

CC: Scott O’ Neal, NAIC



Memo

To: Cassie Brown, Chair, Life Actuarial (A) Task Force (LATF)

From: Ben Leiser, Director, RRC

Date: April 11, 2023

Subject: RRC Comments Regarding the Proposal for Valuation Manual Revised Hedge Modeling Language in VM-21

Background

The Life Actuarial Task Force exposed for comment a proposal to revise the hedge modeling language in the Valuation Manual to address index credit hedging. RRC appreciates the opportunity to offer our comments. Should you have any questions, we would be glad to discuss our comments with you and the LATF members.

RRC Comments

We generally agree with including updated language to address index credit hedging in VM-21 in light of its use in products that have recently experienced market growth, especially given recent regulator and audit agreement as to the interpretation of the current VM-21 guidance.

While we agree with the concept of an index credit hedge margin, it is unclear as to the rationale or support for the level of the proposed minimum guardrail of 1% or the proposed level of 20% if there is no company experience to support the margin.

- a. It doesn't appear appropriate that a company could have no experience to support their index credit hedging assumptions and assume that the hedging is effective with a 20% margin. If their hedging is not well designed, the margin of 20% could be too low. We suggest that there be a requirement for a company to provide justification and support for including hedging at all. In addition, the assumed margin included in the regulation should be justified and supported.
- b. We also suggest that the guidance point to how the margin is set more generally; e.g., the less experience and the more volatility, the higher the required margin, and to include model based testing of the appropriateness of the margin, in a range of interest rate environments.

We also suggest that LATF consider whether to implement this change as a temporary measure and update accordingly when VM-22 is in place, given that the exposure is intended to align the index credit hedging guidance between VM-21 and VM-22; this would ensure that they be kept in alignment from the start and not result in different or inconsistent requirements or margin guardrails.

Thank you for the opportunity to provide comments on this important initiative. I can be reached at ben.leiser@riskreg.com/(201) 870-7713 if you or other LATF members have any questions.

Dates: Received	Reviewed by Staff	Distributed	Considered
3/7/23, 5/5/23, 5/10/23	SO		
Notes: APF 2023-05			

**Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force
 Amendment Proposal Form***

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Identification:

Brian Bayerle, ACLI

Title of the Issue:

Revise hedge modeling language to address index credit hedging.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

VM-01, VM-21 Section 4.A.4, VM-21 Section 6.B.3, VM-21 Section 9, VM-21 Section 9.C.2, VM-21 Section 9.E.7, VM-31 Section 3.F.8.d

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January 1, 2023 NAIC Valuation Manual, APF 2020-12

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

Index credit hedging is fundamentally different than the dynamic GMxB hedging which formed the conceptual underpinnings for VM-21. For example, the relatively fixed parameters of traditional GMxBs drive the hedging approach. In contrast, indexed products (including RILAs) have flexible crediting parameters which are continually reset based on hedge availability and costs, as well as current market conditions. In short, GMxB contract features drive hedging, while index product hedging drives contract features.

Since the reforms of VM-21 and C3P2, ILVA products have experienced major market growth. Several carriers, with the agreement of regulators and auditors, have interpreted the current VM-21 guidance as permitting the effects of index credit hedging to be reflected in product cash flows instead of within the “best efforts” and “adjusted” scenarios. Both regulators and industry would benefit from the codification of this approach within VM-21.

ACLI’s proposal borrows heavily from the Academy’s draft VM-22. The “error” for index credit hedging is describes as a percentage reduction to hedge payoffs. The percentage reduction must be supported by relevant, credible, and documented experience. A minimum of [1%/2%] is proposed as a regulatory guardrail.

The ACLI proposal would subject index credit hedging to the “clearly defined” documentation requirements of VM-21. Substantively, the change would (a) include index credit hedge purchases with the VM-21 “adjusted” run, and (b) permit index credit hedging to reflect a different, and potentially lower, level of ineffectiveness.

Dates: Received	Reviewed by Staff	Distributed	Considered
3/7/23, 5/5/23, 5/10/23	SO		
Notes: APF 2023-05			

ACLI supports aligning the index credit hedging guidance between VM-21 and VM-22. We started with draft VM-22 verbiage in creating this APF. In a few areas, our members have suggested technical improvements to the draft VM-22 definitions. It may be appropriate to carry these over to VM-22.

* This form is not intended for minor corrections, such as formatting, grammar, cross-references or spelling. Those types of changes do not require action by the entire group and may be submitted via letter or email to the NAIC staff support person for the NAIC group where the document originated.

NAIC Staff Comments:

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DRAFT

Dates: Received	Reviewed by Staff	Distributed	Considered
3/7/23, 5/5/23, 5/10/23	SO		
Notes: APF 2023-05			

VM-01

The term “Index Credit Hedge Margin” means a margin capturing the risk of inefficiencies in the company’s hedging program supporting index credits. This includes basis risk, persistency risk, and the risk associated with modeling decisions and simplifications. It also includes any uncertainty of costs associated with managing the hedging program and changes due to investment and management decisions.

The term “Index Credit” means any interest credit, multiplier, factor, bonus, charge reduction, or other enhancement to policy or contract values that is directly linked to one or more indices. Amounts credited to the policy or contract resulting from a floor on an index account are included. An Index Credit may be positive or negative.

The term “Index Crediting Strategies” means the strategies defined in a contract to determine index credits for a contract. For example, this may refer to underlying index, index parameters, date, timing, performance triggers, and other elements of the crediting method.

VM-21 Section 4.A.4

4. Modeling of Hedges

- a. For a company that does not have a future hedging strategy supporting the contracts:
 - i. The company shall not consider the cash flows from any future hedge purchases or any rebalancing of existing hedge assets in its modeling, since they are not included in the company’s investment strategy supporting the contracts.
 - ii. Existing hedging instruments that are currently held by the company in support of the contracts falling under the scope of these requirements shall be included in the starting assets.
- b. For a company with one or more future hedging strategies supporting the contracts:
 - i. For a future hedging strategy with hedge payoffs that solely offset ~~interest-index~~ credits associated with indexed interest strategies (indexed ~~interest~~ credits):
 - a) In modeling cash flows, the company shall include the cash flows from future hedge purchases or any rebalancing of existing hedge assets that are intended solely to offset ~~interest-index~~ credits to contract holders.
 - b) Existing hedging instruments that are currently held by the company for offsetting the ~~indexed~~ credits in support of the contracts falling under the scope of these requirements shall be included in the starting assets.
 - c) An Index Credit Hedge Margin for these hedge instruments shall be reflected in both the “best efforts” and the “adjusted” runs, as applicable, by reducing index ~~interest-credit~~ hedge payoffs by a margin multiple that shall be justified by sufficient and credible company experience and account for model error. It shall be no less than [1%/2%] multiplicatively of the portion of the ~~interest-index~~ credited that is hedged. In the absence of sufficient and credible company experience, a margin of at least 20% shall be assumed. There is no cap on the index credit hedge margin if company experience indicates actual error is greater than these minimums ~~[20%]~~.

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Commented [A1]: Replace with "these minimums" as rereading this applies to either 2% or 20% scenarios. Not strictly needed if we are trying to be minimal with edits.

Dates: Received	Reviewed by Staff	Distributed	Considered
3/7/23, 5/5/23, 5/10/23	SO		
Notes: APF 2023-05			

- ii. For a company with one or more future hedging strategies supporting the contracts that do not solely offset indexed interest credits, the detailed requirements for the modeling of the hedges are defined in Section 9. The following requirements do not supersede the detailed requirements.
 - a) The appropriate costs and benefits of hedging instruments that are currently held by the company in support of the contracts falling under the scope of these requirements shall be included in the projections used in the determination of the SR.
 - b) The projections shall take into account the appropriate costs and benefits of hedge positions expected to be held in the future through the execution of the future hedging strategies supporting the contracts. Because models do not always accurately portray the results of hedge programs, the company shall, through back-testing and other means, assess the accuracy of the hedge modeling. The company shall determine a SR as the weighted average of two CTE values: first, a CTE70 (“best efforts”) representing the company’s projection of all of the hedge cash flows, including future hedge purchases, and a second CTE70 (“adjusted”) which shall use only hedge assets held by the company on the valuation date and only future hedge purchases associated solely with indexed interest credits. These are discussed in greater detail in Section 9. The SR shall be the weighted average of the two CTE70 values, where the weights reflect the error factor determined following the guidance of Section 9.C.4.
 - c) The company is responsible for verifying compliance with all requirements in Section 9 for all hedging instruments included in the projections.
 - d) The use of products not falling under the scope of these requirements (e.g., equity-indexed annuities) as a hedge shall not be recognized in the determination of accumulated deficiencies.

iii. If a company has a more comprehensive hedge strategy combining index credits with guaranteed benefit and/or other risks (e.g., full fair value or economic hedging), no portion of this hedge strategy is eligible for the treatment described in section 4.A.4.b.ian appropriate and documented bifurcation method should be used in the application of sections 4.A.4.b.i and 4.A.4.b.ii above for the hedge modeling and justification. Such bifurcation methods may quantify the specific risk exposure attributable to index credit liabilities versus other liabilities such as guaranteed living benefits, and apply such for the basis for allocation.

Commented [A2]: Until industry can provide quantitative evidence on historical hedging errors as a percent of interest credited, suggest no allowing bifurcation.

VM-21 Section 6.B.3 Footnote

¹ Throughout this Section 6, references to CTE70 (adjusted) shall also mean the SR for a company that does not have a future hedging strategy supporting the contracts that does not solely offset index credits as discussed in Section 4.A.4.a.

VM-21 Section 9

Section 9: Modeling Hedges under a Future Non-Index Credit Hedging Strategy

A. Initial Considerations

Dates: Received	Reviewed by Staff	Distributed	Considered
3/7/23, 5/5/23, 5/10/23	SO		
Notes: APF 2023-05			

1. ~~This section applies to modeling of hedges other than situations where the company only hedges index credits. If the company clearly separates index credit hedging from other hedging, then this section only applies to the other hedging if the index hedging follows the requirements in Section 4.A.4.b.i. If the company does not clearly separate index credit hedging from other hedging, then this section is applicable for modeling of all hedges.~~

Commented [A3]: Delete

2. Subject to Section 9.C.2, the appropriate costs and benefits of hedging instruments that are currently held by the company in support of the contracts falling under the scope of these requirements shall be included in the calculation of the SR, determined in accordance with Section 3.D and Section 4.D.

(Subsequent sections to be renumbered)

VM-21 Section 9.C.2

2. The company shall calculate a CTE70 (adjusted) by recalculating the CTE70 assuming the company has no future hedging strategies supporting the contracts except hedge purchases solely related to strategies to hedge index credits, therefore following the requirements of Section 4.A.4.a and 4.A.4.b.i.

However, for a company with a future hedging strategy supporting the contracts, existing hedging instruments, except hedging instruments solely related to strategies to hedge index credits, that are currently held by the company in support of the contracts falling under the scope of these requirements may be considered in one of two ways for the CTE70 (adjusted):

- a) Include the asset cash flows from any contractual payments and maturity values in the projection model.
- b) No hedge positions, in which case, the hedge positions held on the valuation date are replaced with cash and/or other general account assets in an amount equal to the aggregate market value of these hedge positions.

VM-21 Section 9.E.7

7. The company may also consider historical experience for similar current or past hedging programs on similar products to support the error factor or Index Credit Hedge Margin determined for the projection.

Commented [A4]: Expanding provision for index credit hedging, noting that the index credit adjustment is described as the Index Credit Hedge Margin, not the error factor.

VM-31 Section 3.F.8.d.x (new subsection)

x. Justification for the margin for any future hedging strategy that offsets interest index credits associated with indexed interest strategies (indexed interest credits), including relevant experience, other relevant analysis, and an assessment of potential model error

Commented [A5]: Modify to "index credits" to be consistent throughout the draft and the additional definition.

Dates: Received	Reviewed by Staff	Distributed	Considered
3/7/23, 5/5/23, 5/10/23	SO		
Notes: APF 2023-05			

- xi. Ten years of historical experience on hedge gains/losses as a percent of index credited for hedge programs supporting index credits.
- xii. If there is less than five years of historical experience of this hedging program or a hedging program on similar products, an explanation of how the company considered increases in the error factor to account for limited historical experience.
- x. The method used to bifurcate comprehensive hedge strategies (i.e., strategies combining index credits, guaranteed benefit, and other risks (e.g., full fair value or economic hedging), per section 4.A.4.b.iii.

Commented [A6]: VM-31 requirement for historical experience to support error factor.

Commented [A7]: Explanation for how margin was increased if there was less than 5 years of experience.

Commented [A8]: Only include if bifurcation is allowed

DRAFT

Draft: 6/26/23

Life Actuarial (A) Task Force
Virtual Meeting
May 4, 2023

The Life Actuarial (A) Task Force met May 4, 2023. The following Task Force members participated: Cassie Brown, Chair, represented by Rachel Hemphill; Scott A. White, Vice Chair, represented by Craig Chupp (VA); Lori K. Wing-Heier represented by Sharon Comstock (AK); Mark Fowler represented by Sanjeev Chaudhuri (AL); Ricardo Lara represented by Ahmad Kamil (CA); Andrew N. Mais represented by Wanchin Chou and); Doug Ommen represented by Mike Yanacheak (IA); Dana Popish Severinghaus represented by Vincent Tsang (IL); Amy L. Beard represented by Scott Shover (IN); Vicki Schmidt represented by Nicole Boyd (KS); Grace Arnold represented by Fred Andersen and Ben Slutsker (MN); Timothy Schott represented by Marti Hooper (ME); Adrienne A. Harris represented by Bill Carmello (NY); Judith L. French represented by Peter Weber (OH); Glen Mulready represented by Andrew Schallhorn (OK); Michael Humphreys represented by Steve Boston (PA); and Jon Pike represented by Tomasz Serbinowski (UT).

1. Considered LATF Response to VOSTF Referral – Bond Risk Measures

Hemphill walked through the proposed response (Attachment Six-A) to the Valuation of Securities (E) Task Force (VOSTF) referral related to bond risk measures. Hemphill asked if there was any objection from a Task Force member to the response to the VOSTF referral. As no Task Force members objected, Hemphill noted that the response would be sent to VOSTF.

2. Exposed APF 2023-07 – Company Specific Market Paths (CSMP) Removal

Slutsker introduced amendment proposal form (APF) 2023-07 that removes the Company-Specific Market Path (CSMP) standard projection amount method from the VM-21, Requirements for Principle-Based Reserves for Variable Annuities requirements. Slutsker noted that there has been very little usage of the CSMP method among companies and that adapting the method for the new generator of economic scenarios would require a significant effort. Slutsker said that the CSMP method would be removed starting in 2025 which would give companies ample time to prepare.

Slutsker made a motion, seconded by Chupp, to expose APF 2023-07 (Attachment Six-B) for a 21-day public comment period ending May 24. During discussion of the motion, Weber asked if there had been communication with the companies who would be affected by the removal of the CSMP method. Hemphill replied that there had been a survey conducted to determine the number of companies that use the CSMP method and that additional communication with the affected companies had taken place to allow those companies to provide feedback. The motion passed unanimously.

Having no further business, the Life Actuarial (A) Task Force adjourned.

SharePoint/NAIC Support Staff Hub/Member Meetings/A CMTE/LATF/2023-2-Summer/LATF Calls/05 04/May 04 Minutes.docx

MEMORANDUM

TO: Carrie Mears, Chair, Valuation of Securities (E) Task Force

FROM: Rachel Hemphill, Chair, Life Actuarial (A) Task Force
Craig Chupp, Vice-Chair, Life Actuarial (A) Task Force

RE: Life Actuarial (A) Task Force Response to Bond Risk Measures Referral

DATE: May 5, 2023

Background

On February 13, 2023 a memorandum from the Valuation of Securities (E) Task Force (VOSTF) was received by the Life Actuarial (A) Task Force (LATF) requesting that the Task Force consider the following items:

1. Whether the LATF was supportive of the NAIC’s Securities Valuation Office (SVO) building out a new capability to calculate market and analytical information for bonds utilizing commercially available data sources and investment models,
2. Which investment analytical measures and projections would be most helpful to support the work of the LATF,
3. How the LATF would utilize the investment data and why it would be of value,
4. Whether other investment data or projection capabilities would be useful to the LATF that could be provided by commercially available data sources or investment models, and
5. Any other thoughts the LATF had on the SVO initiative.

Recommendation

At their public meeting on April 20th, 2023 the LATF developed the following responses with respect to the VOSTF referral: 1) the LATF was supportive of the SVO initiative to build out a new capability to calculate market data fields; 2) weighted-average life (WAL), option-adjusted spread (OAS), duration, and convexity are some of the most helpful measures, along with comparisons of credit rating provider ratings to SVO ratings, to support regulator review of principle-based reserves (PBR) and asset adequacy testing (AAT); 3) the investment data would be used to complement Actuarial Guideline 53 (AG 53), PBR, and AAT reporting, which is less granular than the proposed risks measures, to give regulators additional insights into the risk/reward profile of insurer assets while reducing the need for LATF stress testing, and; 4) that a description of the scenarios or situations where an asset (such as a collateralized loan obligation) could lose much of its value would assist regulators in assessing tail risk in PBR, AAT, and other reviews.

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Kansas City 1100 Walnut Street NW, Suite 1500, Kansas City, MO 64106-2197 p | 816 842 3600 f | 816 783 8175

New York One New York Plaza, Suite 4210, New York, NY 20004 p | 212 398 9000 f | 212 382 4207

www.naic.org

**Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force
 Amendment Proposal Form***

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Identification:

California Office of Principles-Based Reserving and Minnesota Department of Commerce

Title of the Issue:

Company-Specific Market Path (CSMP) Removal

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

VM-21 Section 6.A.1

January 1, 2024 NAIC *Valuation Manual*

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

The standard projection amount drafting group found that there is very little use of the CSMP method for the VM-21 standard projection amount. Therefore, we recommend removing this method from VM-21 starting in 2025, which gives time to transition to the CTEPA method for the few companies that currently employ the CSMP method.

* This form is not intended for minor corrections, such as formatting, grammar, cross-references or spelling. Those types of changes do not require action by the entire group and may be submitted via letter or email to the NAIC staff support person for the NAIC group where the document originated.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
5/1/2023	SO		
Notes: APF 2023-07			

VM-21 Section 6: Requirements for the Additional Standard Projection Amount

A. Overview

1. Determining the Additional Standard Projection Amount

- a. For valuation dates before January 1, 2025, the additional standard projection amount shall be the larger of zero and an amount determined in aggregate for all contracts falling under the scope of these requirements, excluding those contracts to which the Alternative Methodology is applied, by calculating the Prescribed Projections Amount by one of two methods, the Company-Specific Market Path (CSMP) method or the CTE with Prescribed Assumptions (CTEPA) method. The company shall assess the impact of aggregation on the additional standard projection amount.
- b. For valuation dates after January 1, 2025, the additional standard projection amount shall be the larger of zero and an amount determined in aggregate for all contracts falling under the scope of these requirements, excluding those contracts to which the Alternative Methodology is applied, by calculating the Prescribed Projections Amount by the CTEPA method. The company shall assess the impact of aggregation on the additional standard projection amount.
- c. The additional standard projection amount shall be calculated based on the scenario reserves, as discussed in Section 4.B, with certain prescribed assumptions replacing the company prudent estimate assumptions. As is the case in the projection of a scenario in the calculation of the SR, the scenario reserves used to calculate the additional standard projection amount are based on an analysis of asset and liability cash flows produced along certain equity and interest rate scenario paths.

Deleted: T

Draft: 6/28/23

Life Actuarial (A) Task Force
Virtual Meeting
April 27, 2023

The Life Actuarial (A) Task Force met April 27, 2023. The following Task Force members participated: Cassie Brown, Chair, represented by Rachel Hemphill (TX); Scott A. White, Vice Chair, represented by Craig Chupp (VA); Lori K. Wing-Heier represented by Sharon Comstock (AK); Mark Fowler represented by Sanjeev Chaudhuri (AL); Ricardo Lara represented by Ahmad Kamil (CA); Andrew N. Mais represented by Wanchin Chou (CT); Doug Ommen represented by Mike Yanacheak (IA); Dana Popish Severinghaus represented by Vincent Tsang (IL); Amy L. Beard represented by Scott Shover (IN); Vicki Schmidt represented by Nicole Boyd (KS); Grace Arnold represented by Fred Andersen and Ben Slutsker (MN); Eric Dunning represented by Michael Muldoon (NE); Adrienne A. Harris represented by Bill Carmello (NY); Judith L. French represented by Peter Weber (OH); Michael Humphreys represented by Steve Boston (PA); and Jon Pike represented by Tomasz Serbinowski (UT).

1. Re-Exposed APF 2021-08

Larry Bruning (Society of Actuaries—SOA) noted that the purpose of amendment proposal form (APF) 2021-08 is to shorten the data lag period for the mortality experience data collection from two years to one year. Hemphill said that there was one comment received from the American Council of Life Insurers (ACLI) (Attachment Seven-A). Angela McNabb (NAIC) stated that in response to the comment letter, the previously exposed version of APF 2021-08 had been modified to: 1) require that companies include terminations that were reported before April 1 following the year of the data collection instead of the following July 1; and 2) allow for corrected submissions to be submitted by Feb. 28 of the year following the reporting calendar year instead of by Dec. 31 of the reporting calendar year. Brian Bayerle (ACLI) said that he thinks the changes were responsive to their comment letter.

Chupp made a motion, seconded by Andersen, to expose APF 2021-08 (Attachment Seven-B) for a 10-day public comment period ending May 8. The motion passed unanimously.

2. Consider the IMR Referral from the Statutory Accounting Practices (E) Working Group

Hemphill walked through a Statutory Accounting Practices (E) Working Group referral (Attachment Seven-C) regarding negative interest maintenance reserve (IMR) balances. Hemphill proposed that the Task Force responds to the referral by: 1) drafting a template with additional disclosures on the reflection of IMR in principle-based reserving (PBR) and asset adequacy testing (AAT), including confirming that any IMR amounts do not generate subsequent cash flows and that the IMR does not reflect excess withdrawals; 2) drafting guidance for companies for year-end 2023, consistent with year-end 2022 guidance but updated for the Working Group's potential admission of some portion of aggregate negative IMR; 3) drafting an APF for the 2025 *Valuation Manual* consistent with the guidance; and 4) recommending to the Working Group that any decision to admit or not admit aggregate negative IMR not rely on AAT at this time.

Carmello discussed the potential for a disclosure that could illustrate that the proceeds of bond sales were reinvested at higher interest rates and, therefore, more worthy of reporting an associated negative IMR asset. Robust discussion ensued, with some indicating the value of such a disclosure and others noting challenges with the approach. Hemphill noted that a Statutory Accounting Principles (E) Working Group exposure stated that any negative IMR balances that would be admitted would be limited to those where the proceeds of the sale of bonds held at amortized cost were immediately reinvested into other qualifying fixed-income assets that would also be held at amortized cost.

Hemphill asked if any Task Force members objected to moving forward with the proposed response to the Working Group referral. As none objected, Hemphill noted that work would proceed on the response to the Working Group.

Having no further business, the Life Actuarial (A) Task Force adjourned.

SharePoint/NAIC Support Staff Hub/Member Meetings/A CMTE/LATF/ 2023-2-Summer/LATF Calls/04 27/April 27 Minutes.docx

Brian Bayerle
Chief Life Actuary
202-624-2169
BrianBayerle@accli.com

Colin Masterson
Policy Analyst
202-624-2463
ColinMasterson@accli.com

April 13, 2023

Rachel Hemphill
Chair, Life Actuarial (A) Task Force (LATF)

Re: Re-Exposure of APF 2021-08 (VM-51 Data Call Lag Reduction)

Dear Ms. Hemphill:

The American Council of Life Insurers (ACLI) appreciates the opportunity to submit comments on the re-exposure of APF 2021-08 on reducing the VM-51 Data Call Lag reduction from two years to one year. ACLI is generally supportive of this change though we have some concerns about the timing of the switch and the impact it could have on industry.

For many companies, the data needed for the data call is not finalized until sometime around mid-August. With the current timeline, this would only give companies around six weeks to generate submissions. This is a problem that could be exacerbated even further if the companies have to submit on behalf of additional legal entities and subsidiaries within their organization. The short timeline between IBNR and the submission date could also reduce the quality of data submitted by companies which is antithetical to the primary goal of the APF.

To ensure that companies are given ample time to collect and package data in a manner in line with the desires of regulators, ACLI proposes that the IBNR date be moved to March 31st instead of June 30th.

Additionally, there is an additional sentence that allows the NAIC to extend the deadline if deemed necessary. It is not clear if this applies to only the last or all the deadlines. ACLI would suggest revising this language to apply to all the deadlines.

These suggested edits are redlined in VM-51 Section 2.D (in part) from the proposed APF language:

American Council of Life Insurers | 101 Constitution Ave, NW, Suite 700 | Washington, DC 20001-2133

The American Council of Life Insurers (ACLI) is the leading trade association driving public policy and advocacy on behalf of the life insurance industry. 90 million American families rely on the life insurance industry for financial protection and retirement security. ACLI's member companies are dedicated to protecting consumers' financial wellbeing through life insurance, annuities, retirement plans, long-term care insurance, disability income insurance, reinsurance, and dental, vision and other supplemental benefits. ACLI's 280 member companies represent 94 percent of industry assets in the United States.

Given an observation calendar year of 20XX, the calendar year method requires reporting of experience data as follows:

- i. Report policies in force during or issued during calendar year 20XX.
- ii. Report terminations that were incurred in calendar year 20XX and reported before ~~July~~ April 1, 20XX+1. However, exclude rescinded policies (e.g., 10-day free look exercises) from the data submission.

For any reporting calendar year, the data call will occur during the second quarter, and the data is to be submitted according to the requirements of the Valuation Manual in effect during that calendar year. Data submissions must be made by Sept. 30 of the reporting calendar year. Corrections of data submissions must be completed by Feb. 28 of the year following the reporting calendar year. The NAIC may extend ~~either of these~~ ~~this~~ deadlines if it is deemed necessary.

Thank you once again for consideration of our comments and we are looking forward to continued conversations with LATF on this topic.

Sincerely,

A handwritten signature in cursive script that reads "Colin Masterson". The signature is written in black ink on a white background.

cc: Scott O'Neal, NAIC

Dates: Received	Reviewed by Staff	Distributed	Considered
4/21/23	SO		
Notes: APF 2021-08			

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form*

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Society of Actuaries Valuation Basic Table Team – Chair Larry Bruning

Revisions to VM-51 to allow for the data experience reporting observation calendar year to be one year prior to the reporting calendar year.
2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

January 1, ~~2021~~ 2023, version of the Valuation Manual – VM-51 Section 2.D.
3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

Section 2: Statistical Plan for Mortality

- D. Process for Submitting Experience Data Under This Statistical Plan

Data for this statistical plan for mortality shall be submitted on an annual basis. Each company required to submit this data shall submit the data using the Regulatory Data Collection (RDC) online software submission application developed by the Experience Reporting Agent. For each data file submitted by a company, the Experience Reporting Agent will perform reasonability and completeness checks, as defined in Section 4 of VM-50, on the data. The Experience Reporting Agent will notify the company within 30 days following the data submission of any possible errors that need to be corrected. The Experience Reporting Agent will compile and send a report listing potential errors that need correction to the company.

Data for this statistical plan for mortality will be compiled using a calendar year method. The reporting calendar year is the calendar year that the company submits the experience data. The observation calendar year is the calendar year of the experience data that is reported. The observation calendar year will be ~~two~~ one years prior to the reporting calendar year. For example, if the current calendar year is ~~2018~~ 2024 and that is the reporting calendar year, the company is to report the experience data that was in-force or issued in calendar year ~~2016~~ 2023, which is the observation calendar year. **For the 2024 reporting calendar year, companies who are required to submit data for this statistical plan for mortality will be required to submit two observation calendar years of data, namely observation calendar year 2022 and observation calendar year 2023. For reporting calendar years after 2024, companies who are required to submit data for this statistical plan for mortality will be required to submit one observation calendar year of data.**

Given an observation calendar year of 20XX, the calendar year method requires reporting of experience data as follows:

- i. Report policies in force during or issued during calendar year 20XX.
- ii. Report terminations that were incurred in calendar year 20XX and reported before ~~July~~ April 1, 20XX+1. Companies may report terminations reported after April 1, 20XX+1 if they choose to do so. However, exclude rescinded policies (e.g., 10-day free look exercises) from the data submission.

For any reporting calendar year, the data call will occur during the second quarter, and the data is to be submitted according to the requirements of the *Valuation Manual* in effect during that calendar year. Data submissions must be made by Sept. 30 of the reporting calendar year. Corrections of data submissions must be completed by ~~Dec. 31~~ Feb. 28 of the year following the reporting calendar year. The NAIC may extend either of these deadlines if it is deemed necessary.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

This APF is needed for the following reasons:

1. There is a need to shorten the time period between data observation and data collection to facilitate more timely analysis and reporting of mortality experience.
2. Under a Principle Based Reserving methodology, valuation basic tables should reflect recent and current mortality experience.

MEMORANDUM

TO: Rachel Hemphill, Chair of the Life Actuarial (A) Task Force
Craig Chupp, Vice-Chair of the Life Actuarial (A) Task Force

FROM: Dale Bruggeman, Chair of the Statutory Accounting Principles (E) Working Group
Kevin Clark, Vice-Chair of the Statutory Accounting Principles (E) Working Group

DATE: March 27, 2023

RE: SAPWG Referral for Negative Interest Maintenance Reserve (IMR)

During the 2023 Spring National Meeting, the Statutory Accounting Principles (E) Working Group held a detailed discussion on the potential to permit admittance of negative interest maintenance reserve (IMR). The Working Group discussed the potential for both a 2023 solution and a long-term solution. With this discussion, the Working Group recommended continued engagement with the Life Actuarial (E) Task Force with a referral for consideration of the Asset Adequacy Testing (AAT) implications of negative IMR.

Specifically, the Working Group recommended a referral to the Task Force to consider the following:

1. Development of a template summarizing how IMR (positive and negative) is reflected within AAT.
2. Consideration of the actual amount of negative IMR that is to be used in AAT, noting that as negative IMR is included, there is a greater potential for an AAT liability.
3. Better consideration and documentation of cash flows within AAT, as well as any liquidity stress test considerations.
4. Ensuring that excessive withdrawal considerations are consistent with actual data. (Insurers selling bonds because of excess withdrawals should not use the IMR process.)
5. Ensuring that any guardrails for assumptions in AAT are reasonable and consistent with other financial statement / reserving assumptions.

The Working Group appreciates your time and partnership in assessing the impact of negative IMR and working towards an appropriate solution for statutory accounting and overall insurer financial solvency. If you have any questions, please contact Dale Bruggeman, or Kevin Clark, SAPWG Chair and Vice Chair, with any questions.

Cc: Julie Gann, Robin Marcotte, Jake Stultz, Jason Farr, Wil Oden, Scott O’Neal,

https://naiconline.sharepoint.com/teams/FRSStatutoryAccounting/Stat Acctg_Statutory_Referrals/2023/SAPWG to LATF - 3-27-23.docx

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Draft: 6/28/23

Life Actuarial (A) Task Force
Virtual Meeting
April 20, 2023

The Life Actuarial (A) Task Force met April 20, 2023. The following Task Force members participated: Cassie Brown, Chair, represented by Rachel Hemphill (TX); Scott A. White, Vice Chair, represented by Craig Chupp (VA); Lori K. Wing-Heier represented by Sharon Comstock (AK); Mark Fowler represented by Sanjeev Chaudhuri (AL); Ricardo Lara represented by Ahmad Kamil and Thomas Reedy (CA); Andrew N. Mais represented by Wanchin Chou (CT); Doug Ommen represented by Mike Yanacheak (IA); Dana Popish Severinghaus represented by Vincent Tsang (IL); Amy L. Beard represented by Heir Cooper (IN); Vicki Schmidt represented by Nicole Boyd (KS); Grace Arnold represented by Fred Andersen and Ben Slutsker (MN); Eric Dunning represented by Michael Muldoon (NE); Marlene Caride represented by Seong-min Eom (NJ); Adrienne A. Harris represented by Bill Carmello (NY); Judith L. French represented by Peter Weber (OH); Glen Mulready represented by Andrew Schallhorn (OK); Michael Humphreys represented by Steve Boston (PA); and Jon Pike represented by Tomasz Serbinowski (UT).

1. Disbanded the Index-Linked Variable Annuity (A) Subgroup

Hemphill thanked Weber, the members of the Index-Linked Variable Annuity (A) Subgroup, and the interested parties for working to complete the charges of the Subgroup. Weber noted that he supports disbanding the Subgroup.

Hemphill asked Task Force members if there are any objections to disbanding the Subgroup. With no objections, the Subgroup disbanded.

2. Adopted APF 2023-04

Hemphill said amendment proposal form (APF) 2023-04 clarifies the requirements for the mortality rates the company expects to emerge. She noted that no comments were received during the exposure period.

Chupp made a motion, seconded by Reedy, to adopt APF 2023-04 (Attachment Eight-A). The motion passed unanimously.

3. Exposed APF 2023-06

Hemphill noted that APF 2023-06 was taken from Sections 1 and 2 of the originally exposed version of APF 2023-03. She said APF 2023-06 addresses: 1) an inconsistency in the net premium reserve (NPR) calculation in VM-20, Requirements for Principle-Based Reserves for Life Products; and 2) adding a cash surrender value floor to the calculation of scenario reserves to be consistent with VM-21, Requirements for Principle-Based Reserves for Variable Annuities.

On item #1, Dylan Strother (American Academy of Actuaries—Academy) walked through the Academy's comment letter (Attachment Eight-B) and noted that initial testing showed a material increase to the NPR for new business. Chupp asked how the formulae for the NPR differs from the methodology used in *Actuarial Guideline XXXVIII—The Application of the Valuation of Life Insurance Policies Model Regulation* (AG 38) Section 8D. Strother noted that the calculations are not directly comparable. Colin Masterson (American Council of Life Insurers—ACLI) walked through the ACLI's comment letter (Attachment Eight-C) and noted that the ACLI supports delaying consideration on APF 2023-06 and holistically reviewing the NPR formula before making changes. Hemphill

responded that she supports taking the appropriate amount of time to consider the changes in APF 2023-06, and she requested additional analysis from the Academy.

Regarding the changes in Section 2 of APF 2023-06, Dave Neve (Academy) noted that the Academy does not support flooring the VM-20 scenario reserve at the cash surrender value due to a floor already being present in the NPR calculation, as well as the Academy's view that a floor in the scenario reserve component would distort the VM-20 stochastic reserve measure. Masterson agreed with Neve, and he noted a lack of support from the ACLI for this change. Hemphill noted concerns that without this change, the measure of tail risk could be understated in the VM-20 stochastic reserve, to which Carmello agreed.

Carmello made a motion, seconded by Weber, to expose APF 2023-06 (Attachment Eight-D) for a 21-day public comment period ending May 10. During discussion of the motion, Neve asked if it would make sense to determine the impact of these changes prior to adoption. Hemphill responded that some quantification was already provided, and interested parties were free to comment during the exposure period regarding any additional quantification that is necessary. The motion passed unanimously.

4. Discussed the VOSTF Bond Risk Measures Referral

Hemphill introduced the Bond Risk Measures referral (Attachment Eight-E) from the Valuation of Securities (E) Task Force (VOSTF) that had been exposed for comment. She proposed responding to items #1 through #4 of the referral by: 1) indicating that the Life Actuarial (A) Task Force was supportive of the Securities Valuation Office (SVO) initiative to build out a new capability to calculate market data fields; 2) noting that weighted-average life (WAL), option-adjusted spread (OAS), duration, and convexity are some of the most helpful measures, along with comparisons of credit rating provider (CPR) ratings to SVO ratings, to support state insurance regulator review of principle-based reserves (PBR) and asset adequacy testing (AAT); 3) noting that the investment data would be used to complement *Actuarial Guideline LIII—The Application of the Valuation Manual for Testing the Adequacy of Life Insurer Reserves* (AG 53), PBR, and AAT reporting, which is less granular than the proposed risk measures, to give state insurance regulators additional insights into the risk/reward profile of insurer assets, while reducing the need for Life Actuarial (A) Task Force stress testing; and 4) stating that a description of the scenarios or situations where an asset, such as a collateralized loan obligation (CLO), could lose much of its value would assist state insurance regulators in assessing tail risk in PBR, AAT, and other reviews.

Hemphill then summarized comment letters that had been received from the Academy (Attachment Eight-F) and the ACLI (Attachment Eight-G). Craig Morrow (Academy) spoke to the Academy's comment letter, and he stated that it recommends developing a proof-of-concept initiative to identify how the additional investment information could be utilized.

Hemphill asked if any Life Actuarial (A) Task Force members object to directing NAIC staff to draft a memo to the Valuation of Securities (E) Task Force with the discussed response. No members objected, and NAIC staff were given the direction to draft the memo.

5. Discussed the Valuation of Securities (E) Task Force Structured Equity and Funds Referral

Hemphill summarized the VOSTF Structured Equity and Funds referral (Attachment Eight-H), and she noted that a comment letter (Attachment Eight-I) was received from the ACLI. Masterson said the ACLI noted some concerns to the VOSTF regarding this initiative in a separate comment letter.

Hemphill asked if any Life Actuarial (A) Task Force members object to directing NAIC staff to draft a memo to the Valuation of Securities (E) Task Force noting support of the related efforts continuing through an open process. No members objected, and NAIC staff were given the direction to draft the memo.

Having no further business, the Life Actuarial (A) Task Force adjourned.

SharePoint/NAIC Support Staff Hub/Member Meetings/A CMTE/LATF/2023-2-Summer/LATF Calls/04 20/April 20 Minutes.docx

**Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force
 Amendment Proposal Form***

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Identification:

PBR Staff of Texas Department of Insurance

Title of the Issue:

Companies appear unclear how to support the requirement that “company experience mortality rates shall not be lower than the mortality rates the company expects to emerge” in PBR Actuarial Report under VM-31 Section 3.D.3.1.iv.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

VM-31 Section 3.D.3.1.iv

January 1, 2023 NAIC *Valuation Manual*

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

We have observed a consistent issue, where there is not adequate support showing compliance with the requirement that “the company experience mortality rates shall not be lower than the mortality rates the company expects to emerge”. The most commonly provided support is a retrospective quantitative analysis (e.g., the actual to expected analysis), without any further discussion of the mortality rates that the company expects to emerge. The intention of this requirement is to discuss any forward-looking qualitative analysis, rather than just a historical quantitative analysis. The disclosure shall include, but is not limited to, the discussion of underwriting standard changes (or the lack thereof), distribution channel changes (or the lack thereof), any pandemic adjustments (or the lack thereof), and the results of ongoing experience monitoring.

* This form is not intended for minor corrections, such as formatting, grammar, cross-references or spelling. Those types of changes do not require action by the entire group and may be submitted via letter or email to the NAIC staff support person for the NAIC group where the document originated.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
2/24/23	SO		
Notes: APF 2023-04			

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VM-31 Section 3.D.3.I.iv

Description and justification of the mortality rates the company actually expects to emerge, and a demonstration that the anticipated experience assumptions are no lower than the mortality rates that are actually expected to emerge. The description and demonstration should include the level of granularity at which the comparison is made (e.g., ordinary life, term only, preferred term, etc.). For the mortality rates that are actually expected to emerge, the description should include a forward-looking qualitative analysis which includes, but is not limited to, the discussion of any underwriting standard changes (or lack thereof), distribution channel changes (or lack thereof), any pandemic adjustments (or lack thereof), and the results of ongoing experience monitoring.



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April 13, 2023

Rachel Hemphill
Chair, Life Actuarial Task Force (LATF)
National Association of Insurance Commissioners (NAIC)

Re: Proposed changes to VM-20 outlined in APF 2023-03 (Part 1)

Dear Chair Hemphill,

The American Academy of Actuaries¹ Life Reserves Work Group (“LRWG”) appreciates the opportunity to comment on the proposed changes to VM-20 as outlined in APF 2023-03 (Part 1).

The proposed change to Section 3.B.5.c.ii.4 of VM-20 would apply the secondary guarantee funding ratio² (“SG funding ratio”) to the expense allowance when determining the NPR amount assuming the secondary guarantee is in effect (“SG NPR”) and may result in an increase to this reserve amount. (i.e., when the contract secondary guarantee is not fully funded)

The expense allowance is a provision to reserve³ that accounts for acquisition expenses incurred by the insurer to issue the business. The expense allowance represents the present value of an approximation of average industry acquisition expenses and provides initial surplus strain relief in the reserves. Rationale provided for applying the SG funding ratio to the expense allowance states that reserve movement should be consistent with funding levels. However, acquisition expenses paid by the issuer are not expected to change based on the level of secondary funding by the policyholder. In addition, the net single premium in the SG NPR is already adjusted by the SG funding ratio, which increases or decreases the reserve relative to funding of the secondary guarantee.

Regarding consistency between the Base NPR and the SG NPR, the proposed change would result in applying a ratio to the expense allowance in both reserve components but not a consistent result for the same set of acquisition expenses:

- Base NPR expense allowance is subject to the “Base funding ratio” which measures current account value to expected account value assuming payment of a level premium and guaranteed charges; and

¹ The American Academy of Actuaries is a 19,500-member professional association whose mission is to serve the public and the U.S. actuarial profession. For more than 50 years, the Academy has assisted public policymakers on all levels by providing leadership, objective expertise, and actuarial advice on risk and financial security issues. The Academy also sets qualification, practice, and professionalism standards for actuaries in the United States.

² Ratio of actual secondary value to fully funded secondary guarantee values at time t , capped at 1

³ Expense allowance provisions are applicable for all NPR calculations, including ULSG, Term, Other Life business subject to VM-C and pre-PBR (“legacy”) reserve calculations including an unscaled expense allowance in Actuarial Guideline XXXVIII

- APF proposes the SG NPR expense allowance be adjusted by the SG funding ratio

Using a shadow account design product as an example, the SG funding ratio would be the policy's current shadow account value to a fully funded shadow account value. In early years of a shadow account SG contract, the fully funded shadow account value is significantly larger than the expected account value used in the Base funding ratio, which means the SG funding ratio will be significantly smaller than the Base funding ratio and the expense allowances between the two reserve components will be different for the same set of acquisition expenses.

The proposed change may result in expense allowances that vary based on contract funding behavior and even SG type (i.e. shadow versus cumulative premium), both have little relation to the acquisition expenses incurred by the issuer and may be unintended consequences of this proposal.

The following quantitative impacts have been estimated for universal life with secondary guarantee ("ULSG") business subject to VM-20:

- **New business:** For a newly issued block of business offering lifetime secondary guarantees the increase to reserves was estimated to be 28% at the end of the first year⁴
- **Existing business⁵:** Estimated increase to reserve for the same block of business above are 22% in year 2 reducing to 9% by year 5 as the expense allowance amortizes and the SG funding ratio grows⁴

In light of the quantitative and qualitative analysis, the LRWG recommends further review of this proposal and its industry impact.

The Life Reserves Work Group appreciates your attention to the issues raised in this letter and looks forward to discussing them further with you. Should you have any questions or comments in response to this letter, please contact Amanda Barry-Moilanen, life policy analyst (barrymoilanen@actuary.org).

Sincerely,



Dylan Strother, MAAA, FSA
Chairperson, Life Reserves Work Group

Angela McShane, MAAA, FSA
Vice Chairperson, Life Reserves Work Group

American Academy of Actuaries

⁴ Impacts stated were developed using a sample model consisting of a mix of business shadow account of varying guarantee lengths (e.g., to a defined age, lifetime) issued over the last three years. Some of the business also has shorter term specified premium policies in addition to their long-term guarantee.

⁵ This includes business issued since 1/1/2020 and for some insurers, business issued as far back as 1/1/2017

Brian Bayerle
Chief Life Actuary
202-624-2169
BrianBayerle@acli.com

Colin Masterson
Policy Analyst
202-624-2463
ColinMasterson@acli.com
April 17, 2023

Rachel Hemphill
Chair, NAIC Life Actuarial (A) Task Force (LATF)

Re: APF 2023-03 Parts 1 and 2

Dear Ms. Hemphill:

The American Council of Life Insurers (ACLI) appreciates the opportunity to submit comments on Parts 1 and 2 of APF 2023-03 which was exposed during the LATF session on February 2, 2023.

Regarding Part 1, the APF suggests that the expense allowance also be multiplied by the policy's SG funding ratio. In VM-20 this ratio is $[ASG_{x+t}/FFSG_{x+t}]$. For reference, Section 3.B defines what is meant by the terms ASG_{x+t} and $FFSG_{x+t}$. For shadow account policies which are minimally funded, this ratio is naturally low, and depending on policyholder behavior, could remain low for all policy years. For specified premium policies, the ratio grows from a low ratio at the first policy year to 1.00 at the end of the secondary guarantee period. Thus, the structure of the secondary guarantee and the underlying policyholder payment behavior influences how much of the amortized expense allowance is permitted to be recognized.

The $[ASG_{x+t}/FFSG_{x+t}]$ ratio makes sense for the "NSPx_t" component of the VM-20 Section 3.B.5.c formula because the ratio reflects the degree to which the policy is closing in on a "paid up" secondary guarantee provision. However, we do not see this ratio as appropriate for calibrating how much of the expense allowance is recognized. After all, the expense allowance construct is intended as a proxy for industry-level acquisition costs, and those costs do not change based on policyholder behavior, nor do they change according to the structure of the secondary guarantee provision. The concept that the expense allowance is independent of policyholder behavior would further draw into question whether the application of the ratio to the expense allowance in Section 3.B.5.d (when the secondary guarantee is not in effect) calculation is appropriate. Removing this

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acli.com

application of the ratio to the expense allowance, which we acknowledge is a deviation from CRVM, would bring both components of the NPR calculation into alignment on this concept.

As compared to company calculations to date (i.e., using VM-20's current expression of ULSG NPR) the changes proposed in APF 2023-03 Part 1 would have a significant impact on the NPR reserve calculation in early durations, with a decreasing effect over time. This is because the expense allowance deduction, when multiplied by the $[ASG_{x+t}/FFSG_{x+t}]$ ratio, would be significantly smaller in earlier durations, and as the expense allowance amortizes, the difference would get smaller over time regardless of the ratio.

It is unclear what the aggregate impact of this change would be to reserves, and a thorough analysis would require updates to valuation systems. Therefore, ACLI would recommend no change to VM-20 as proposed in Part 1 until these impacts can be determined.

Regarding Part 2, ACLI believes the requirement to floor each stochastic scenario at the cash surrender value (CSV) prior to calculating CTE70 could be problematic. For example, applying the CSV floor to each scenario would result in making the effect of the floor more difficult to predict, forecast, and manage (e.g., via hedging).

The VM-20 and VM-21 frameworks are different in several ways; for example, VM-20 has an NPR with a cash surrender value floor while VM-21 does not, and the VM-20 Deterministic Reserve also serves a different purpose than the Standard Projection Amount in VM-21. From a technical standpoint, it is not clear why additional flooring at the SR scenario level is appropriate and necessary for VM-20. Therefore, ACLI would recommend no change to VM-20 as proposed in Part 2.

Thank you once again for the consideration of our comments and we are looking forward to future discussions with regulators on this APF.

Sincerely,



cc: Scott O'Neal, NAIC

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form*

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Identification:

PBR Staff of Texas Department of Insurance

Title of the Issue:

Address several clean-up items for VM-20

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

VM- 20 Section 3.B.5.c.ii.4 and VM-20 Section 5.B.3

January 1, 2023 NAIC Valuation Manual

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

1. The formula for calculating the NPR for ULSG based on the value of the SG in VM-20 Section 3.B.5.c.ii.4 excludes the EA from the scaling of the NPR. This is inconsistent with the formula for calculating the NPR for ULSG disregarding the SG in VM-20 Section 3.B.5.d.iv. The scale is the prefunding ratio of actual SG (denoted ASG) to fully funded SG (denoted FFSG), and it makes intuitive sense that the NPR would be scaled to decrease or increase relative to the level of funding of the SG.
2. The VM-20 Section 5.B.3 stochastic reserve methodology is missing an aggregate cash surrender value (CSV) floor for scenario reserves before calculating CTE70. This allows scenario reserves that exceed the CSV to be dampened or eliminated by being averaged with scenario reserves. A CSV floor in the NPR does not address this concern, because it does not reflect the scenario reserves in the SR that exceed the CSV. In contrast, in VM-21 Section 4.B.1 scenario reserves are floored at the aggregate CSV as appropriate. Scenario reserves, as the asset requirement for specific scenarios, should be held at or above the CSV.

* This form is not intended for minor corrections, such as formatting, grammar, cross-references or spelling. Those types of changes do not require action by the entire group and may be submitted via letter or email to the NAIC staff support person for the NAIC group where the document originated.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
1/30/23	SO		
Notes: APF 2023-06 – taken from Sections 1 and 2 of APF 2023-03.			

VM-20 Section 3.B.5.c.ii.4

- 4) The NPR for an insured age x at issue at time t shall be according to the formula below:

$$\frac{\text{Min} [ASG_{x+t} / FFSG_{x+t}, 1] \cdot NSP_{x+t} - E_{x+t}}{\text{Min} [ASG_{x+t} / FFSG_{x+t}, 1] \cdot (NSP_{x+t} - E_{x+t})}$$

VM-20 Section 5.B.3

3. Set the scenario reserve equal to the sum of the statement value of the starting assets across all model segments and the maximum of the amounts calculated in Subparagraph 2 above.

The scenario reserve for any given scenario shall not be less than the cash surrender value in aggregate on the valuation date for the group of contracts modeled in the projection.

COVER LETTER

The Valuation of Securities (E) Task Force has made a referral to the Life Actuarial (A) Task Force to consider five questions regarding the potential for obtaining additional measures of company investment risk by adding additional modeling capabilities to the NAIC's Securities Valuation Office. The five questions are copied below for convenience, and also embedded in Attachment 1 along with additional background.

Please send comments to [Scott O'Neal](#).

Referral – VOSTF refers this matter to the above referenced Committees, Task Forces and Working Groups for consideration and requests a response from you by May 15th outlining:

1. Indicate if your group is supportive of creating this capability within the SVO.
2. List the investment analytical measures and projections that would be most helpful to support the work performed by your respective group.
3. Describe how your group would utilize the data and why it would be of value.
4. Are there other investment data or projection capabilities that would be useful to your group that could be provided by commercially available data sources or investment models? And if so, please list them.
5. Any other thoughts you may have on this initiative.

Attachment Listing:

Attachment 1 - Referral on Additional Market and Analytical Information for Bond Investments

Attachment 2 – Blanks Market Data Disclosure

Attachment 3 – Blanks Market Data Options



TO: Elizabeth Kelleher Dwyer, Chair, Financial Conditions (E) Committee
Marlene Caride, Chair, Financial Stability (E) Task Force
Bob Kasinow, Chair, Macroprudential (E) Working Group
Thomas Botsko, Chair, Capital Adequacy (E) Task Force
Phillip Barlow, Chair, Risk-Based Capital Investment Risk and Evaluation (E) Working Group
Cassie Brown, Chair, Life Actuarial (A) Task Force
Judy Weaver, Chair, Financial Analysis (E) Working Group
Dale Bruggeman, Chair, Statutory Accounting Principles (E) Working Group
Fred Andersen, Chair, Valuation Analysis (E) Working Group

FROM: Carrie Mears, Chair, Valuation of Securities (E) Task Force

CC: Charles A. Therriault, Director, NAIC Securities Valuation Office (SVO)
Eric Kolchinsky, Director, NAIC Structured Securities Group (SSG) and Capital Markets Bureau
Dan Daveline, Director, NAIC Financial Regulatory Services
Todd Sells, Director, NAIC Financial Regulatory Policy & Data
Marc Perlman, Managing Investment Counsel, NAIC Securities Valuation Office (SVO)
Julie Gann, Assistant Director, NAIC Solvency Policy
Bruce Jenson, Assistant Director, NAIC Solvency Monitoring
Pat Allison, Managing Life Actuary, NAIC Financial Regulatory Affairs
Jane Koenigsman, Sr. Manager II, NAIC L/H Financial Analysis
Andy Daleo, Sr. Manager I, NAIC P/C Domestic and International Analysis
Dave Fleming, Sr. Life RBC Analyst, NAIC Financial Regulatory Affairs
Jennifer Frasier, Life Examination Actuary, NAIC Financial Regulatory Affairs
Scott O'Neal, Life Actuary, NAIC Financial Regulatory Affairs
Eva Yeung, Sr. P/C RBC Analyst/Technical Lead, NAIC Financial Regulatory Affairs

RE: Referral on Additional Market and Analytical Information for Bond Investments

DATE: February 13, 2023

Summary – The Investment Analysis Office (IAO) staff recommended in its Feb. 25, 2022, memorandum to the Valuation of Securities (E) Task Force (VOSTF) (attached hereto, Blanks Market Data Disclosure v2.pdf) that it would like additional market-data fields added to the annual statement instructions for bond investments. This was, in part, based upon the NAIC's adoption in 2010 of the recommendations of

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the Rating Agency (E) Working Group (RAWG), which was formed following the Great Financial Crisis of 2007-2008 to study the NAIC's reliance on rating agencies, and the IAO staff's recent findings in its Nov. 2021 memo regarding disparities between rating agencies. RAWG recommended that: 1) regulators explore how reliance on rating agencies can be reduced when evaluating new, structured, or alternative asset classes, particularly by introducing additional or alternative ways to measure risk; and 2) consider alternatives for regulators' assessment of insurers' investment risk, including expanding the role of the NAIC Securities Valuation Office ("SVO"); and 3) VOSTF should continue to develop independent analytical processes to assess investment risks. These mechanisms can be tailored to address unique regulatory concerns and should be developed for use either as supplements or alternatives to ratings, depending on the specific regulatory process under consideration.

The NAIC's need for alternative measures of investment risk has only increased since RAWG made its recommendations, as privately issued and rated complex structured finance transactions have become commonplace without adequate ways of identifying them. The SVO recommended the following market data fields to be added to the annual statement instructions: Market Yield, Market Price, Purchase Yield, Weighted Average Life, Spread to Average Life UST, Option Adjusted Spread, Effective Duration, Convexity and VISION Issue ID. Please refer to the attached memo for more detail on each data field.

In comments received from industry there were question as to how the SVO, VOSTF and/or other regulators who would receive the analytic data included in the proposal would utilize that information and why it is of value to them. The SVO was also asked to consider industry's recommendation that the NAIC be responsible for calculating this analytical information by utilizing commercially available data sources and investment models instead of having each individual insurance company incur the costs to implement system changes. The SVO shared their thoughts on the alternatives in the Jul. 14, 2022, memorandum to the VOSTF (attached, Blanks_Market_Data_Options_v3.pdf).

Capabilities like this within the SVO would permit it to calculate for regulators all the analytic values previously mentioned for any Schedule D investment along with additional measures such as key rate duration (a measure of interest rate sensitivity to maturity points along the yield curve), sensitivity to interest rate volatility, principal and interest cash flow projections for any security or portfolio for any given interest rate projection, loss estimates for any security for any given scenario and many others measures.

Referral – VOSTF refers this matter to the above referenced Committees, Task Forces and Working Groups for consideration and requests a response from you by May 15th outlining:

1. Indicate if your group is supportive of creating this capability within the SVO.
2. List the investment analytical measures and projections that would be most helpful to support the work performed by your respective group.
3. Describe how your group would utilize the data and why it would be of value.
4. Are there other investment data or projection capabilities that would be useful to your group that could be provided by commercially available data sources or investment models? And if so, please list them.
5. Any other thoughts you may have on this initiative.

Please contact Charles Therriault or Marc Perlman with any questions.

VOSTF_Referral_Bond_Risk_Measures_2023-02-13.docx



TO: Carrie Mears, Chair, Valuation of Securities (E) Task Force
Members of the Valuation of Securities (E) Task Force

FROM: Charles A. Therriault, Director, NAIC Securities Valuation Office (SVO)
Marc Perlman, Managing Investment Counsel, NAIC Securities Valuation Office (SVO)

CC: Eric Kolchinsky, Director, NAIC Structured Securities Group (SSG) and Capital Markets Bureau

RE: Additional Market Data Fields for Bond Investments

DATE: February 25, 2022

The SVO proposes adding additional market-data fields for bond investments to the annual statement instructions based on 2010 adopted recommendations of the Rating Agency (E) Working Group (RAWG) and the IAO staff's findings regarding the discrepancies between ratings, presented in its Nov. 2021 memo.

The RAWG was formed after the Financial Crisis of 2008 and was charged with gathering and assessing information on:

1. *The problems inherent in reliance on ratings, including impact on the filing exempt ("FE") process and Risk-Based Capital ("RBC");*
2. *The reasons for recent rating shortcomings, including but not limited to structured security and municipal ratings;*
3. *The current and potential future impact of ratings on state insurance financial solvency regulation; and*
4. *The effect of the use of NRSRO ratings on public confidence and public perception of regulatory oversight of the quality of insurance.*

The RAWG made the following summary recommendations in their Apr. 28, 2010, report that was adopted by the Financial Condition (E) Committee (emphasis added):

1. **Regulators explore how reliance on ARO (Approved Ratings Organization) ratings can be reduced when evaluating new, structured, or alternative asset classes, particularly by introducing additional or alternative ways to measure risk;**
2. **Consider alternatives for regulators' assessment of insurers' investment risk, including expanding the role of the NAIC Securities Valuation Office ("SVO"); and**

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3. *When considering continuing the use of ratings in insurance regulation, the **steps taken by the NRSROs in correcting the causes that led to recent rating shortfalls**, including the NRSROs' efforts in implementing the recommended structural reforms, should be taken into account.*

As the IAO staff demonstrated with the analysis in its Nov. 29, 2021, memo regarding ratings discrepancies, not all credit rating provider (CRP) ratings reflect a reasonable assessment of a security's risk, indicating that rating shortfalls persist today. The NAIC has not made additional progress in reducing reliance on CRPs and the IAO proposed several steps in its memo to accomplish that objective. As noted by the RAWG and reflected in the IAO's memo, there persists a situation where "... ratings are neither consistent nor uniform for individual securities, nor across different types and classes of securities..." However, the role of the SVO has not been expanded to include "... evaluating credit and other risks of securities."¹

One step towards introducing alternative ways to measure a security's risk would be to require insurers to report various analytical measures about each security including metrics such as its current market yield, interest rate sensitivity, spread relative to risk-free securities such as United States Treasuries and average remaining life. The more a security's market yield and spread differ from similarly rated securities, the more likely it is that the implied market-perceived risk of that security differs from the risk indicated by the credit rating assigned to it. The yield difference or spread in basis points can potentially help identify securities whose risk assessment warrants further review by the SVO, examiners or other regulatory groups, for example, a AAA rated security with a yield of 5%. Other fields that measure a security's price sensitivity to interest rate movements may also help to identify market-perceived risk inconsistent with the assigned credit rating. These additional market data fields would align with the RAWG's referral to the Task Force and SVO Initiatives (EX) Working Group, as noted in their following detailed recommendations (emphasis added):

1. *Referral to the NAIC Valuation of Securities (E) Task Force: VOS should continue to **develop independent analytical processes to assess investment risks**. These mechanisms can be tailored to address unique regulatory concerns and should be developed for **use either as supplements or alternatives to ratings**, depending on the specific regulatory process under consideration.*
2. *Referral to the NAIC Valuation of Securities (E) Task Force: ARO ratings have a role in regulation; however, since **ratings cannot be used to measure all the risks that a single investment or a mix of investments may represent in an insurer's portfolio**, NAIC policy on the use of ARO ratings should be **highly selective and incorporate both supplemental and alternative risk assessment benchmarks**.*
3. *Referral to the NAIC's SVO Initiatives (EX) Working Group: NAIC should evaluate whether to **expand the use of SVO and increase regulator reliance on the SVO for evaluating credit and other risks of securities**.*

Recommendation: The SVO recommends the following market data fields and related descriptions be added to all the annual statement instructions, through a referral to the Blanks (E) Working Group, for all bonds reported on Schedule D, Part 1 (those within scope of SSAP No. 26R – Bonds and SSAP No. 43R – Loan-Backed and Structured Securities). To allow sufficient time for insurers to update their systems, the SVO further recommends that the changes be implemented as electronic only fields effective beginning with the reporting year ending December 31, 2023.

- **Market Yield** – The Market Yield is the internal rate of return discount rate that makes the net present value (NPV) of all expected cash flows equal to zero in a discounted cash flow analysis. Therefore, Fair

¹ Evaluating the Risks Associated with NAIC Reliance on NRSRO Credit Ratings – Final Report of the RAWG to the Financial Conditions (E) Committee, April 28, 2010

Value, which is already reported, is the present value (PV) of all expected cash flows discounted at the Market Yield.

- Market Price – The Market Price per unit of Par Value, which is already reported, is reflected in the Fair Value as of the financial statement date. The Market Price, which excludes accrued interest, when multiplied by Par Value and divided by 100 will be equal to the Fair Value.
- Purchase Yield – The Purchase Yield is the internal rate of return discount rate that makes the net present value (NPV) of all expected cash flows equal to zero in a discounted cash flow analysis as of the Acquired Date. Therefore, Actual Cost is the present value (PV) of all expected cash flows discounted at the Purchase Yield as of the Acquired Date.
- Weighted Average Life – The Weighted Average Life is the average length of time that each dollar of unpaid principal remains outstanding. The time weightings used in weighted average life calculations are based on payments to the principal. The calculation is "weighted" because it considers when the payments to the principal are made—if, for example, nearly all of the principal payments are made in five years, WAL will be close to five years. Weighted average life does not consider payments to interest on the loan. This value is recalculated at each statement date for the remaining principal payments.
- Spread to Average Life UST - The spread is the difference between the interpolated U.S. Treasury bond yield that matches the reported debt security's Weighted Average Life. Spreads between interpolated U.S. Treasuries and other bond issuances are measured in basis points, with a 1% difference in yield equal to a spread of 100 basis points.
- Option Adjusted Spread - The option-adjusted spread (OAS) is the measurement of the spread of a fixed-income security rate and the risk-free rate of return (typically U.S. Treasury yield), which is then adjusted to take into account an embedded option and expressed in basis points. The spread is added to the fixed-income security price to make the risk-free bond price the same as the bond. The option-adjusted spread considers historical data such as the variability of interest rates and prepayment rates. These calculations are complex since they attempt to model future changes in interest rates, prepayment behavior of mortgage borrowers, and the probability of early redemption.
- Effective Duration - This is a duration calculation for bonds that have embedded options. This measure of duration takes into account the fact that expected cash flows will fluctuate as interest rates change and is, therefore, a measure of risk given the security's Fair Value. As a formula, Effective Duration = $(P(1) - P(2)) / (2 \times P(0) \times Y)$, where $P(0)$ = the bond's Market Price per \$100 worth of par value, $P(1)$ = the price of the bond if the yield were to decrease by Y percent, $P(2)$ = the price of the bond if the yield were to increase by Y percent, and Y = the estimated change in yield used to calculate $P(1)$ and $P(2)$.
- Convexity - This is a measure of the curvature, or the degree of the curve, in the relationship between bond prices and bond yields. Convexity demonstrates how the duration of a bond changes as the interest rate changes.
- VISION ISSUE ID: The NAIC VISION system security ID reported in AVS+.

<https://naiconline.sharepoint.com/teams/SVOVOSTaskForce/Shared Documents/Meetings/2022/2022-04 - Spring National Meeting/04 - Blanks Referral Analytical Risk Measures/2021-053.01 Blanks Market Data Disclosure v2.docx>



TO: Carrie Mears, Chair, Valuation of Securities (E) Task Force
Members of the Valuation of Securities (E) Task Force

FROM: Charles A. Therriault, Director, NAIC Securities Valuation Office (SVO)
Marc Perlman, Managing Investment Counsel, NAIC Securities Valuation Office (SVO)

CC: Eric Kolchinsky, Director, NAIC Structured Securities Group (SSG) and Capital Markets Bureau

RE: Possible Options for Additional Market Data Fields for Bond Investments

DATE: July 14, 2022

Summary - The SVO proposed adding additional market-data fields for bond investments to the annual statement instructions in its memo dated Feb. 25, 2022, titled “Additional Market Data Fields for Bond Investments” that was discussed at the 2022 Spring National Meeting. The recommendation was based, in part, on 2010 adopted recommendations of the Rating Agency (E) Working Group (RAWG) and the NAIC Investment Analysis Office’s (IAO) staff’s findings regarding the discrepancies between ratings, presented in its Nov. 29, 2021 memo, “Rating Issues and Proposed Changes to the Filing Exemption Process.” In this memo the SVO further outlines the regulatory benefits and proposes two possible approaches.

The benefits of collecting additional market-data for each insurer bond investment are several:

- Assist in SVO identification of securities with credit rating provider (CRP) ratings which may be inconsistent with a security’s actual overall risk.
- Greater transparency for regulators into the risks and characteristics of insurer investments.
- Incorporation of insurer investment portfolio analysis into the examination process.
- Availability of more Level 1 and 2 Inputs which will be included in the AVS+ pricing data for all securities compared to the mostly Level 3 Inputs for only some securities today.
- Allow state insurance regulators to assess the capabilities of an insurer’s investment management or risk management processes by reviewing the quality and accuracy the market data fields.
- Provide NAIC staff with the capability to run cash flow simulations on insurer investments.

Regarding the first bullet, the SVO would use this market-data information to help identify securities with credit rating provider (CRP) ratings that may be inconsistent with the security’s actual overall risk. The SVO and SSG have raised concerns over the years about a number of asset classes (e.g. residential

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mortgage backed securities (RMBS), commercial mortgage backed securities (CMBS), public and private fund investments, principal protected securities (PPS) including CLO Combo Notes, regulatory transactions, residual interests, and now collateralized loan obligations (CLO), and structure equity and funds) and specific securities in other asset classes where a rating agency rating often does not adequately reflect the investment risk for NAIC purposes. The SVO needs this analytical information so that it can identify and take potential action on investment risk assessment inaccuracies. Without this data and potentially other information in the future, coupled with some level of discretion over NAIC Designations derived from ratings, the SVO and regulators will remain in the dark about these risks. Additionally, the incentive for significant risk-based capital arbitrage utilizing CRP ratings will likely continue to increase and rating agencies will effectively remain a de-facto “super regulator” in that any investment they assign a rating to is automatically accepted by the NAIC without any regulatory discussion, analysis, oversight or consideration as to how the rating agency’s decisions align to the NAIC’s statutory framework.

Inconsistent and potentially inaccurate assessments of investment risk is a critical issue not only for the Valuation of Securities (E) Task Force but for other state insurance regulatory groups that are interested in identifying and analyzing investment risks, whether it be at the individual security, asset class, legal entity or industry level. The following are just a few groups that have active work streams involving investment risk: Life Actuarial (A) Task Force, Capital Adequacy (E) Task Force and its Working Groups, Statutory Accounting Principles (E) Working Group, Financial Stability (E) Task Force, Macroprudential (E) Working Group and Financial Analysis (E) Working Group. The proposed market data fields will benefit each of these groups in their work assessing insurer investments and portfolio risks.

The requested market data fields other than purchase yield, which should be available from any investment accounting system, are all at the security issue level (i.e. CUSIP). Any insurer system that can receive security issue level data such as a market prices, credit ratings, bond factors, cashflows, or NAIC Designations should be able to accommodate these proposed security issue-level data fields. The SVO acknowledges this change will require time for insurer system providers to accommodate these new data fields into their data structures and Schedule D reporting applications. However, these data fields are very common in the management of a bond portfolio, and it would be a significant enterprise risk deficiency if an insurer’s investment managers did not have them.

Some alternate measures of risk (e.g. Sharpe Ratio and Sortino Ratio) were mentioned during the Task Force discussion. These metrics, however, would require insurers to calculate the total return and the standard deviation of those returns for each security they own in order to produce and report these metrics which would be significantly more costly and more appropriate for assessing relative value and less applicable for assessing investment risk.

Alternatives – The SVO was asked to consider industry’s recommendation that the NAIC produce these fields. Below are our thoughts on each alternative.

- **NAIC Produced Analytics** – The SVO can take on the responsibility for producing the analytical data elements requested in this proposal. To do so it would require enhancements to the SVO’s existing systems (VISION, AVS+ and STS), and vendor pricing data, investments in new systems to provide the modeling, more staff for the incremental and on-going support of these systems and processes, new data feeds to support the modeling software, and new data bases and reporting capabilities to provide the information to regulators. Enhancements would also

need to include the ability for insurers to provide electronically to the SVO the full security structure of any security that the modeling software does not know about. We strongly believe that the benefits to be gained by state regulators, the SVO and other NAIC groups with interests in investment risk of bringing this modelling capability in-house greatly outweigh, in the long run, the initial costs and effort to make these capabilities operational.

○ **Pros:**

- Market analytical information would be independently and consistently produced.
- The SVO's pricing data would need to include more Level 1 and 2 Inputs for all securities versus primarily Level 3 Inputs for only some securities today.
- Regulators would eventually be able to ask NAIC staff to model the risks or cash flows of any bond security or insurer bond portfolio, including, stress testing those securities and portfolios.
- Regulators would have significantly greater transparency into the risks and characteristics of insurer investments.
- Analytical analysis of insurer investment portfolios could be incorporated into the examination process.
- The overall cost to insurers through any increased fee would likely be much less than each insurer building out its own capability to provide the data.

○ **Cons:**

- The NAIC would need to make significant enhancements to VISION, AVS+, and STS, and develop new reporting data bases.
- The NAIC will need to license a security analytic modelling system and provide it with the data it requires, some of which may require new data licenses. This includes full access to vendor applications like Bloomberg or Aladdin.
- The NAIC will incur additional fees for higher level of security pricing data. The NAIC will also need additional staff to develop and support the technology enhancements and to support the on-going modeling of securities and portfolios.
- It may take longer for the NAIC to build this capability.
- Insurers would still need to report some of this information on their Schedule D filings from data published through AVS+.
- Insurers would need to provide the SVO with full security structure modeling and supporting data (e.g. collateral, payments, actions) for any security the analytic modelling system does not have within its data base.

- **Insurer Produced Analytics** – Insurer investment managers should already have the market data fields requested in this proposal. Insurers would need to get this information into their systems that produce their Schedule D filings. This option would require more up-front work on the part of the insurers and less by the NAIC. The uses of the data, however, whether by regulators, the SVO or other interested

NAIC groups, could be significantly more limited than in the first option, because of the inconsistency in data between insurers.

- **Pros:**
 - Insurers already have this information as part of their investment management or risk management processes.
 - State insurance regulators could assess the capabilities of an insurer's investment management or risk management processes by reviewing the quality and accuracy the market data fields.
 - The timeframe to implement would likely be shorter than the SVO having to build out this capability.
- **Cons:**
 - Insurer security pricing is very inconsistent today which will lead to a high degree of variability in these analytical values.
 - The modeling software and assumptions used by insurers to produce these analytical value can vary significantly which will also lead to a high degree of variability in the values.
 - Insurers and their system providers will need to develop new interfaces to ingest this data and produce it in their Schedule D filing. That time frame could vary significantly by vendor and insurer.
 - State insurance regulators would not be able to request the modeling of any investment security or portfolio.
 - Insurers would directly bear the expense of these changes which will likely be greater than it would be if the NAIC produced this information.

Next Steps – The SVO continues to strongly believe that these market data fields are an important first step in finding alternative ways to measure insurers investment risk and reducing the NAIC reliance rating agency ratings. As noted by the RAWG and reflected in the IAO's memo, there persists a situation where *"... ratings are neither consistent nor uniform for individual securities, nor across different types and classes of securities..."* yet the role of the SVO has not been expanded to include using these alternatives in *"... evaluating credit and other risks of securities."* The objective of this request is to begin addressing these investment risk issues but this may not be the only information needed.

Both alternatives will involve a commitment of resources either by the NAIC or industry. The major question before the Task Force is whether it has a preferred source for these market data fields: the NAIC's SVO or insurer reporting? The SVO believes that the first option would provide the most standardization in data and utility to regulators, the SVO and other interested NAIC groups and would be worth the slightly longer time and cost needed to develop the capabilities.

If, as the SVO recommends, the Task Force prefers the NAIC's SVO as the source of this analysis, then the next step would be a referral to the Financial Condition (E) Committee to request their sponsorship for this initiative and, if provided, begin a fiscal request. If Financial Condition (E) Committee declines to sponsor the initiative or if insurer reporting is the preferred source, we would recommend reverting to insurer reporting and directing the SVO staff to prepare the Blanks referral.

<https://naiconline.sharepoint.com/teams/SVOVOSTaskForce/Shared Documents/Meetings/2022/2022-08-11 - Summer National Meeting/07 - Blanks Referral Analytical Risk Measures/2021-053.XX Blanks Market Data Options.docx>



AMERICAN ACADEMY of ACTUARIES

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April 11, 2023

Rachel Hemphill
Chair
National Association of Insurance Commissioners (“NAIC”)
Life Actuarial Task Force (“LATF”)

Re: VOS Referral to LATF – Bond Risk Measures

Dear Chair Hemphill,

The American Academy of Actuaries¹ Life Valuation Committee (the “committee”) appreciates the opportunity to provide comments on the VOS Referral to LATF—Bond Risk Measures.

The Securities Valuation Office (“SVO”) has been charged with exploring approaches that rely less on ratings from Nationally Recognized Statistical Rating Organizations (“NRSRO”) and to consider additional processes that will help regulators better understand and regulate insurers’ investment risk. The SVO is considering the disclosure of additional data related to asset holdings with the purpose of developing analytical capabilities within the SVO. The expectation is that these capabilities would allow the SVO to identify securities whose NRSRO ratings fall into a range identified as questionable (i.e., rating outliers). This data would also provide additional risk-related information with respect to an insurer’s investment portfolio.

It would be helpful to understand how the disclosure of the additional data the SVO is considering will be used. For example, with respect to ratings outliers, how will this information be used to identify outliers, how will outliers be reconciled to NRSRO ratings, and what is the impact to Risk Based Capital and potentially reserves? Regarding investment risk, there is a currently information included in insurers’ investment portfolios and related risks from documents such as the Memorandum supporting the Actuarial Opinion (including the recently adopted Actuarial Guideline LIII disclosure), principle-based reserve reports, the Own Risk And Solvency Assessment report, and risk-based capital filings, to name a few. The committee suggests regulators consider identifying the specific information not obtained in documents already produced before creating new risk measures and disclosures.

¹ The American Academy of Actuaries is a 19,500-member professional association whose mission is to serve the public and the U.S. actuarial profession. For more than 50 years, the Academy has assisted public policymakers on all levels by providing leadership, objective expertise, and actuarial advice on risk and financial security issues. The Academy also sets qualification, practice, and professionalism standards for actuaries in the United States.

The committee also suggests that Valuation of Securities Task Force and other interested NAIC groups work with interested parties to perform a proof-of-concept exercise. The outcome could be informative for all parties of the ability of additional data and processing thereof to meet the objectives, the amount of work involved, and the effectiveness of the outcomes in reducing NRSRO reliance and providing better information on investment risks to regulators.

If the proof-of-concept process demonstrates feasibility, the committee believes it is equally important to understand which groups within the NAIC and state insurance departments may use this information and for what purposes.

Thank you for your consideration of these comments and we look forward to discussing these further with you. Should you have any questions or comments in response to this letter, please contact Amanda Barry-Moilanen, life policy analyst (barrymoilanen@actuary.org).

Sincerely,

Craig Morrow
Chairperson, Life Valuation Committee
American Academy of Actuaries

CC: Scott O'Neil, NAIC
Dave Fleming, NAIC
Philip Barlow
Amanda Barry-Moilanen



Brian Bayerle

Chief Life Actuary

202-624-2169

BrianBayerle@acli.com

Mike Monahan

Senior Director, Accounting Policy

202-624-2324

mikemonahan@acli.com

Colin Masterson

Policy Analyst

202-624-2463

ColinMasterson@acli.com

April 17, 2023

Rachel Hemphill

Chair, NAIC Life Actuarial (A) Task Force (LATF)

Re: NAIC Valuation of Securities (E) Task Force (VOSTF) Referral to LATF – Bond Risk Measures

Dear Ms. Hemphill:

The American Council of Life Insurers (ACLI) appreciates the opportunity to comment on the VOSTF referral to LATF regarding Bond Risk Measures. ACLI believes that it is premature for LATF to weigh in on the creation of this capacity within the NAIC Securities Valuation Office (SVO).

As stated in the attached joint comment letters, the memorandum from the SVO does not fully discuss or specify how the SVO, VOSTF, and other regulators who would receive the analytic data included in the proposal would utilize that information and why it is of value to them. This is especially important given the costs associated with compliance by the industry.

We also understand some of the data proposed to be gathered would be used to help identify rating agency disparity concerns by the SVO (e.g., “excess yields”), but much of the other data would be used for other means and/or by other parts of the NAIC or individual regulators.

Therefore, given the costs associated with this request, we believe clear articulation on how the data would be utilized by regulators is very important before deciding on the creation of this capacity.

American Council of Life Insurers | 101 Constitution Ave, NW, Suite 700 | Washington, DC 20001-2133

The American Council of Life Insurers (ACLI) is the leading trade association driving public policy and advocacy on behalf of the life insurance industry. 90 million American families rely on the life insurance industry for financial protection and retirement security. ACLI's member companies are dedicated to protecting consumers' financial wellbeing through life insurance, annuities, retirement plans, long-term care insurance, disability income insurance, reinsurance, and dental, vision and other supplemental benefits. ACLI's 280 member companies represent 94 percent of industry assets in the United States.

acli.com

Thank you once again and we look forward to future discussion.

Sincerely,

  Colin Masterson

cc: Scott O'Neal, NAIC



Mike Monahan

Senior Director, Accounting Policy
202-624-2324 t
mikemonahan@acli.com

September 12, 2022

Ms. Carrie Mears, Chair
Valuation of Securities Task Force
National Association of Insurance Commissioners
110 Walnut Street, Suite 1500
Kansas City, MO 64106-2197

Re: SVO Memorandum on Alternative to Add Fixed Income Analytical Risk Measures to Investments Reported on Schedule D, Part One, Insurer Credit Obligations (Bonds)

Dear Ms. Mears,

The undersigned (ACLI, PPiA, NASVA, NAMIC, APCIA) appreciate the opportunity to comment on the exposure draft, referred to above, that was released for comment by the Valuation of Securities Task Force (VOSTF) at the NAIC Summer National Meeting.

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PPiA is a business association of insurance companies, other institutional investors, and affiliates thereof, that are active investors in the primary market for privately placed debt instruments. The association exists to provide a discussion forum for private debt investors; to facilitate the development of industry best practices; to promote interest in the primary market for privately placed debt instruments; and to increase accessibility to capital for issuers of privately placed debt instruments. The PPiA serves 63 member companies and works with regulators, NASVA, the American College of Investors Counsel, and the investment banking community to efficiently implement changes within the private placement marketplace.

NASVA is an association of insurance company representatives who interact with the NAIC Securities Valuation Office ("SVO") to provide important input, and to exchange information, in order to improve the interaction between the SVO and its users. In the past, NASVA committees have worked on issues such as improving filing procedures, suggesting enhancements to the NAIC's ISIS electronic security filing system, and commenting on year-end processes.

NAMIC membership includes more than 1,500 member companies. The association supports regional and local mutual insurance companies on main streets across America and many of the country's largest national writers. NAMIC member companies write \$323 billion in annual premiums. Our members account for 67 percent of homeowners, 55 percent of automobile, and 32 percent of the business insurance markets. Through our advocacy programs NAMIC promotes public policy solutions that benefit NAMIC member companies and the policyholders they serve and foster greater understanding and recognition of the unique alignment of interests between management and policyholders of mutual companies.

The American Property Casualty Insurance Association (APCIA) is the primary national trade association for home, auto, and business insurers. APCIA promotes and protects the viability of private competition for the benefit of consumers and insurers, with a legacy dating back 150 years. APCIA members represent all sizes, structures, and regions—protecting families, communities, and businesses in the U.S. and across the globe.

The undersigned are also appreciative that the Securities Valuation Office (SVO) and VOSTF took into consideration our concerns and recommendation from our previous letter on this topic dated May 20, 2022, and we will not reiterate any previous points unless they are specifically relevant to additional concerns and considerations within the proposed alternative.

Centralized Aggregation of Data at the SVO

If it is determined by the VOSTF that the members of the VOSTF would like the SVO to collate additional data on investment risk, for a variety of potentially different reasons, we appreciate that the proposed alternative recommends that such data is best aggregated and centralized by the SVO. This is consistent with the recommendation from our previous letter as well as consistent with many of the reasons stated in the proposed alternative.

However, given the significant cost and effort involved, prior to embarking on any effort to aggregate such data, we would encourage the VOSTF to ensure there is broad agreement by regulators on the specific objectives for such data. This would help prevent a situation where, after expending significant cost and effort on aggregating such data and developing the appropriate systems, it is found that both the data and systems subsequently do not adequately fulfill those objectives.

As noted in our previous letter, our understanding was that the data was primarily centered around comparing market yields for securities with rating agency (CRP) ratings in order to identify outlier ratings (of 2x plus variances) where the market (through demanding higher yields) ascribes more risk to a particular security than the CRP rating would imply (e.g., the excess spread above the “risk free”, or US Treasury rate, exceeds the expectation for the security’s inherent credit risk) and if applicable, for illiquidity and/or complexity premium. The current proposal more specifically states that the benefits of such data would be several, including:

- Assist in SVO identification of securities with credit rating provider (CRP) ratings which may be inconsistent with a security’s actual overall risk.
- Greater transparency for regulators into risks and characteristics of insurer investments.
- Incorporation of insurer investment portfolio analysis into the examination process.
- Availability of more Level 1 and 2 inputs which will be included in the AVS+ pricing data for all securities compared to the mostly Level 3 inputs for only some securities today.
- Allow state insurance regulators to assess the capabilities of an insurer’s investment management or risk management process by reviewing the quality and accuracy of market data fields.
- Provide NAIC staff with the capability to run cash flow simulations on insurer investments.

This would appear to be a material change to the SVO’s current mandate and capabilities. Should this be desired by the VOSTF, and more broadly regulators in general, it would benefit from clear regulatory objectives to ensure the appropriate data is being aggregated and the appropriate systems are being developed, prior to embarking on an admittedly costly undertaking.

Insurance Company Risk Management Practices

We also note the concern stated in the proposal that “these data fields are very common in the management of a bond portfolio, and it would be a significant enterprise risk deficiency if an insurer’s investment managers did not have them.”

We would caution that insurance companies have very sophisticated risk management practices that monitor investment risk, liquidity risk, as well as company risk related to asset and liability management, among many other risks, that incorporate many factors above and beyond the data fields suggested as well as in a fashion that is not as linearly implied in the current proposal.

These practices, which vary by individual company, and are highly dependent upon each company's overall specific risk management framework which is informed by their industry, product mix, and size, among many other factors, including different emphases based overall philosophy. To suggest that such data should be readily available in the format requested, is a significant simplification that is not necessarily reflective of insurance companies' risk management practices.

In conclusion, we continue to believe it is more cost effective for this data to be aggregated and centralized at the SVO if the VOSTF determines this information will benefit regulators. However, given the significant cost and effort involved, prior to embarking on any effort to aggregate such data, we would encourage the VOSTF to ensure there is broad agreement by regulators on the specific objectives for such data, to ensure the appropriate data is being aggregated.

We stand ready to assist regulators and staff with regards to this proposal. If you have any questions in the interim, please do not hesitate to contact us.

Sincerely,



Mike Monahan
Senior Director, Accounting Policy

Tracey Lindsey

Tracey Lindsey
NASVA

John Petchler

John Petchler
on behalf of PPIA
Board of Director



Jonathan Rodgers

Director of Financial and Tax Policy

A handwritten signature in black ink, appearing to read "Stephen W. Broadie". The signature is written in a cursive style with a distinct loop at the end.

Stephen W. Broadie
Vice President, Financial & Counsel



Mike Monahan

Senior Director, Accounting Policy
202-624-2324 t
mikemonahan@acli.com

May 20, 2022

Ms. Carrie Mears, Chair
Valuation of Securities Task Force
National Association of Insurance Commissioners
1100 Walnut Street, Suite 1500
Kansas City, MO 64106-2197

Re: A Proposed Referral to the Blanks (E) Working Group to Add Fixed Income Analytical Measures to Investments Reported on Schedule D, Part One – Additional Market Data Fields for Bond Investments – Comments Due May 20, 2022

Dear Ms. Mears,

The undersigned (ACLI, APCIA, PPIA, NASVA) appreciate the opportunity to comment on the exposure entitled “Additional Market Data Fields for Bond Investments” that was released for comment by the NAIC Valuation of Securities Task Force (VOSTF).

The undersigned note that the memorandum from the Securities Valuation Office (SVO) does not fully discuss or specify how the SVO, VOSTF and/or other regulators who would receive the analytic

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NASVA is an association of insurance company representatives who interact with the NAIC Securities Valuation Office (“SVO”) to provide important input, and to exchange information, in order to improve the interaction between the SVO and its users. In the past, NASVA committees have worked on issues such as improving filing procedures, suggesting enhancements to the NAIC's ISIS electronic security filing system, and commenting on year-end processes.

data included in the proposal would utilize that information and why it is of value to them. This is especially important given the costs associated with compliance by the industry.

The undersigned understand that one of the reasons for requesting this analytic data is to compare market yields for securities with rating agency (CRP) ratings, in order to identify outlier ratings (of 2x plus variances) where the market (through demanding higher yields) ascribes more risk to a particular security than the CRP rating would imply (e.g., the excess spread above the “risk free”, or US Treasury rate, exceeds the expectation for the security’s inherent credit risk, and if applicable, for illiquidity and/or complexity premium).

The undersigned also understand this is especially desired for privately offered structured securities – e.g., as noted under item 10 of the Summary of Referrals from Macroprudential Working Group “Regulatory Considerations Related to but not exclusive to PE” exposure, with comments due June 13, 2022, as well as from comments from various NAIC staff and regulators.

Given the costs associated with this request, the undersigned would appreciate further dialogue on how the data will be utilized and the tangible benefits to regulators. This discussion would allow the benefits to be weighed against the substantial costs associated with providing the data, i.e., compliance with the proposal.

For public securities much, if not all, of this data is already available from other commercially available sources (e.g., Bloomberg, Clearwater, Aladdin, etc.) and it may be more feasible for the SVO to aggregate this data, rather than have each individual insurance company incur the costs to implement systems changes and provide the data. This is especially true when considering that much of the requested data is based on somewhat complex modeling and outputs are heavily dependent upon inputs, which by their nature require significant judgment and therefore will vary by company.

For private securities, the SVO has (or will have) meaningful data from Private Rating Rationale Reports which are likely meant to help address rating agency disparity concerns.

Our comments below are organized into two different sections – 1) Utility of the Data for Regulators and 2) Compliance Costs for Industry. The undersigned’s desire is to help address valid regulator concerns in the most cost beneficial way.

Utility of the Data for Regulators

This section of our letter will address each requested piece of data individually.

Market Yield – The Market Yield is the internal rate of return discount rate that makes the net present value (NPV) of all expected cash flows equal to zero in a discounted cash flow analysis. Therefore, Fair Value, which is already reported, is the present value (PV) of all expected cash flows at the Market Yield.

We would not expect this data to be very useful or insightful for the vast majority of securities that will be reported as Issuer Credit Obligations under the new Statutory Accounting Principles Working Group (SAPWG) Proposed Bond Definition (e.g., US Treasuries, US Government Agency, Municipal Bonds, Public Corporate Bonds or Private Corporate Bonds that are designated by the SVO and issued from operating entities). Further, for publicly rated securities, the NAIC has access to analytic data through public information sources, such as Bloomberg.

In addition, the vast majority (~75%) of what will be reported as asset-backed securities (ABS) under the new SAPWG Proposed Bond Definition (e.g., CMBS, RMBS, and potentially CLOs) are, or potentially will be, modeled by the SVO and provided an SVO designation with no weight given to CRP ratings.

For much of the remaining securities, both private credit issuer obligations and private ABS, with a private letter rating, pricing is frequently done via “matrix pricing”. While there is a variety of different methodologies utilized, this pricing methodology often uses some type of yield attributed to internal designations (e.g., use of a CRP rating, and related public index-derived yield, or an internal rating, with a similar index-derived yield). Some companies, in whole or in part, also utilize broker provided spreads or quotes for determining market values. At a minimum, there will be meaningful inconsistencies in the data supplied, as each insurer may bring different methodologies to bear in the market valuation process.

Worse, the data could be of dubious usefulness. For example, if a company internally rates a security as a BBB (based on an external CRP’s BBB rating) and uses a BBB index bond yield to determine fair value, the market yield reflected will closely approximate average BBB yields for public bonds and will not signal whether a security is more or less risky than a typical BBB bond. Said differently, because CRP ratings are a critical variable in determining matrix-based market pricing, it would be a circular process to then use a matrix pricing-derived market yield to identify CRP rating outliers.

The undersigned therefore question the utility of this data to the SVO and regulators.

Market Price – The Market Price per unit of Par Value, which is already reported, is reflected in the Fair Value as of the financial statement date. The Market Price, which excludes accrued interest, multiplied by Par Value and divided by 100 will be equal to the Fair Value.

This information is already currently reported in column 8 of Schedule D. The electronic only columns further identify the source of the market price and the fair value level attributed to it. It is unclear if the SVO is looking for something more on this item.

Purchase Yield – The Purchase Yield is the internal rate of return discount rate that makes the net present value (NPV) of all expected cash flows equal to zero in a discounted cash flow analysis as of the Acquired Date. Therefore, Actual Cost is the present value of all expected cash flows discounted at the Purchase Yield as of the Acquired Date.

The undersigned note that the Effective Rate of Interest is already included on Schedule D (Column 17) and defined in the reporting instructions as follows:

For issuer obligations, include the effective rate at which the purchase was made. For mortgage-backed/loan-backed and structured securities, report the effective yield used to value the security at the reporting date. The Effective Yield calculation should be modified for other-than-temporary impairments recognized.

The undersigned note that both of these definitions essentially equate book value to the future expected cash flows, which is the same as $NPV = 0$. Therefore, it makes sense to align these definitions to ensure the information being utilized by regulators is being efficiently obtained. Further, book yield is an objective yield that may be more beneficial for the stated intent (i.e., yield disparity for an initial CRP rating).

The utility of purchase yield for purposes of identifying excess spread, is the most relevant as it compares the excess spread, to a CRP rating when the deal is committed to. Purchase yield is a fact. For private securities, all valuations assigned subsequent to time of commitment are educated estimates. These estimates may vary for any number of reasons, beyond just the CRP rating including: short-term market movements, impairments, changing circumstances with respect to specific companies or industries, delay in rating agency downgrades, etc. For outliers, the SVO can certainly dig deeper to identify the root causes – e.g., for private securities, note purchase agreements, rating rationale reports, copies of the notes, etc. which the SVO should already have; for public securities, Bloomberg or SEC websites are readily available. In short, in attempting to identify 2x plus variances, the spread over the US Treasury rate (utilizing purchase yield at the time of commitment is going to be the most significant indicator of an outlier CRP rating. The remaining data has very limited additional value in identifying such outliers – e.g., duration matters but is less impactful as it pertains to identifying 2x variances.

Weighted Average Life (WAL) – The Weighted Average Life is the average length of time that each dollar of unpaid principal remains outstanding. The time weightings used in weighted average life calculations are based on payments to the principal. The calculation is "weighted" because it considers when the payments to the principal are made—if, for example, nearly all the principal payments are made in five years, WAL will be close to five years. Weighted average life does not consider payments to interest on the loan. This value is recalculated at each statement date for the remaining principal payments.

WAL can be thought about as a way of estimating the tenor of an investment and is often considered in establishing the interest rate. On a stand-alone basis, the undersigned do not understand why the WAL is particularly useful as other factors related to each investment are considered. The value of WAL as a measure may be diminished when there is potential variability in cash flows due to embedded options or in asset-backed securities. This potential for cash flow variability also increases the likelihood that the WAL measure will vary by company. Therefore, focusing on spread over the US Treasury rate (utilizing purchase yield) should be sufficient to identify outliers. See our discussion on duration below.

Spread to Average Life UST (UST Spread) - The spread is the difference between the interpolated U.S. Treasury bond yield that matches the reported debt security's Weighted Average Life. Spreads between interpolated U.S. Treasuries and other bond issuances are measured in basis points, with a 1% difference in yield equal to a spread of 100 basis points.

Option Adjusted Spread (OAS) - The option-adjusted spread is the measurement of the spread of a fixed income security rate and the risk-free rate of return (typically U.S. Treasury yield), which is then adjusted to take into account an embedded option and expressed in basis points. The spread is added to the fixed income security price to make the risk-free bond price the same as the bond. The option-adjusted spread considers historical data such as the variability of interest rates and prepayment rates. These calculations are complex since they attempt to model future changes in interest rates, prepayment behavior of mortgage borrowers, and the probability of early redemption.

Both the UST Spread and OAS are certainly different ways to calculate the spread over the US Treasury rate, just as with using purchase yield and market yield.

For securities without embedded prepayment or extension risk, we believe spread at time of commitment (e.g., utilizing the purchase yield) will be the most relevant metric and will be most meaningful to the SVO and regulators.

For securities with embedded prepayment or extension risk, while OAS could provide some incremental additional insight, it also has some additional drawbacks. Calculating the OAS involves projecting many future interest-rate scenarios and their probabilities, as well as assumed borrower behavior. To the extent that each insurer has its own proprietary optionality model, OAS for the same security will differ insurer to insurer.

In any case, these are just other forms of spread over treasury which the undersigned believe are unnecessary when trying to identify 2x plus variances, especially considering the costs for each company to comply, and their reliability due to subjective inputs in a complex calculation. Therefore, focusing on spread over the US Treasury rate at time of commitment (utilizing purchase yield) should be sufficient to identify outliers.

Lastly, there is concern among industry that this data would be inconsistent with other data utilized by insurance companies (e.g., the NAIC Valuation Manual for Life and Annuity Reserves requires the use of spreads in very prescriptive form).

Effective Duration - This is a duration calculation for bonds that have embedded options. This measure of duration takes into account the fact that expected cash flows will fluctuate as interest rates change and is, therefore, a measure of risk given the security's Fair Value. As a formula, Effective Duration = $(P(1) - P(2)) / (2 \times P(0) \times Y)$, where $P(0)$ = the bond's Market Price per \$100 worth of par value, $P(1)$ = the price of the bond if the yield were to decrease by Y percent, $P(2)$ = the price of the bond if the yield were to increase by Y percent, and Y = the estimated change in yield used to calculate $P(1)$ and $P(2)$.

Convexity - This is a measure of the curvature, or the degree of the curve, in the relationship between bond prices and bond yields. Convexity demonstrates how the duration of a bond changes as the interest rate changes.

Both Effective Duration and Convexity are interest rate risk measures and are not indicators of credit risk. While such measures are certainly useful for a life insurance company, it is primarily in the context of comparing the duration and convexity of their asset portfolios to the duration and convexity of their liabilities. These data are most useful in estimating prices given changes in interest rates, while the price drivers are based on an investor's view of cash flows, including any embedded options. Because of this, we question their ability to explain a 2x variance in the purchase yield. Additionally, these calculations require very challenging assumptions on volatility which would certainly lead to different outcomes for different companies. Thus, in the context of the varying assumptions on the inputs, and the limited value in identifying 2x variances, the undersigned do not believe there is sufficient value in pursuing the creation of these fields.

VISION ISSUE ID - The NAIC VISION system security ID reported in AVS+.

The undersigned are not aware of any instance in which the VISION ISSUE ID is currently captured by industry, nor included on any reporting schedule. If a company is a filer of a particular security, they typically do not save the VISION ISSUE ID, and if they are not the filer, they would have no reason to seek and retain it.

Due to these factors and our limited understanding of the technical architecture of the NAIC VISION system, the undersigned wonder whether the SVO could utilize the identifiers (e.g., CUSIP) for each investment on Schedule D to cross-reference the VISION ISSUE ID.

Compliance Costs for Industry

The effort and cost of supplying this data is significant. We see the effort broken into two challenges: data capture and creation of the electronic Schedule D:

The data capture challenge fits into one of the following scenarios:

- The data in whole or in part is not utilized by some companies for a variety of reasons, including because some companies do not manage their investment portfolio internally,
- The data is utilized by companies on an ad hoc basis and is not saved or stored, or
- If the data is saved or stored, it is done so on a de-centralized basis and not maintained in the companies' reporting systems.

Capturing the data is only one of the challenges. In order to deliver the requested data fields, the data would need to be included in the electronic Schedule D that is included in a Company's Annual Statement software package. There are several vendors that provide annual statement packages, and they work similarly. Each schedule is loaded to the package as a flat file in the specified format. Flat files are a collection of records in which the data follows a uniform format and follows rules on value types where applicable. The database is flat because every line only holds one data input, depending on the categorization of the columns within the file. The software packages can't take feeds from multiple sources to prepare the schedule. The annual statement software providers likely won't change their requirements to facilitate creation of the schedule that includes these fields so it would be up to companies to create the reporting in the required flat file.

Today, the Schedule D flat files are generated by the investment accounting system used by the company. There are several of these systems in the market. Most, if not all, of these systems do not contain information or programming to calculate the requested fields. Nor do they have a place to store the data with programming to reference such stored fields to facilitate the requested reporting. To do this would be a significant, and likely expensive, development project.

Because of these circumstances, the creation of the requested electronic Schedule D would require a manual process that combines information from multiple data sources. Beyond the cost of creating this manual process and previously stated concerns about data availability, implementing this process in a controlled manner that is required for all financial reporting would require development and testing, which would take considerable time, in addition to the implementation and ongoing cost, given the complexity. Coupled with the other significant NAIC activities, the resources to implement this broad and extensive proposal are very challenging even with a proposed year-end 2023 effective date.

These data capture and schedule creation scenarios present varying degrees of significant challenges in providing the requested information on potentially thousands or tens of thousands of securities for a single company. Each would require companies to develop and maintain processes and internal controls over centralized data capture and financial reporting protocols for data elements which currently don't exist.

Conclusion

Given the concerns expressed above; the data may be available from other sources, the potential lack of utility of the requested data, and the costs and efforts to comply, the undersigned would like to work with regulators to get a better understanding of the actual need for this data, as well as how

the SVO expects to use the data. This would allow us to provide more constructive feedback on this proposal so it can be implemented in the most cost-efficient manner. Due to the significant effort and cost associated with complying with this proposal, for each and every insurance company, it should be evaluated against the actual benefits that will accrue to regulators, especially in the context of other SVO/VOSTF initiatives. The undersigned believe it would be unwise to hastily implement this proposal "as is" only to acknowledge later that the utility of this data is of limited value. Furthermore, we would like to explore whether it is more cost efficient for such data, or a subset of such data, to be centrally aggregated by the SVO for their use in analysis, rather than by insurers individually.

Thank you for considering the undersigned comments. If you have any questions in the interim, please do not hesitate to contact us.

Sincerely,



Mike Monahan
Senior Director, Accounting Policy

Tracey Lindsey

Tracey Lindsey
NASVA

John Petchler

John Petchler
on behalf of PPIA
Board of Directors



Stephen W. Broadie
Vice President, Financial & Counsel

Cc: NAIC Staff
Interested Parties



TO: Thomas Botsko, Chair, Capital Adequacy (E) Task Force
Rachel Hemphill, Chair, Life Actuarial (A) Task Force
Philip Barlow, Chair, Risk-Based Capital Investment Risk and Evaluation (E) Working Group

FROM: Carrie Mears, Chair, Valuation of Securities (E) Task Force

CC: Charles A. Therriault, Director, NAIC Securities Valuation Office (SVO)
Marc Perlman, Managing Investment Counsel, NAIC Securities Valuation Office (SVO)
Eric Kolchinsky, Director, NAIC Structured Securities Group (SSG) and Capital Markets Bureau
Dave Fleming, Sr. Life RBC Analyst, NAIC Financial Regulatory Affairs
Jennifer Frasier, Life Examination Actuary, NAIC Financial Regulatory Affairs
Scott O'Neal, Life Actuary, NAIC Financial Regulatory Affairs
Eva Yeung, Sr. P/C RBC Analyst/Technical Lead, NAIC Financial Regulatory Affairs

RE: Referral regarding a Proposed Purposes and Procedures Manual (P&P Manual) Amendment to Define and Add Guidance for Structured Equity and Funds

DATE: February 3, 2023

Summary – The SVO has processed several private letter rating (PLR) filings for investments in notes issued by special purpose vehicles or other legal entities that operate as feeder funds which themselves then invest, directly or indirectly, in one or more funds or other equity investments. The SVO proposes defining these investments as Structured Equity and Fund investments.¹ The SVO proposed at the 2022 Fall National Meeting the removal of Structured Equity and Fund investments from Filing Exemption, the reliance upon a credit rating provider (CRP) ratings for the assignment of NAIC Designations. The SVO is concerned about this general structure for the following reasons:

¹ Proposed Definition: A Structured Equity and Fund investment is a note issued by, or equity or limited partnership interest in, a special purpose vehicle, trust, limited liability company, limited partnership, or other legal entity type, as issuer, the contractually promised payments of which are wholly dependent, directly or indirectly, upon payments or distributions from one or more underlying equity or fund investments. The inclusion of an intervening legal entity or entities between the Structured Equity and Fund investment issuer and the underlying equity or fund(s), does not change the risk that the insurer investment is ultimately dependent, in whole or in part, upon an investment in equity or one or more funds and its underlying investments. Any design that circumvents this definition, and related examples, through technical means but which in substance achieves the same ends or poses the same risk, shall be deemed a Structured Equity and Fund.

Executive Office | 444 North Capitol Street NW | Suite 700 | Washington, DC 20001 | (202) 471-3990

Central Office | 1100 Walnut Street | Suite 1500 | Kansas City, MO 64106-2197 | (816) 842-3600

Capital Markets & Investment Analysis Office | One New York Plaza | Suite 4210 | New York, NY 10004 | (212) 398-9000

www.naic.com

- 1) Circumvent Regulatory Guidance - The introduction of an intervening entity as debt issuer, when the underlying investment is in substance an equity investment, circumvents regulatory guidance established by the Valuation of Securities (E) Task Force, the Statutory Accounting Principles (E) Working Group and the Capital Adequacy (E) Task Force for the reporting of equity investments because, according to the P&P Manual (i) equity and fund investments are ineligible to use credit rating provider (CRP) ratings in the assignment of an NAIC Designation and (ii), in the case of funds, only the SVO is tasked with determining whether a fund produces fixed-income like cash flows and is therefore eligible for specific classification.

All non-SEC registered funds are required to be reported on Schedule BA. Life insurance entities are permitted to file investments in non-SEC registered private equity funds, partnerships, limited liability companies and joint ventures with the SVO for specific classification on Schedule BA;

- 2) Reliance on Ratings - These investments are being reported as bonds and receiving bond risk-based capital (RBC) factors based upon the mechanical assignment of NAIC Designations that rely upon CRP ratings through the filing exempt process. The use of CRP ratings would not be permitted for the fund or equity investments which underly these notes if the equity or fund investments were held directly;
- 3) RBC / Investment Limit Arbitrage - The structure may permit in-substance equity and fund investments to obtain better RBC treatment than would otherwise be received if the investments had been directly reported. In addition to improved RBC treatment, the structures could permit entities to hold more underlying equity / fund investments than would be permitted under state investment law; and
- 4) Transparency - The structures typically use two or more interconnected private entities through which the privately rated "bond" securities are issued that are backed by investments in non-public assets. The many non-public layers deny regulators, and possibly insurer investors, transparency into the true underlying risks, credit exposure and nature of the investment. The notes issued are described generically as a "senior note" or "term loan" further obscuring their actual structure and complexity. These structures can invest in any asset including affiliate investments, non-fixed income investments, derivatives, borrowings for the purpose of leverage and non-admitted assets.

It is possible that many of the transactions the SVO has processed would not qualify as bonds eligible for Schedule D-1 reporting according to the principles-based bond definition currently being drafted by the Statutory Accounting Principles (E) Working Group, while others likely will qualify. The bond definition requires a review of the substance of the investment to determine whether it has the substance of a bond; significantly, that the ultimate underlying collateral has fixed income cash flows. In either case, however, the use of a fund intermediary has the potential to be abused and requires significant judgment to understand the substance and nature of the ultimate underlying risk. This has already been recognized by the establishment of processes for the SVO to provide NAIC Designations for fixed-income-like funds. It would then follow that debt instruments backed by the types of funds that would ordinarily be required to be filed with the SVO, should follow the same process.

Informational Referral – Given the magnitude of the multiple regulatory arbitrage opportunities, the judgment involved in assessing the nature of the ultimate risk, the lack of transparency, circumvention of regulatory guidance and the reliance on CRP ratings to accomplish these ends, the SVO proposed amending the P&P Manual to include a definition for Structured Equity and Fund and to exclude such investments from Filing Exemption eligibility. The proposed amendment would not change how the investment is classified for reporting by the insurer but it would ensure that the NAIC Designation and Category assigned are appropriate for the risk. This is an informational referral and no direct action is required by the Capital Adequacy (E) Task Force, Life Actuarial (A) Task Force or Risk-based Capital Investment Risk and Evaluation (E) Working Group unless those groups wish to comment on the proposal.

Please contact Charles Therriault or Marc Perlman with any questions.

<https://naiconline.sharepoint.com/teams/SVOVOSTaskForce/Shared Documents/Meetings/2023/Referrals/To CATF LATF RBCIRE/VOSTF Referral to CATF LATF RBCIRE - Structured Equity and Funds 2022-02-03.docx>



Brian Bayerle

Chief Life Actuary

202-624-2169

BrianBayerle@acli.com

Mike Monahan

Senior Director, Accounting Policy

202-624-2324

mikemonahan@acli.com

Colin Masterson

Policy Analyst

202-624-2463

ColinMasterson@acli.com

March 23, 2023

Rachel Hemphill

Chair, NAIC Life Actuarial (A) Task Force (LATF)

Re: NAIC Valuation of Securities (E) Task Force (VOSTF) Referral to LATF – Structured Equity and Funds

Dear Ms. Hemphill:

The American Council of Life Insurers (ACLI) appreciates the opportunity to submit comments on the VOSTF referral to LATF regarding Structured Equity and Funds that was exposed for feedback on March 2, 2023.

ACLI believes that this informational referral does not warrant formal comment from LATF. ACLI is comfortable continuing the dialogue with VOSTF to address our main technical concerns with the proposal. For your reference, attached to this comment letter is a February 13, 2023, joint comment letter from ACLI, PPIA, and NASVA outlining those concerns.

Were LATF to formally comment, we would ask for an opportunity to present the main concerns described in the joint letter at a future LATF meeting before any such comments were sent to VOSTF.

Thank you once again for the consideration of our feedback and we are looking forward to any future discussions on this subject.

American Council of Life Insurers | 101 Constitution Ave, NW, Suite 700 | Washington, DC 20001-2133

The American Council of Life Insurers (ACLI) is the leading trade association driving public policy and advocacy on behalf of the life insurance industry. 90 million American families rely on the life insurance industry for financial protection and retirement security. ACLI's member companies are dedicated to protecting consumers' financial wellbeing through life insurance, annuities, retirement plans, long-term care insurance, disability income insurance, reinsurance, and dental, vision and other supplemental benefits. ACLI's 280 member companies represent 94 percent of industry assets in the United States.

acli.com

B Banerji

M Monahan

Colin Masterson

cc: Scott O'Neal, NAIC



Mike Monahan
Senior Director, Accounting Policy
202-624-2324 t
mikemonahan@acli.com

February 13, 2023

Ms. Carrie Mears, Chair
Valuation of Securities Task Force
National Association of Insurance Commissioners
110 Walnut Street, Suite 1500
Kansas City, MO 64106-2197

Re: Proposed Amendment to Define and Add Guidance for Structured Equity and Funds to the P&P Manual

Dear Ms. Mears,

The undersigned (ACLI, PPIA, and NASVA) appreciate the opportunity to comment on the exposure referred to above that was released for comment by the Valuation of Securities Task Force (VOSTF) on December 14th, 2022.

The Undersigned's Response to the Exposure – In Summary

The exposure has a variety of SVO concerns that are somewhat commingled. Our concerns, some of which are addressed in more detail following, are summarized below.

1. It appears some of the SVO's concerns include:
 - a. Pure regulatory arbitrage, when comparing pre-and post-securitization, while holding the same economic risk,
 - b. What constitutes a “bond” in concept, specifically for eligibility under SSAP No. 26R and SSAP No. 43R, and
 - c. Lack of transparency on the structures and investments held by the underlying fund.
2. Industry is confused by the overlap with other initiatives and exposures, specifically the “Principles-based Bond Definition” initiative, the Risk-Based Capital Investment Risk and Evaluation (E) Working Group (Investment RBC WG) activities, and this Exposure. Projects and other initiatives address those concerns as follows:
 - a. The Investment RBC WG agenda currently includes a project to determine the appropriate risk-based capital charge for residual tranches of structured investments, which will address the arbitrage concerns raised in this proposal,

- b. SAPWG is currently near finalization of a project to define a bond, including determining eligibility for reporting on Schedule D. The SVO already has an avenue to raise concerns on investments that they do not believe meet the definition of a bond,
 - c. Private rating letters are now being filed. These letters are quite substantive and should include significant information about fund structures and their largest underlying investments.
3. The exposure name implies that the SVO is focused on feeder funds and structured equity investments. However, concerns associated with potential PIK interest, maturity extensions or other features that are common among securities appear to be commingled within the feeder fund example. To the extent a security has the potential to PIK or defer interest, where such interest is otherwise not capitalized or required to be accrued, or the potential to extend the maturity without paying interest for that extension, the Undersigned agree such a security has non-payment risk. Otherwise, the potential to PIK or defer interest, or the potential to extend the maturity, has real economic or business benefits, often mitigating risk, and should not be in the purview of the SVO for determining NAIC designations that are ultimately used for risk-based capital purposes.

Presumably, the SVO has concerns related to liquidity risk, but this is not a factor in determining an NAIC designation, nor should it be, and the SVO is not in a position to assess liquidity risk for insurers. The SVO has been focused on securities with the potential to PIK or defer interest, as well as the potential to extend maturity, but we have yet to discern what that concern is other than liquidity risk.

4. The proposed definitional change to the P&P Manual would potentially capture a whole host of more traditional fixed income securities that industry does not believe were intended to be in scope and may be difficult for the SVO to evaluate. The following fixed income securities are explicitly not feeder funds, nor share the same risk profile. Industry notes the following examples potentially captured by the exposure (including but not limited to):
 - Senior secured debt issued by a comingled fund, private or public (SEC 40 Act regulated funds, mutual funds etc.)
 - Senior secured debt issued by SPVs that own or invest in debt instrument(s), whether directly or through tax or jurisdictionally required blockers
 - Senior debt issued by REITs
 - Senior debt issued by BDCs
 - Senior debt issued by entities owning stakes in one active corporate subsidiary, or multiple related active corporate subsidiaries (“holding companies”),
 - Senior debt issued by Collateralized Fund Obligations (“CFOs”) through a trust securitization offering
 - Senior debt issued as NAV Loans generally with very low LTVs

In addition to the cost associated with reviewing these additional transactions, the question arises as to whether the SVO can better assess risk than rating agencies. Some of these structures (such as CFOs) are non-homogenous and require substantial modelling resources to evaluate. Certain rating agencies have developed a niche in assessing these risks. We also note these securities often have significant credit enhancement retained by the issuer that are not

part of the securitization (e.g., CFOs) as well as significant overcollateralization (e.g., NAV Loans, often with LTVs at 10%).

5. The exposure mentions that the SVO could use any methodology that it deems appropriate to designate such funds. There is concern about the lack of transparency of SVO methodologies, and related consistency in designations for similar risk. We believe transparency in methodology, as is happening with CLOs, is important and SVO methodologies should be fully transparent. This would accomplish two objectives – 1) Ensure the SVO is applying methodologies consistently and 2) Provide transparency to the market and industry.
6. A 2021 NAIC Capital Markets Bureau Special Report stated, “On average, designations were 2.375 notches higher, with designations 2.4 notches higher at small CRPs and 1.9 notches higher at large CRPs” than SVO’s designations”. This statement implies that SVO designations are conservative, even when compared with larger rating agencies. We believe that conservative designations for their own sake should not be the objective of the SVO. Rather, the pursuit of consistent, accurate, and transparent investment risk assessments should be the joint objective of the NAIC, VOSTF, SVO, and Industry. Excess conservatism and lack of transparency for critical processes within the SVO’s designation methodology have the potential to create a disconnect between the appropriate risk-based capital charges set by the NAIC’s Capital Adequacy’s Task Force and SVO designations. Risk-based capital charges are based upon public rating agency experience and is the foundation upon which the capital charges are ultimately based.

While acknowledging the SVO’s designation process generally works well for most traditional corporate bonds that are filed with the SVO, although not without examples of unsubstantiated deviations, the potential for inconsistency in appropriate risk assessment becomes even greater as structural complexity increases. Additionally, having concentrated critical processes under the SVO’s sole discretionary purview, including choice of rating methodology to apply, application of that methodology, and the lack of a robust and independent appeals process for industry, does not offer appropriate checks and balances. Currently, industry struggles to understand how the SVO might view securities with new, unusual, or outlier risks and what type of designation the SVO might assign to such securities. The potential for inconsistency in appropriate risk assessment becomes even greater as structural complexity increases. If an SVO designation methodology exists for all asset classes, industry does not understand why they cannot be made both public and transparent. If an SVO designation methodology does not exist for all asset classes, that would be concerning as the SVO looks to expand its role for designating even more complex securities.

There is also concern that a lack of transparency and applied consistency with the SVO’s undisclosed designation methodologies will lead to material capital uncertainties and inconsistent designations. Capital certainty may not officially be a component of an NAIC designation, but we believe all should agree that consistent application of, and transparency of, designation methodology is important to all stakeholders, including the SVO and state regulators. Further, capital certainty and timeliness of designations are very important to insurance companies to manage risk-appetites for risk-based capital in a meaningful way, and to ensure that return on investments covers not only expected losses but also an acceptable return on capital.

- The undersigned believe the proposed amendment should focus on what we consider should be mutual areas of agreement in principle.

The SVO should make their methodologies public to help ensure they are applied consistently, the SVO's powers have appropriate checks and balances, and/or they are not overly conservative when compared to rating agencies' ratings and upon which risk-based capital charges are based.

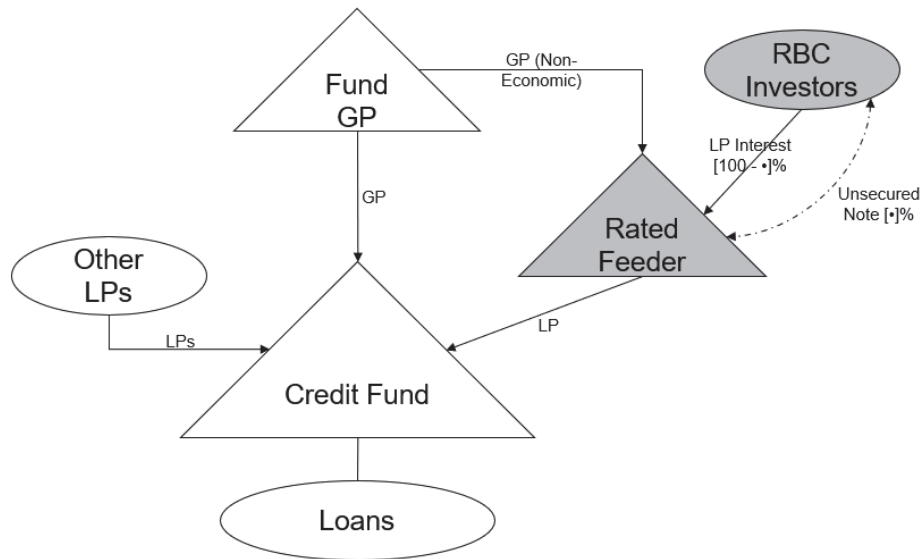
Even the large rating agencies, who have extensive resources (including sizable staff with dedicated teams for specific asset classes with unique characteristics, trained economists, the latest technology, access to tailored seminars/training for specific asset classes, and access to management), are not experts in all areas.

As a result, both large and smaller rating agencies have developed particular niche expertise, and no one rating agency rates every type of debt asset class.

The undersigned would like to work together with the SVO and NAIC to better understand their concerns so approaches more tailored toward those specific concerns can be more efficiently addressed. We look forward to having dialogue with you on these issues and stand ready to help.

Feeder Fund Structures

The remaining part of our letter focuses on the feeder fund structure and the examples included within the exposure. A visual depiction of a feeder fund can be shown as follows:



This type of structure, as well as other structures such as CFOs, were subject to significant discussion during the principles-based bond definition project. Early in the project, complex and unworkable rules were being developed in an attempt to address risk-based capital concerns of structures (i.e., allowing for potential risk-based capital arbitrage without a substantial change in economic risk). It was ultimately decided by SAPWG that such concerns were best addressed by revising the definition of a bond in combination with the Investment RBC WG addressing the

appropriate risk-based capital charges for residual tranches. All residual tranches have subsequently moved to Schedule BA and are in scope for potentially higher risk-based capital charges.

During the bond project, industry also shared with regulators that these feeder fund structures provide valuable benefits to the insurance industry, as well for those outside the insurance industry. Feeder funds allow companies to obtain diverse exposure to mezzanine debt (or junior debt, 1st lien debt, etc.) which investors would otherwise not be able to do individually due to materiality, individual underwriting expertise, lack of diversification, etc.

The feeder fund structure was initially developed, at least in part, for anti-arbitrage reasons and to allow insurance companies to access funds with a capital charge that puts insurance company investors on a level playing field with pension funds, banks, and other non-insurance investors. The key is that some investors cannot commit sufficiently large capital to do a separately managed account directly, and thus must choose between either foregoing attractive credit risk exposure or taking an overstated risk-based capital charge to access a diversified portfolio of ultimately debt instruments via a fund investment. A pension fund, for example, can invest in the limited partnership directly without similar risk-based capital consequences. But for an insurance company, the risk-based capital charge is 30%. Meanwhile, as noted in the SVO example, the real risk-based capital risk on a look-through basis is lower – in the example only 9.5% – resulting in anti-arbitrage.

The Investment RBC WG agenda currently has a project to determine the appropriate risk-based capital charge for residual tranches commensurate with the levered risk of the residual tranche. An interim solution is anticipated in time for concurrent adoption with the principles-based bond project. In the SVO's example, if the residual tranche risk-based capital charge was set at 65% (i.e., half-way between 30% and 100%) the aggregate risk-based capital charge of owning both the debt and equity tranche would be 7.635% versus 9.535%, essentially eliminating the "arbitrage" as laid out in the feeder fund exposure example. However, the SVO's example only has a 10% equity tranche which is substantially lower than a typical equity tranche. A more representative equity tranche of 25% with a 30% risk-based capital charge would yield an aggregate risk-based capital charge of 8.446% essentially eliminating any arbitrage. A risk-based capital charge of 65% on the residual tranche would yield an aggregate RBC charge of 17.196% which would still be significantly anti-arbitrage.

Further, securities issued by feeder funds are often issued as tranches with associated waterfall structures. These more complicated structures allow apportionment of risk potentially between different entities and/or segments to further allocate risk. Often the investment teams at insurance companies that manage fixed income versus equity portfolios are separate entities. To the extent a debt-oriented fund must be evaluated by an equity portfolio team, the fund will generally not gain traction being a "lower returning opportunity" compared to equity asset classes. This can make the access to this attractive asset class effectively fall through the cracks at many insurance companies. Feeder vehicles can assist these companies to shift the evaluation from their equity portfolio teams to their debt-oriented teams.

Not all feeder fund investors are primarily motivated by risk-based capital treatment; some of them are very focused on having the "reliable and predictable income" that debt tranches from a feeder fund would provide. The complex structuring and apportionment of senior/subordinate risk between tranches is both experience and technology intensive. CRPs have invested materially for years in their capabilities to assess credit risk in these tranching waterfall-based securitizations, and their published methodologies are transparent and consistently applied. We question whether the SVO

could evaluate such structures, for all different types of asset classes, in a more efficient, transparent and/or consistent manner than already performed by the CRPs.

The SVO's WARF methodology can work well where it is currently applied such as when there is direct ownership in an LP interest with no debt, but it becomes problematic when there is debt or when multiple tranches exist with a waterfall structure. Absent this already being addressed by the Investment RBC WG, it might be reasonable to have the SVO apply the WARF methodology and utilize that charge, if the SVO would apply the aggregate 9.535% charge they note is appropriate in the exposure. However, this comes with several practical problems:

- 1) The SVO exposure suggests any methodology for a designation could be used by the SVO, in their sole discretion without transparency as to considerations given or to ensure consistency of application. A lack of transparency as to methodology has long been a significant challenge industry has raised regarding the SVO, as designations received from the SVO can sometimes seem variable and inconsistent. This can lead to industry uncertainty regarding assessment of risk. While acknowledging the SVO's designation process generally works well with traditional corporate bonds that are filed with the SVO, although not without examples of unsubstantiated deviations, the potential for inconsistency in appropriate risk assessment becomes even greater as structural complexity increases. Trying to gain an understanding of potential outlier risk assessment is generally not achievable with today's SVO structure.
- 2) The cost of filing such securities with the SVO, which is significant given the proposed scope, could be prohibitively expensive and time consuming given the potential for limited incremental benefits, if any, compared to the status quo. For example, if the underlying debt itself is not rated by a CRP, our understanding is the designation for that underlying bond is automatically deemed a 5B, which is inappropriate, or each individual underlying instruments needs to be filed with an RTAS. The hard cost of filing each security, and each RTAS, combined with the requisite filing requirement for each underlying security (if all such information is even available in the form required), is prohibitive. Rating agencies have devoted significant cost and staff to analyze such securities. For example, industry understands that rating agencies stress each individual CUSIP within the securitization under different scenarios. Many rating agencies also have niche expertise in certain variations of asset backed securities, with different underlying collateral.
- 3) The SVO's exposure questions both the PIKing or deferral and accruing of interest and circumstances where the weighted average life of the underlying junior debt differs from the term of the note. However, there are valid economic reasons for why these structural features exist, and we think it is an oversimplification to assume that such features are inherently risky.

For example, while acknowledging significant variations exist (one example cannot cover all contingencies), it is common that the underlying investments in the portfolios of these funds are not typically traded. While the fund manager has the authority to actively manage the fund, in large part the average fund ends up pursuing a "buy and hold" strategy. During the investment period of the underlying fund, investments are originated and purchased by the fund. After the end of the investment period, the fund goes into a "run-off" mode and no further investments are purchased by the fund. As cash is generated from the underlying investments in the fund is distributed to investors in the fund on a pro-rata basis per their respective commitment to the fund. To the extent the investor has come into the fund via a feeder vehicle, then the waterfall provisions of that vehicle will dictate how the cash is distributed to the tranches of securities

that were issued by the feeder vehicle. The portfolio manager has no discretion to redirect these cash flows, and again they are contractually directed per the waterfall.

Generally speaking, feeder vehicles are structured such that once an underlying fund portfolio has “ramped-up”, given the inherent overcollateralization of these structures from the viewpoint of the rated notes, ample cash flow is generated from the fund’s assets to pay the contractual cash coupons on the rated notes issued by the feeder vehicle. After paying administrative expenses, all cash received during each period is first available to pay the interest due on the Senior Notes of the feeder vehicle, followed by interest due on any Subordinated Note tranches. During the investment period, it is typical that any remaining cash be distributed to the residual or equity tranche of the feeder vehicle, while after the investment period this cash would otherwise be used to pay down principal of the Senior Notes (until fully repaid) and then any Subordinated Notes, prior to being applied to the residual tranche.

Given the structure of a typical feeder vehicle and the waterfall priorities, it is highly unlikely that interest due to the Senior Notes issued by a vehicle would not be paid in cash. For any Subordinated Notes, to the extent there is not sufficient cash flow received on a current basis in a particular period of time to pay the interest due on those notes, then that interest is PIKed or otherwise accrued for the current period. Per the priority structure of the waterfall, that interest will then have to be paid in cash from cash received from the underlying fund investments in subsequent periods. This amount due will remain outstanding and retain its priority in the waterfall until fully repaid.

For an underlying fund that primarily holds private debt investments in its portfolio, these investments may typically have legal maturities of 7-10 years. Given that these investments can generally be prepaid by their issuing companies several years before the legal final maturities, and with the normal life cycle of private equity ownerships of companies generally, it is very common that these investments will only be held by the underlying fund for ~3-4 years.

With a typical structure for a feeder vehicle, the note tranches issued by the vehicle will generally have debt maturities longer than the maturities of the investments in the underlying fund (and practically speaking much longer than the actual hold period for most investments in those funds). Since all cash received from the underlying investments is directed by the feeder vehicle waterfall structure to pay down interest and then principal of the notes issued by the feeder vehicle, this potential mismatch is not problematic. In fact, this is a credit enhancement for the notes issued by the feeder vehicle that ensures there is no need for distributions in kind.

As noted in our previous letter on Subscript S and non-payment risk, there are valid reasons for potential PIK interest (or deferral of interest) as well as for potential maturity extension features, and if structured appropriately, they do not represent non-payment risk. A US Treasury security can be a PIK security, for example. The SVO’s exposure says the interest “could” be deferred without capitalization. It is unclear in the example cited, whether this is the case or “could” is used more generally. However, if the debt interest can be deferred without capitalization or otherwise being accrued, as stated in the deal documents, we agree that is non-payment risk and have no disagreement that it should be filed with the SVO as a non-filing exempt security. Although we are generally not aware of such securities being utilized, we agree that, to extent such securities exist, we are comfortable filing them. However, we do not think the presence of a PIK interest feature that capitalizes interest when used, is problematic.

- 4) The exposure's second example doesn't appear to have an equity tranche, and therefore the analysis presented in the exposure would not be practically appropriate. In any instance, we do not believe the math is correct in the SVO's analysis. To arrive at the SVOs risk-based capital charges, both debt tranches would have to be 50 and 50, not 55 and 55. The "BB Debt" would not be debt and would have an equity charge of 30% resulting in an aggregate RBC charge of 17.6925% in this instance. Should it be 65% the aggregate risk-based capital charge would be 37%. That is greater than the risk-based capital charge of the underlying equity.

Industry believes that feeder fund structures should be left, as originally planned by SAPWG, to be addressed by the Investment RBC WG. Additionally, industry does not deem the presence of PIK interest and principal extension features in securities to automatically translate to higher risks that would necessitate a filing with the SVO. The SVO was recently granted the authority to review private rating letter rationales (which are in-depth reports) and report suspected non-bonds to regulators, and regulators can react accordingly. It is unnecessary to make a large swath of any given asset class non-filing exempt in order to identify instances of potential abuse.

We stand ready to work collaboratively with the Task Force and SVO on this and other matters in the future

Sincerely,



Mike Monahan
Senior Director, Accounting Policy

Tracey Lindsey
Tracey Lindsey
NASVA

John Petchler
John Petchler
on behalf of PPIA
Board of Director

Draft: 6/15/23

Life Actuarial (A) Task Force
and the Life Risk-Based Capital (E) Working Group
Virtual Meeting
April 13, 2023

The Life Actuarial (A) Task Force met April 13, 2023, in joint session with the Life Risk-Based Capital (E) Working Group of the Capital Adequacy (E) Task Force. The following Task Force members participated: Cassie Brown, Chair, represented by Rachel Hemphill (TX); Scott A. White, Vice Chair, represented by Craig Chupp (VA); Lori K. Wing-Heier represented by Sharon Comstock (AK); Mark Fowler represented by Sanjeev Chaudhuri (AL); Ricardo Lara represented by Ahmad Kamil (CA); Andrew N. Mais represented by Wanchin Chou (CT); Doug Ommen represented by Mike Yanacheak (IA); Dana Popish Severinghaus represented by Vincent Tsang (IL); Amy L. Beard represented by Scott Shover and Heir Cooper (IN); Vicki Schmidt represented by Nicole Boyd (KS); Grace Arnold represented by Fred Andersen and Ben Slutsker (MN); Chlora Lindley-Myers represented by William Leung (MO); Eric Dunning represented by Michael Muldoon (NE); Adrienne A. Harris represented by Bill Carmello (NY); Judith L. French represented by Peter Weber (OH); Glen Mulready represented by Andrew Schallhorn (OK); Michael Humphreys represented by Steve Boston (PA); and Jon Pike represented by Tomasz Serbinowski (UT). The following Working Group members participated: Philip Barlow, Chair (DC); Sanjeev Chaudhuri (AL); Thomas Reedy (CA); Wanchin Chou (CT); Mike Yanacheak (IA); Vincent Tsang (IL); Fred Andersen (MN); William Leung (MO); Derek Wallman (NE); Seong-min Eom (NJ); Bill Carmello (NY); Andrew Schallhorn (OK); Rachel Hemphill (TX); and Tomasz Serbinowski (UT).

1. Approved the Formation of the Economic Scenarios (E/A) Subgroup and its Associated Charges

Hemphill said a joint Economic Scenarios (E/A) Subgroup was being considered for formation, noting that it was a joint subgroup of the Life Actuarial (A) Task Force and Life Risk-Based Capital (E) Working Group due to the impact of economic scenarios on life insurance and annuity reserves and capital. She said charges (Attachment Nine-A) were exposed, and one comment letter from Mark Tenney (Mathematical Finance Company) (Attachment Nine-B) was received. She stated that in response to a portion of Tenney's comments, an additional charge was added to develop and maintain acceptance criteria reflective of history and plausibly more extreme scenarios. Tenney said he agrees with the edits to the charges, but he noted that there were challenges with interpreting the results of the Cox-Ingersoll-Ross (CIR) model. Jason Kehrborg (American Academy of Actuaries—Academy) said the Academy Economic Scenario Working Group approved of the addition to the charges, and it is actively working on developing acceptance criteria.

Hemphill asked Task Force and Working Group members if they approve of the formation of the Economic Scenarios (E/A) Working Group. All responded in the affirmative.

2. Discussed the VM-20/VM-21 GOES Technical Drafting Group Topics Exposure

Hemphill said the VM-20, Requirements for Principle-Based Reserves for Life Products/VM-21, Requirements for Principle-Based Reserves for Variable Annuities Generator of Economic Scenarios (GOES) Technical Drafting Group exposed a series of topics (Attachment Nine-C) that would be discussed at meetings of the Drafting Group.

3. Reported on a Regulator-to-Regulator Meeting of the SPA Drafting Group

Hemphill said the Standard Project Amount (SPA) Drafting Group met April 6 in regulator-to-regulator session, pursuant to paragraph 3 (specific companies, entities or individuals) of the NAIC's Policy Statement on Open Meetings, to share the results of a confidential survey sent to companies requesting data related to the SPA.

Having no further business, the Life Actuarial (A) Task Force and Life Risk-Based Capital (E) Working Group adjourned.

SharePoint/NAIC Support Staff Hub/Member Meetings/A CMTE/LATF/2023-2-Summer/LATF Calls/04 13/April 13 Minutes.docx

The **Economic Scenarios (E/A) Subgroup** of the Life Risk-Based Capital (E) Working Group and the Life Actuarial (A) Task Force will:

- A. Monitor that the economic scenario governance framework is being appropriately followed by all relevant stakeholders involved in scenario delivery.
- B. Review material economic scenario generator updates, either driven by periodic model maintenance or changes to the economic environment and provide recommendations.
- C. Regularly review key economic conditions and metrics to evaluate the need for off-cycle or significant economic scenario generator updates and maintain a public timeline for economic scenario generator updates.
- D. Support the implementation of an economic scenario generator for use in statutory reserve and capital calculations.
- E. **Develop and maintain acceptance criteria that reflect history as well as plausibly more extreme scenarios.**

Mathematical Finance Company
QTSM CIR Green's Function Multifactor CIR and Affine Options SIRP ESG RS-ESG DMRP RS-DMRP

Mar 15, 2023

Honorable Rachel Hemphill
Chair, Life Actuarial (A) Task Force (LATF)
Honorable Philip Barlow
Chair, NAIC Life Risk-Based Capital (E) Working Group (Life RBC)
National Association of Insurance Commissioners

Re: Economic Scenarios (E/A) Subgroup

Dear Ms. Rachel Hemphill and Mr. Philip Barlow,

Please accept this comment on the NAIC LATF Economic Scenarios Subgroup Draft Charges.

Sincerely yours,

Mark S. Tenney

4313 Lawrence Street, Alexandria, VA 22309-1235
(703) 799-0581 • Fax: (703) 799-4964 • marktenneymfc@gmail.com • mfcesg.com

The 3 factor CIR model tuned to the lower bound and moderate negative rates is overly focused on that region. This results in extreme values of reserves and capital. This is an artefact of the model's limitations.

Regime Switching DMRP does not have this limitation. It can model rates trapped at the zero lower bound or negative rate regimes without overweighting to zero or negative rates.

Currently, the Fed is running inflation higher than the two percent target in the past. Prior to the recent increase, the actual value of inflation trended below the target. Greg Mankiw talked to me after a recent Brookings event in February 2023. During the session he indicated that inflation at 3 percent would be treated as being as good as two percent by the Fed.

I brought up the view that the Fed wanted to be relevant. It did not want to be stuck at the zero lower bound and have its policy irrelevant and therefore it was running inflation intentionally higher now in order to have room to lower rates.

The Federal Reserve's model of the economy, FRBUS, is structured very differently from multifactor CIR or the Regime Switching DMRP. In its standard setting, zero is a lower bound on the Fed Funds Rate, but treasury yields can be negative even in this case.

The two models, RS-DMRP and FRBUS both have negative rates but they can have more moderate impacts on pricing in some cases or for some calibrations while still having enough of a tail of negative rates for regulatory purposes. If FRBUS is more moderate on negative rates than is the 3 factor CIR GFF in its current calibration, then the Fed model should guide a recalibration of the 3 factor CIR GFF model to be more moderate on pricing. This is because the GFF does not really contain fundamental economic information on negative interest rate episodes.

It is proposed that the Economic Scenarios Subgroup study using RS-DMRP and the Fed's model as replacements for the 3 factor CIR GFF or to modify its calibration. It is proposed this be added to its list of charges. This could save the industry from having to substantially retrench and remove many product designs. This would result in a huge loss of jobs. This would only be justified if it was based on fundamental economic data and models. The FRBUS model is the best empirically of such models. It is eclectic compared to a more academic DSGE model.

In addition to the above, there should be an effort to explore the Fed agreeing to lend to insurance companies during episodes of negative rates for their cash needs. This could then be modeled. This would result in substantial relief of reserve and capital strain from negative rates. For this purpose, the RS-DMRP or the Fed's own FRBUS will be more useful than the 3 factor CIR GFF model.

Equity models can be linked or be part of the RS-DMRP. These models do not have to have the extreme march down to almost zero wealth ratios. Stock market decline regimes tend to be short is what the published literature has found.

The subgroup should proceed on an evidence based approach. This should be added to its charges or made explicitly part of them. This currently favors the view of less negative rates than in the GEMS calibration in the US and of equity stock market returns that do not have the extreme down movements. The extent of low and negative rates in the 3 factor CIR model arose from limitations in the model's structure. From an evidence based approach, RS-DMRP especially is better at having some negative rate scenarios but not being required to be overweighted to it. In addition, RS-DMRP is easier to understand and control for this purpose. The Fed's model has at times changed, and so use of it as the main economic scenario generator is risky. Along with its other flaws, this favors RS-DMRP. It can provide some low for long and negative rates but it doesn't become trapped into an excessive amount of those. This then reduces the strain on reserves and capital.

Economic Scenario Generator Technical Drafting Group Planned Topics, Tentative Timing, and initial Decision Points

1) Stochastic Exclusion Ratio Test

Timeline: Initially, meetings on 4/12 and 4/26, to finish covering field test results and discuss decision points below. Subsequently, two additional meetings after the second round of field testing, to discuss SERT field test results, pick a version of the SERT (if multiple were tested), and to determine SERT cutoff (assuming this form of SERT is selected).

SERT Goals:

- Practically sort products that may have a constraining SR from those that would not have a constraining SR.
- Give reasonably consistent results over time and in different economic environments.

Comment (Mark Tenney, Mathematical Finance Company): *"The NAIC ESG GEMS generator is calibrated to negative rates and low for long. It has some ability with other rate environments or in transitions, but these are at least partly limited in their scope and accuracy because of the orientation to low for long and negative rates. Pop-up type scenarios are not as strong as in the recent movement starting in 2021.*

These type of scenarios are handled at least partly outside of the ESG in current practice. The exclusion test is to determine whether to exclude testing with the ESG when the ESG by itself is already inadequate for many key tests. This is a sort of paradox. The ESG can not really tell what to exclude, because key risks are not in the ESG. The lack of a more robust ESG thus makes the exclusion test difficult to assess.

At a minimum, a second ESG, a scorekeeper ESG or risk ESG should be used to check the ESG and the exclusion test. This might be an ESG like Regime Switching DMRP. Companies might be encouraged to self-test with their own ESGs or ones they use."

SERT Decision Points:

1. **Decision Point:** Should the SERT be removed entirely, given that it is duplicative of what could be provided for the certification method? This could include moving the primary SERT outline to the examples for a broadened certification method. With a QA certifying as to the risks, a more judgment-based evaluation of the variability could be performed

rather than having a rough cutoff that does not consider the size of the business or the materiality standard.

Advantage for removal: The SERT discourages a holistic assessment and discussion of risk that is more appropriate for PBR. It could potentially be replaced with versions of the certification or demonstration method. One suggested alternative was to run a small, representative scenario set (e.g., 50 scenarios) and show it is not constraining compared to the NPR and DR. This is currently allowable under the stochastic exclusion demonstration test option outlined in 6.A.3.b.iii, except that it is left up to the company to determine “a sufficient number of adverse scenarios”.

Advantage for retaining: The SERT is often used because it is simple to implement. Following the same approach but as part of a certification method would require additional reporting and may trigger follow-up questions.

2. **Decision Point:** What products are generally expected to pass the SERT, what products are generally expected to fail, and what percentage of the time should this single test be able to accurately sort these accordingly?

Proposal: Pass: most Term with 20 year or shorter level period (non-ROP); Fail: most ULSG (unless minimal guarantees); the current SERT appears to fail roughly 10% of the time.

3. **Decision Point:** Do the SERT scenarios need to be at a moderately adverse level?
Proposal: No. The SERT is not a set of scenarios that need to be “passed”. They should reasonably assess whether performing an SR and taking a CTE(70) is likely to produce a higher reserve than the DR. Thus, they should assess whether tail scenarios lead to significant increases. They should generally be representative of the tail, but tail results may not be driven by the 85th percentile. Ultimately, the cutoff, which will be calibrated based on the SERT methodology, is what will determine whether products pass or fail the SERT.

4. **Decision Point:** Should the SERT scenarios be derived directly from the stochastic scenario distribution, as Conning has done or modified, or should they be “stylized” scenarios be created that reflect starting conditions and a level of reversion to a mean? Is there an alternative approach?

Advantages for scenarios based on full scenario set: Direct relationship for goal #1; avoids disconnect between the test and its effectiveness for the intended purpose of determining whether there would likely be a SR excess over the DR. The intent is for economic scenario generator updates to be more gradual over time now that we have a vendor to maintain the economic scenario generator. Each update would require an evaluation and potential update of the stylized scenarios as well.

Advantages for scenarios based on stylized set: Ease of implementation. Being less responsive means being more predictable.

Alternative (suggested by Matt Kauffman, Moody's): *"The alternative approach that I am proposing is similar in nature to the existing SERT methodology, with **prescribed vectors of pre-determined random shocks** to replace the stochastic random shocks. Because the structure of the AIRG model is different than the structure of the GEMS model, however, the existing prescribed vectors of shocks need to be translated somewhat to work with the random drivers used in the new GEMS model. I have done some limited testing that confirms it appears possible to do so in a way that will produce acceptably similar results to the existing SERT methodology (and much more similar results than the targeted percentile methodology that was used in the field test). I will be happy to provide more technical details on my proposal, if requested.*

Advantages for scenarios based on prescribed random shocks:

- *Direct relationship for goal #1.*
- *Ease of implementation; no need to generate 10,000 scenarios and analyze their percentiles to produce the 16 scenarios.*
- *Removes some of the conservatism that was unintentionally added by Conning's proposed methodology of targeting percentiles.*
- *It should adapt/respond fairly well to changes in calibration, as long as the calibration rationale remains consistent (i.e. the 3 CIR factors still roughly correspond to level, slope, and curve shape).*
- *Deterministic Reserve (DR) scenarios can dynamically be re-generated quickly for pricing/sensitivity testing/risk management (i.e. non-valuation) purposes."*

5. **Decision Point:** How do we evaluate whether the SERT is appropriately calibrated, independent of the additional risk reflected in the new scenarios? That is, what must be included in a subsequent Field Test to calibrate an appropriate cutoff?

Proposal: Adequate coverage of different starting conditions, adequate representation of products (Term, ULSG, VULSG, VULnoSG par & non-par WL).

2) Deterministic Reserve

Timeline: Initially, meetings on 5/10 and 5/24. Subsequent to the second round of field testing, two meetings to review DR field test results and to select a version of the DR (if multiple were tested) and confirm DR methodology.

DR Goal:

- Provide a moderately adverse deterministic scenario that will be adequate to capture risk for products that do not have significant interest rate and or equity risk.

DR Decision Points:

1. **Decision Point:** Should this scenario be linked to the stochastic exclusion ratio test or can it be separate?

Proposal: Separate. The DR must primarily be suitable for the DR goal above.

Comment (Matt Kauffman, Moody's): *"A related question is whether the DR scenario should be linked directly to the underlying scenario generating model. If, as proposed, a completely separate DR scenario is devised, then this linkage would no longer exist and there could be undesired side effects.*

If my proposed alternative SERT methodology of using prescribed vectors of pre-determined random shocks were implemented, however, then the linkage could be maintained while also removing some of the unwanted conservatism that existed in the field test DR scenarios. (The new targeted percentile methodology is a more conservative approach to develop the DR scenario because the upward "pull" of mean reversion after year 20 is significantly dampened).

If, after applying my proposal, the resulting DR scenario would still be considered too conservative (i.e. beyond moderately adverse), then I would suggest this is an indication that the calibration of the underlying model producing the SR scenarios is itself too conservative. In other words, if a one standard deviation level of random shocks spread out over a 20 year period is enough shocks for the model to produce a scenario that is considered well beyond moderately adverse, then the model is probably also producing a full distribution of 10,000 scenarios that is unreasonable from a real world probability perspective. Approximately 16% of scenarios would be using stochastic random shocks that produce an even more adverse scenario than the DR scenario over the first 20 years.

In this event, I would recommend revisiting the calibration (and the underlying acceptance criteria that is being calibrated to) to produce a more realistic distribution of stochastic scenarios, rather than designing a separate deterministic scenario to avoid the issue."

2. **Decision Point:** Do we agree with the format of the current deterministic scenario (adverse for 20 years, followed by reversion to mean)?

Proposal: Generally yes, but should consider whether the reversion to mean after 20 years particularly impacts specific products, giving less than a moderately adverse result. The focus for DR reserve adequacy should be policies passing the SET, but we should be mindful that it can be constraining for those with an SR as well.

3. **Decision Point:** Is the deterministic reserve scenario methodology used for the first field test appropriate?
Proposal: The DR scenario used may be beyond moderately adverse. While re-calibration will impact the DR level, ask Conning to develop a form of DR that is more consistent with the current DR.

3) Scenario Picker Tool

Timeline: 3 meetings, 6/7, 6/21, and 7/5

Scenario Picker Tool Goal:

- Provide scenario subsets that are reasonably representative of the full 10,000 scenario set for policies and/or contracts that are sensitive primarily to interest rates, equities, or both.

Scenario Picker Tool Decision Points:

1. **Decision Point:** Should there be a scenario picker that is included as part of the economic scenario generator?
Proposal: Yes.
2. **Decision Point:** Should custom stratifications be allowed, for both VM-20 and VM-21, if the company provides an off-cycle or model office comparison between the subset and full 10,000 to show there is not material understatement or bias?
Proposal: Yes. This may reduce the importance of having a perfect response for items #3-#5 below.
3. **Decision Point:** What size of subsets are needed?
Proposal: 50, 200, 1000, 2000.
4. **Decision Point:** Should there be stratification based on interest rates and/or equity?
Proposal: There should be two or three versions of the scenario picker tool, which stratify scenarios based on interest rate, equity, and/or both.
5. **Decision Point:** For interest rates, what tenor(s) should be used for stratification?
Proposal: This may be a limitation in the current scenario picker tool. Consider multiple metrics based on different tenors.

6. **Decision Point:** What metric should be used for stratification?

Proposal: Evaluate whether the current scenario picker's metric is reasonable, aside from its narrow focus on a specific interest rate tenor.

4) Company-Specific Market Paths (CSMP)

Timeline: Covered as part of meeting on 7/19

CSMP Goal:

- Provide a reasonable alternative to the CTEPA that gives consistent results but is more tractable, if necessary.

CSMP Decision Points:

1. **Decision Point:** Should the CSMP be removed entirely?

Proposal: Yes, with an appropriate phase out if needed, although the need for a phase out is not anticipated based on initial responses from the two companies utilizing the CSMP. The CTEPA is very widely used, provides greater insight into the differences between company and prescribed assumptions, and is more straightforward to implement (although more time-intensive).

~~2. **Decision Point:** Should there be any update to the CSMP Market paths?~~

~~**Proposal:** Primarily, updates would be designed to ensure that the 40 scenarios are likely to bracket CTE70(Adj). May need to replace the 1 bps floor on interest rates with a negative [25 bps] floor on interest rates, given the update to the economic scenarios to allow for negative interest rates. No other changes to magnitude of initial equity/interest rate shocks or subsequent equity returns. Interest rate paths (VM requires "all random variables in the generator are set to zero across all time periods" with the intention that "interest rates revert to the same long-term mean") may be determined as Conning has done for SERT scenario #9 from the initial field test (median path), or we can consider whether Conning can more directly calculate the CSMP subsequent interest rate paths.~~

~~**Comment (Matt Kauffman, Moody's):** "I agree there is a need to replace the floor to allow for negative rates in the starting interest rate conditions. Ideally the flooring would be consistent with whatever flooring approach (generalized fractional floor or shadow rate floor) is applied to the starting conditions in the generation of the 10,000 SR scenarios.~~

~~For the same reasons as was described earlier in the Stochastic Exclusion Ratio Test (SERT) section, I also recommend using **prescribed vectors of pre-determined random shocks**~~

to produce the CSMP interest rate paths, rather than targeting the median of a 10,000 scenario distribution. In this case, the baseline SERT scenario #9 used as the basis for CSMP would be very easy to implement, because the pre-determined random shocks are all 0. I expect the resulting scenario would be acceptably close to the median."

5) Alternative Methodology

Timeline: Primary focus of meeting on 7/19. Note that a request for additional information on the use of the Alternative Methodology has been sent to the nine companies utilizing this approach.

Alternative Methodology Goal:

- Provide a reasonable alternative to stochastic modeling that captures the risk of the guarantee for contracts with GMDBs only. Note that for contracts with no guarantees, the Alternative Methodology simply refers to AG33, so the focus of our consideration is on contracts with GMDBs.

Alternative Methodology Decision Points:

1. **Decision Point:** Should the Alternative Methodology be removed entirely?
Proposal: Potentially, with appropriate reliance on existing Actuarial Guidelines (AG33, AG34) with strengthening for rich GMDBs. In addition, there was a question of whether LATF would look for companies with a material block of "rich" GMDBs to follow full SR modeling. Finally, consider not allowing **new** use of the Alternative Methodology.
2. **Decision Point:** Should there be a significant update to the Alternative Methodology (updating the table of factors)?
Proposal: No. Based on early input from the AAA, an update of the current factor-based approach would be onerous if not impossible. If the equity scenarios materially differ from the AIRG, and the Alternative Methodology is maintained, can consider a crude adjustment as was previously done for mortality during VA reform if the impact for the Alternative Methodology is also likely material.
3. **Decision Point:** The Alternative Methodology uses the current AIRG in VM-21 Section 7.C.8 when describing "typical" adjustments to F and G for product design variations. Can Section 7.C.8 be removed, as it only outlines a possible approach, and it will be left to the actuary's judgment how to adjust results for product design variations? Alternately, can the "prescribed scenarios" be replaced with the option to use either CFT

scenarios or the updated prescribed (Conning) scenarios rather than the current AIRG (again, since this is an example)?

Proposal: Need input on whether this approach is being relied on. If this is not being used, remove for simplicity since it is not a requirement. If it is being used, and the Alternative Methodology is maintained, update with the option to use CFT scenarios or the updated prescribed (Conning) scenarios.

DRAFT

August 11, 2023

From: Fred Andersen, Chair
The Experience Reporting (A) Subgroup

To: Rachel Hemphill, Chair
The Life Actuarial (A) Task Force

Subject: The Report of the Experience Reporting (A) Subgroup to the Life Actuarial (A) Task Force

The Experience Reporting (A) Subgroup has not met since the Spring National Meeting. Upcoming projects include monitoring the plans for collecting life insurance mortality and policyholder behavior data using the NAIC as the statistical agent, starting to develop mandatory reporting of variable annuity data, and continuing to work on evaluating actuarial aspects of accelerated underwriting.

Note that the Valuation Analysis Working Group (VAWG), through its company-specific reviews of asset adequacy analysis will monitor emerging trends, particularly with respect to dynamic policyholder behavior resulting from the rise in interest rates. Findings from VAWG may inform the need for upcoming data collection.

August 11, 2023

From: Fred Andersen, Chair
Indexed Universal Life (IUL) Illustration (A) Subgroup

To: Rachel Hemphill, Chair
The Life Actuarial (A) Task Force

Subject: The Report of the Indexed Universal Life (IUL) Illustration (A) Subgroup (IUL Illustration SG) to the Life Actuarial (A) Task Force

The IUL Illustration SG has not met since the adoption of group's main work product, revisions to Actuarial Guideline 49A, by the Life Actuarial (A) Task Force on December 11, 2022. The revisions to Actuarial Guideline 49A were subsequently adopted by the NAIC's Executive (EX) Committee and Plenary at the Spring National Meeting on March 25. Regulators are reviewing the impact of the Guideline revisions on the market.

August 11th, 2023

From: Seong-min Eom, Chair
The Longevity Risk (E/A) Subgroup

To: Rachel Hemphill, Chair
The Life Actuarial (A) Task Force

Subject: The Report of the Longevity Risk (E/A) Subgroup to the Life Actuarial (A) Task Force

The Longevity Risk (E/A) Subgroup has not met since the Spring National Meeting. The subgroup will resume the meetings once the currently exposed VM-22 PBR methodology is finalized and adopted to develop and recommend longevity risk factor(s) for the product(s) that were excluded from the application of the current longevity risk factors.

August 11, 2023

From: Pete Weber, Chair
The Variable Annuities Capital and Reserve (E/A) Subgroup

To: Rachel Hemphill, Chair
The Life Actuarial (A) Task Force

Subject: The Report of the Variable Annuities Capital and Reserve (E/A) Subgroup (VACR SG) to the Life Actuarial (A) Task Force

The VACR SG has not met since the Spring National Meeting. At the request of LATF, the Chair has made a request to the Society of Actuaries to expand the work they are currently carrying out for the VM-22 Standard Projection Amount Mortality DG to include variable annuities. More specifically, to develop mortality rates to be used as prescribed assumptions within the VM-21 Standard Projection Amount. Work continues on this project and a report and recommendations are expected later this year.

August 11, 2023

From: Ben Slutsker, Chair
The VM-22 (A) Subgroup

To: Rachel Hemphill, Chair
The Life Actuarial (A) Task Force

Subject: The Report of the VM-22 (A) Subgroup to the Life Actuarial (A) Task Force

The VM-22 (A) Subgroup has been meeting roughly every other week since the beginning of April this year. After several Subgroup calls, nearly 200 comments on the 2022 exposed draft of VM-22 were addressed and reflected in an updated document, which is available on the [NAIC website](#). The updates to the newest draft include guidance related to the VM-22 Exemption, exclusion testing, longevity reinsurance, hedging, rider valuation treatment, and various other items.

Subsequent to developing an updated to draft of VM-22, the Subgroup exposed a draft of the standard projection amount requirements during the July 29 call. The exposure focuses on the structure and methodology of the SPA rather than the assumptions themselves, which only contain placeholders in the exposed draft. For upcoming calls, the Subgroup plans to hear updated presentations from the SPA mortality drafting group, led by Seong-min Eom (NJ), including recommendations from the Society of Actuaries on SPA mortality assumptions for payout annuities, deferred annuities, and structured settlements.

Draft: 8/2/23

Valuation Manual (VM)-22 (A) Subgroup
Virtual Meeting
July 26, 2023

The VM-22 (A) Subgroup of the Life Actuarial (A) Task Force met July 26, 2023. The following Subgroup members participated: Ben Slutsker, Chair (MN); Elaine Lam and Thomas Reedy (CA); Lei Rao-Knight (CT); Vincent Tsang (IL); William Leung (MO); Seong-min Eom (NJ); Bill Carmello (NY); Rachel Hemphill and Iris Huang (TX); Tomasz Serbinowski (UT); and Craig Chupp (VA).

1. Exposed the VM-22 SPA Draft

Slutsker walked through the VM-22, Requirements for Principle-Based Reserves for Non-Variable Annuities, standard projection amount (SPA) draft.

Leung made a motion, seconded by Lam, to expose the SPA draft (Attachment Fifteen-A) for a 90-day public comment period ending Oct 24.

Having no further business, the VM-22 (A) Subgroup adjourned.

SharePoint/NAIC Support Staff Hub/Member Meetings/A CMTE/LATF/2023-2-Summer/VM-22 Calls/07 26/July 26 Minutes.docx

****All Redline edits are on top of VM-21, Section 6 (Requirements for the ASPA)****

Section 6: Requirements for the Additional Standard Projection Amount

A. Overview

1. Determining the Additional Standard Projection Amount

- a. The additional standard projection amount shall be the larger of zero and an amount determined in aggregate for all contracts within each reserving category falling under the scope of these requirements, excluding those contracts that pass the exclusion tests in Section 7 and to which VM-A, VM-C, and VM-V are applied, by calculating the Prescribed Projections Amount under the CTE with Prescribed Assumptions (CTEPA) method. The company shall assess the impact of aggregation on the additional standard projection amount.

Guidance Note: The following outlines one method that may be used to assess the impact of aggregation. If a company plans to use a different method, they should discuss that method with their domiciliary commissioner.

The benefit of aggregation is determined using the following steps, using the same scenario used for the cumulative decrement analysis, and using prescribed assumptions and discount rates;

1. Calculate the present value of each contract's accumulated deficiency up through the duration of the aggregate GPVAD. When determining the contract accumulated deficiency: (a) contract starting assets equal CSV; (b) contract level starting assets include both separate account and general account assets, and exclude any hedge assets; (c) discount rate for the PVAD is the NAER; and (d) for a contract that terminates prior to the duration of the GPVAD, there will no longer be liability cash flows, but assets (positive or negative) continue to accumulate.
2. The impact of aggregation is the sum of the absolute value of the negative amounts from step 1 above.

Apply steps 1 and 2 above to each model point.

- b. The additional standard projection amount shall be calculated based on the scenario reserves, as discussed in Section 4.B, with certain prescribed assumptions replacing the company prudent estimate assumptions. As is the case in the projection of a scenario in the calculation of the DR and SR, the scenario reserves used to calculate the additional standard projection amount are based on an analysis of asset and liability cash flows produced along certain equity and interest rate scenario paths.

B. Additional Standard Projection Amount

1. General

Where not inconsistent with the guidance given here, the process and methods used to determine the additional standard projection amount under the CTEPA method shall be the same as required in the calculation of the DR and SR as described in Section 3.D and Section 3.E of these requirements. Any additional assumptions needed to determine the additional standard projection amount shall be explicitly documented.

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Deleted: based on Path A
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Deleted: If a company uses the CTEPA method, it should a
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Deleted: using the same scenario used for the cumulative decrement analysis, and using that scenario's NAER as the discount rates for discounting the accumulated deficiency from the time of the GPVAD
Deleted: For GMWBs and hybrid GMIBs that use the Withdrawal Delay Cohort Method as specified in VM-21 Section 6.C.5, cash flows for each contract or for each model point shall be determined as the aggregate across all of the constituent cohorts of the contract or model point.

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2. The company shall determine the Prescribed Projections Amount by following the CTEPA Method below.

3. For determining the CTE70 (adjusted), the assumptions for hedging programs with hedge payoffs that offset interest credits associated with indexed interest strategies (indexed interest credits) shall be the same as those used for the CTE70 (best efforts), following the requirements in Section 4.A.4.b.

4. Calculation Methodology

a. CTEPA Method:

- i. If the company used a model office to calculate the CTE Amount, then the company may continue to use the same model office, or one that is no less granular than the model office that was used to determine the CTE Amount, provided that the company shall maintain consistency in the grouping method used from one valuation to the next.
- ii. Calculate the Prescribed Projections Amount as the CTE70 (adjusted) using the same method as that outlined in Section 9.C (which is the same as the DR and SR following Section 4.A.4.b. for a company that does not have a future hedging strategy supporting the contracts other than those supporting index interest credits) but substituting the assumptions prescribed by Section 6.C. The calculation of this Prescribed Projections Amount also requires that the scenario reserve for any given scenario be equal to or in excess of the cash surrender value in aggregate on the valuation date for the group of contracts modeled in the projection.

b. Once the Prescribed Projections Amount is determined by the method above, then the company shall reduce the Prescribed Projections Amount by the CTE70 (adjusted). The difference shall be referred to as the Unbuffered Additional Standard Projection Amount.

c. Reduce the Unbuffered Additional Standard Projection Amount by an amount equal to the difference between (i) and (ii), where (i) and (ii) are calculated in the following manner:

- i. Calculate the Unfloored CTE70 (adjusted), using the same procedure as CTE70 (adjusted) but without requiring that the scenario reserve for any scenario be no less than the cash surrender value in aggregate on the valuation date.
- ii. Calculate the Unfloored CTE65 (adjusted), which is calculated in the same way as Unfloored CTE70 (adjusted) but averaging the 35% (instead of 30%) largest values.

d. The additional standard projection amount shall subsequently be the larger of the quantity calculated in Section 6.B.4.c and zero.

5. Modeled Reinsurance

Cash flows associated with reinsurance shall be projected in the same manner as that used in the calculation of the DR and SR as described in Section 3.

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Deleted: A company may not change the method used from one valuation to the next without the approval of the domiciliary commissioner.

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¶
 i. Calculate the scenario reserve, as defined in VM-01 and discussed further in Section 4.B, for each of the prescribed market paths outlined in Section 6.B.6 using the same method and assumptions as those that the company uses to calculate scenario reserves for the purposes of determining the CTE70 (adjusted),¹ as outlined in Section 9.C. These scenario reserves shall collectively be referred to as a Company Standard Projection Set.¶
 ii. Identify the market path from the Company Standard Projection Set such that the scenario reserve is closest to the CTE70 (adjusted), designated as Path A. This scenario reserve shall be referred to as Company Amount A.¶
 iii. Identify the following four market paths:¶
 Two paths with the same starting interest rate as Path A, but equity shocks +/- 5% from that of Path A.¶
 Two paths with the same equity fund returns as Path A, but the next higher and next lower interest rate shocks.¶
 From the four paths, identify Path B whose reserve value is:¶
 If Company Amount A is lower than CTE70 (adjusted), the smallest reserve value that is greater than CTE70 (adjusted).¶
 If Company Amount A is greater than CTE70 (adjusted), the greatest reserve value that is less than CTE70 (adjusted).¶
 If none of the four paths satisfy the stated condition, discard the identified Path A, and redo steps (ii) and (iii) using the next closest scenario to CTE70 (adjusted) to be the new Path A in step (ii).

Deleted: For the path designated as Path B, the scenario reserve shall be referred to as Company Amount B.¶

iv. Recalculate the scenario reserves for Path A and Path B using the same method as outlined in step (i) above, but substitute the assumptions prescribed in Section 6.C and use a seriatim in force. These scenario reserves shall be referred to as Prescribed Amount A and Prescribed Amount B, respectively.¶
 v. Calculate the Prescribed Projections Amount as:¶
 Prescribed Projections Amount
 $= \text{Prescribed Amount A} + (\text{CTE70 (adjusted)} - \text{Company Amount A})$
 $\times \left(\frac{\text{Prescribed Amount B} - \text{Prescribed Amount A}}{\text{Company Amount B} - \text{Company Amount A}} \right)$
 b

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6. Modeled Hedges

Cash flows associated with hedging shall be projected in the same manner as that used in the calculation of the CTE70 (adjusted) as discussed in Section 9.C or Section 4.A.4.a for a company without a future hedging strategy supporting the contracts other than a future hedging strategy with hedge payoffs that offset interest credits associated with indexed interest strategies.

C. Prescribed Assumptions

1. Assignment of Guaranteed Benefit Type

- a. Assumptions shall be set for each contract in accordance with the contract's guaranteed benefit type, where a number of common benefit types are specifically defined in VM-01 (e.g., GMDB, GMWB, etc.).
- b. Certain **guaranteed living benefit** products have features that can be described by multiple types of guaranteed benefits. If the **guaranteed living benefit** can be described by more than one of the definitions in VM-01 for the purpose of determining the additional standard projection amount, the company shall select the guaranteed benefit type that it deems best applicable and shall be consistent in its selection from one valuation to the next. For instance, if a **guaranteed living benefit** has both lifetime GMWB and non-lifetime GMWB features and the company determines that the lifetime GMWB is the most prominent component; assumptions for all contracts with such a **guaranteed living benefit** shall be set as if the **guaranteed living benefit** were only a lifetime GMWB and did not contain any of the non-lifetime GMWB features. If the company determines that the non-lifetime GMWB is the most prominent component; assumptions for all contracts with such a **guaranteed living benefit** shall be set as if the **guaranteed living benefit** were only a non-lifetime GMWB and did not contain any of the lifetime GMWB features.
- c. If a contract cannot be classified into any categories within a given assumption, the company shall determine the defined benefit type with the most similar benefits and risk profile as the company's benefit and utilize the assumption prescribed for this benefit.

2. Maintenance Expenses

Maintenance expense assumptions shall be determined as the sum of (a) plus (b) if the company is responsible for the administration or (c) if the company is not responsible for the administration of the contract:

- a. Each contract for which the company is responsible for administration incurs an annual expense equal to the Base Maintenance Expense Assumption shown in the table below for each product type, multiplied by $[1.025]^{(valuation\ year - 2015)}$ in the first projection year, and increased by an assumed annual inflation rate of 2% for subsequent projection years.

Table 6.1: Base Maintenance Expense Assumptions

<u>Contract Type</u>	<u>Base Maintenance Expense Assumption</u>
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Deleted: 6. Market Paths for CSMP Method¶
 If the company elects the CSMP method described in Section 6.B.3.a, the additional standard projection amount shall be determined from the scenario reserves calculated for the prescribed market paths defined below. Each prescribed market path shall be defined by an initial equity fund stress and an initial interest rate stress, after which equity fund returns steadily recover and interest rates revert to the same long-term mean.¶

All combinations of prescribed equity fund return scenarios and interest rate scenarios shall be considered prescribed Standard Projection market paths. Accordingly, each company shall calculate scenario reserves for a minimum of 40 market paths.¶

a. Equity Fund Returns ¶

Eight equity fund return market paths shall be used. These market paths differ only in the prescribed gross return in the first projection year.¶

The eight prescribed gross returns for equity funds in the first projection year shall be negative 25% to positive 10%, at 5% intervals. These gross returns shall be projected to occur linearly over the full projection year. After the first projection year, all prescribed equity fund return market paths shall assume total gross returns of 3% per annum.¶

If the eight prescribed equity fund market paths are insufficient for a company to calculate the additional standard projection amount via steps (i) through (v) outlined in Section 6.B.3.a, then the company shall include additional equity fund market paths that increase or decrease the prescribed gross returns in the first projection year by 5% increments at a time.¶

b. Interest Rates¶

Five interest rate market paths shall be used. ¶

The five prescribed interest rate market paths shall differ in the starting Treasury Department rates used to generate the mean interest rate path. Specifically, the following five sets of starting Treasury Department rates shall be used:¶

The actual Treasury Department rates as of the valuation date.¶

The actual Treasury Department rates as of the valuation date, reduced at each point on the term structure by 25% of the difference between the Treasury Department rate as of the valuation date and 0.01%.¶

The actual Treasury Department rates as of the valuation date, reduced at each point on the term structure by 50% of the difference between the Treasury Department rate as of the valuation date and 0.01%.¶

[1]

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Deleted: In addition, a simple 403(b) VA contract shall be defined as a variable annuity contract that:¶

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Is issued within a 403(b) retirement savings plan.¶
 Does not have a VAGLB.

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Commented [VM221]: Discuss whether to leave as a fixed rate or follow treasury path

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<u>Contracts in the Payout Annuity Reserving Category</u>	<u>[\$50]</u>
<u>Fixed Indexed Annuities and other contracts in the Accumulation Reserving Category with guaranteed living benefits</u>	<u>[\$100]</u>
<u>All other contracts</u>	<u>[\$75]</u>

Drafting Note: The expense assumptions may be updated closer to adoption, such that the base maintenance expense assumptions are higher and the starting calendar year for accumulating inflation is updated to be more in line with the effective year of VM-22 PBR.

Commented [VM222]: Also coordinate with any updates to VM-21 SPA expense assumption

- b. Seven basis points of the projected account value for each year in the projection.
- c. Each contract for which the company is not responsible for administration (e.g., if the contract were assumed by the company in a reinsurance transaction in which only the risks associated with a guaranteed benefit rider were transferred) incurs an annual expense equal to \$35 multiplied by $[1.025]^{(\text{valuation year} - 2015)}$ in the first projection year, increased by an assumed annual inflation rate of $[2\%]$ for subsequent projection years.
- 3. Guarantee Actuarial Present Value

The Guarantee Actuarial Present Value (GAPV) is used in the determination of the full surrender rates (Section 6.C.5) and other voluntary contract terminations (Section 6.C.10). The GAPV represents the actuarial present value of the lump sum or income payments associated with a guaranteed benefit. For the purpose of calculating the GAPV, such payments shall include the portion that is paid out of the contract holder's Account Value.

The GAPV shall be calculated in the following manner:

- a. If a guaranteed benefit is exercisable immediately, then the GAPV shall be determined assuming immediate or continued exercise of that benefit unless otherwise specified in a subsequent subsection of Section 6.C.3.
- b. If a guaranteed benefit is not exercisable immediately (e.g., because of minimum age or contract year requirements), then the GAPV shall be determined assuming exercise of the guaranteed benefit at the earliest possible time unless otherwise specified in a subsequent subsection of Section 6.C.3.
- c. Determination of the GAPV of a guaranteed benefit that is exercisable or payable at a future projection interval shall take account of any guaranteed growth in the basis for the guarantee (e.g., where the basis grows according to an index or an interest rate), as well as survival to the date of exercise using the mortality table specified in Section 6.C.3.h.
- d. Once a GMWB is exercised, the contract holder shall be assumed to withdraw in each subsequent contract year an amount equal to 100% of the GMWB's guaranteed maximum annual withdrawal amount in that contract year.
- e. If account value growth is required to determine projected benefits or product features, then the account value growth shall be assumed to be 0% net of all fees chargeable to the account value.

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Guidance Note: The framework adopted by the Variable Annuities Issues (E) Working Group includes the review and possible update of these assumptions every three to five years.¶

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- f. If a market index is required to determine projected benefits or product features, then the required index shall be assumed to remain constant at its value during the projection interval.
- g. The GAPV for a GMDB that terminates at a certain age or in a certain contract year shall be calculated as if the GMDB does not terminate. Benefit features such as guaranteed growth in the GMDB benefit basis may be calculated so that no additional benefit basis growth occurs after the GMDB termination age or date defined in the contract.
- h. The mortality assumption used shall be the following:
 - i. Individual annuity contracts within the Accumulation Reserving Category shall use the following adjustment factors applied to the 2012 IAM Table with no mortality improvement applied:

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Table 6.2: Mortality for Individual Annuities in Accumulation Reserving Category

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Attained Age	Without Guaranteed Living Benefits		With Guaranteed Living Benefits	
	Female	Male	Female	Male
<u>50 and below</u>				
<u>51</u>				
<u>52 to 56</u>				
<u>57 to 61</u>				
<u>62 to 66</u>				
<u>67 to 71</u>				
<u>72 to 76</u>				
<u>77 to 81</u>				
<u>82 to 86</u>				
<u>87 to 91</u>				
<u>92 to 96</u>				
<u>97 to 101</u>				
<u>102 and above</u>				

- ii. Individual annuity contracts within the Payout Annuity Reserving Category other than Structured Settlement Contracts shall use the 2012 IAM Table with the following factors applied:

Deleted: the 2012 IAM Basic Mortality Table, improved to Dec. 31, 2017, using Projection Scale G2 but not applying any additional mortality improvement in the projection.¶

Table 6.3: Mortality for Individual Annuities in Payout Annuity Reserving Category

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<u>Attained Age</u>	<u>Without Guaranteed Living Benefits</u>	
	<u>Female</u>	<u>Male</u>
<u>50 and below</u>		
<u>51</u>		
<u>52 to 56</u>		
<u>57 to 61</u>		
<u>62 to 66</u>		
<u>67 to 71</u>		
<u>72 to 76</u>		
<u>77 to 81</u>		
<u>82 to 86</u>		
<u>87 to 91</u>		
<u>92 to 96</u>		
<u>97 to 101</u>		
<u>102 and above</u>		

iii. Individual Structured Settlement Contracts on standard lives shall use the 1983 Individual Annuity Mortality (IAM) Table 'A' with the following factors applied:

Table 6.4: Mortality for Structured Settlement Contracts

<u>Attained Age</u>	<u>Structured Settlements – Standard Lives</u>		
	<u>Durations 1 to 5</u>	<u>Durations 6 to 10</u>	<u>Durations 11 and greater</u>
<u>40 and below</u>			
<u>41 to 45</u>			
<u>46 to 50</u>			
<u>51 to 55</u>			
<u>56 to 60</u>			
<u>61 to 65</u>			
<u>65 to 70</u>			
<u>71 to 75</u>			
<u>76 to 80</u>			
<u>81 to 85</u>			
<u>86 to 90</u>			
<u>91 to 95</u>			
<u>96 to 100</u>			
<u>101 and above</u>			

Substandard lives shall use the mortality described above for standard lives, with the “Constant Extra Death” (CED) methodology, as described in Actuarial Guideline IX. The factors for rate-up are provided as follows:

<u>Attained Age</u>	<u>Factors for Rate-Up 1 to 20</u>			
	<u>Durations 1 to 10</u>	<u>Durations 11 to 20</u>	<u>Durations 21 to 31</u>	<u>Durations 31 and greater</u>
<u>40 and below</u>				
<u>41 to 80</u>				
<u>81 and above</u>				

<u>Attained Age</u>	<u>Factors for Rate-Up 21 and greater</u>			
	<u>Durations 1 to 10</u>	<u>Durations 11 to 20</u>	<u>Durations 21 to 31</u>	<u>Durations 31 and greater</u>
<u>40 and below</u>				
<u>41 to 80</u>				
<u>81 and above</u>				

iv. Group annuities, international business, and contracts within the Longevity Reinsurance Reserving Category shall use the lower of the 1994 GAM Table with Projection Scale AA applied to the valuation date and the company’s prudent estimate assumptions. The company prudent estimate assumptions for group annuities, international business, and contracts within the Longevity Reinsurance Reserving Category shall be developed separately from each other as appropriate.

Guidance Note: The above tables include implicit historical mortality improvement until Dec 31, 2021. Projecting mortality to a specific date rather than the valuation date in the above step is a practical expedient to streamline calculations. This date should be considered an experience assumption to be periodically reviewed and updated as the Life Actuarial (A) Task Force reviews and updates the assumptions used in the Standard Projection.

- i. The discount rate used shall be the 10-year Treasury Department bond rate on the valuation date unless otherwise specified in a subsequent subsection of Section 6.C.3.
4. Partial Withdrawals

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 j. For hybrid GMIBs, two types of GAPVs shall be calculated: the Annuitization GAPV and the Withdrawal GAPV. The Annuitization GAPV is determined as if the hybrid GMIB were a traditional GMIB such that the only benefit payments used in the GAPV calculation are from annuitization. The Withdrawal GAPV is determined as if the hybrid GMIB were a lifetime GMWB with the same guaranteed benefit growth features and, at each contract holder age, a guaranteed maximum withdrawal amount equal to the partial withdrawal amount below which partial withdrawals reduce the benefit by the same dollar amount as the partial withdrawal amount and above which partial withdrawals reduce the benefit by the same proportion that the withdrawal reduces the account value.

Partial withdrawals required contractually or previously elected (e.g., a contract operating under an automatic withdrawal provision, or that has voluntarily enrolled in an automatic withdrawal program, on the valuation date) are to be deducted from the Account Value in each projection interval consistent with the projection frequency used, as described in Section 4.F, and according to the terms of the contract. However, if a GMWB contract's automatic withdrawals results in partial withdrawal amounts in excess of the GMWB's guaranteed maximum annual withdrawal amount, such automatic withdrawals shall be revised such that they equal the GMWB's guaranteed maximum annual withdrawal amount. However, for tax qualified contracts with ages greater than or equal to the federal required minimum distribution (RMD) age, if the prescribed withdrawal amount is below the RMD amount, the withdrawal amount may be reset to the RMD amount.

Guidance Note: Companies are expected to model withdrawal amounts consistent with the RMD amount where applicable and where practically feasible; however, it is understood that this level of modeling sophistication may not be available for all companies.

For any contract not on an automatic withdrawal provision as described in the preceding paragraph, depending on the guaranteed benefit type, other partial withdrawals shall be projected as follows but shall not exceed the free partial withdrawal amount above which surrender charges are incurred and may be floored at the RMD amount for tax qualified contracts with ages greater than or equal to the federal RMD age:

- a. For contracts in the Accumulation Reserving Category either without a guaranteed living benefit or prior to exercising a guaranteed living benefit, the partial withdrawal amount each year shall equal the following percentages of account value, based on the contract holder's attained age:

Table 6.5: Partial Withdrawals for Accumulation Reserving Category contracts without Guaranteed Living Benefits

Attained Age	Contracts with GLBs prior to exercising	Contracts without GLBs
59 and under	[1.50%]	[2.25%]
60 – 69	[1.75%]	[2.75%]
70 – 74	[3.75%]	[4.50%]
75 and over	[4.25%]	[4.50%]

- b. For contracts in the Accumulation Reserving Category with a guaranteed living benefit and an account value of zero, the partial withdrawal amount shall be the guaranteed maximum withdrawal amount.
- c. For contracts in the Accumulation Reserving Category, with guaranteed living benefits, that, in the contract year immediately preceding that during the valuation date, withdrew a non-zero amount not in excess of the guaranteed living benefit's guaranteed annual withdrawal amount, the partial withdrawal amount shall be the guaranteed maximum annual withdrawal amount each year until the contract Account Value reaches zero.

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Deleted: or the maximum amount above which withdrawals reduce the GMIB basis by the same dollar amount as the withdrawal amount (the "dollar-for-dollar maximum withdrawal amount")

Deleted: or the GMIB's dollar-for-dollar maximum withdrawal amount

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Deleted: a. For simple 403(b) VA contracts, the partial withdrawal amount each year shall equal the following percentages, based on the contract holder's attained age:¶
 ¶ Table 6.2: Partial Withdrawals, 403(b)¶
 Attained Age ... [2]

Deleted: For contracts that do not have VAGLBs but that have GMDBs that offer guaranteed growth—i.e., benefit growth that does not depend on the performance of the Account Value—in the benefit basis, the partial withdrawal amount each year shall equal 2% of the Account Value.

Deleted: c. For contracts that do not have VAGLBs GMDBs that do not offer guaranteed growth in the benefit basis, the partial withdrawal amount each year shall equal 3.5% of the Account Value.¶
 d. For contracts with (1) traditional GMIBs that do not offer guaranteed growth in the benefit basis; or (2) GMABs, the partial withdrawal amount each year shall equal 2.0% of the Account Value.¶
 e. For contracts with traditional GMIBs that offer guaranteed growth in the benefit basis, the partial withdrawal amount each year shall equal 1.5% of the Account Value.fc. For contracts with GMWBs and Account Values of zero, the partial withdrawal amount shall be the guaranteed maximum annual withdrawal amount.¶
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d. For other contracts in the Accumulation Reserving Category with lifetime guaranteed living benefits, partial withdrawals shall be projected to commence pursuant to the company's own prudent best estimate assumptions, but ensuring that, at a minimum, guaranteed living benefit utilization rates in aggregate, measured by benefit base under the scenario that produces the scenario reserve that is closest to the CTE70 amount, are at least as high as the utilization rates shown in the table below. Once guaranteed living benefit withdrawals are projected to commence, the partial withdrawal amount shall be 100% of the guaranteed annual withdrawal amount each year until the contract's account value reaches zero.

Table 6.6: Partial Withdrawals for Accumulation Reserving Category Contracts with Lifetime Benefits

Qualification Status	Before 65	65 to 70	71 to 75	76 and above
Qualified	[12%]	[20%]	[30%]	[35%]
Non-Qualified	[15%]	[40%]	[80%]	[95%]

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- Deleted: contracts
- Deleted: Lifetime GMWBs or hybrid GMIBs
- Deleted: Path A replicating

Deleted: no partial withdrawals shall be projected until the projection interval (the "initial withdrawal period") determined using the "withdrawal delay cohort method" as described in Section 6.C.5. During the initial withdrawal period and thereafter, the partial withdrawal amount shall be 90% of the GMWB's guaranteed annual withdrawal amount or the GMIB's dollar-for-dollar maximum withdrawal amount each year until the contract Account Value reaches zero.

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e. For contracts in the Accumulation Reserving Category with Non-lifetime guaranteed living benefits that, in the contract year immediately preceding that during the valuation date, withdrew a non-zero amount not in excess of the guaranteed living benefits annual withdrawal amount, the partial withdrawal amount shall be 70% of the guaranteed living benefits guaranteed annual withdrawal amount each year until the contract Account Value reaches zero.

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f. For contracts in the Accumulation Reserving Category with Non-lifetime guaranteed living benefits, partial withdrawals shall be projected to commence pursuant to the Company's own prudent best estimate assumptions, but ensuring that, at a minimum, guaranteed living benefit utilization rates in aggregate, measured by benefit base under the scenario that produces a scenario reserve closest to the CTE70 amount, are at least as high as the utilization rates shown in the table below. Once guaranteed living benefit withdrawals are projected to commence, the partial withdrawal amount shall be 70% of the guaranteed annual withdrawal amount each year until the contract's account value reaches zero.

Table 6.7: Partial Withdrawals for Accumulation Reserving Category Contracts with Non-Lifetime Benefits

Qualification Status	Before 65	65 to 70	71 to 75	76 and above
Qualified	[12%]	[20%]	[30%]	[35%]
Non-Qualified	[15%]	[40%]	[80%]	[95%]

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- Deleted: other contracts
- Deleted: GMWBs
- Deleted: Path A, replicating

Deleted: no partial withdrawals shall be projected until the projection interval (the "initial withdrawal period") determined using the "withdrawal delay cohort method" as described in Section 6.C.5. During the initial withdrawal period and thereafter, the partial withdrawal amount shall be 70% of the guaranteed annual withdrawal amount each year until the contract Account Value reaches zero.

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e. For contracts with no minimum guaranteed benefits, the partial withdrawal amount each year shall equal 3.5% of the Account Value.

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f. There may be instances where the company has certain data limitations, (e.g., with respect to policies that are not enrolled in an automatic withdrawal program but have exercised a non-excess withdrawal in the contract year immediately preceding the valuation date. The company may employ an appropriate proxy method if it does not result in a material understatement of the reserve.

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Commented [VM223]: The PHB drafting subgroup is preparing a set of surrender tables based on the industry experience in 2019-2020. The suggested formula in here serves as a placeholder.

5. Full Surrenders

For contracts within the Accumulation Reserving Category, base lapse and full surrender rates shall be dynamically adjusted upward (or downward) when the actual credited rate is below (or above) the competitor rate. For contracts with a guaranteed living benefit, base lapse and full surrender rates shall be further adjusted based on the ITM of the rider value. The following formula shall be used:

Deleted: 5. Withdrawal Delay Cohort Method[¶]
 To model the initial withdrawal for certain GMWBs and hybrid GMIBs as discussed in Section 6.C.4.h and Section 6.C.4.j, the actuary shall adopt a modeling approach whereby a contract is split into several copies (referred to as “cohorts”), each of which is subsequently modeled as a separate contract with a different initial withdrawal period. The contract Account Value, bases for guaranteed benefits, and other applicable characteristics shall be allocated across the cohorts based on different weights that are determined using the method discussed below in this section.[¶]
 For example, assume that the method discussed below results in the creation of two cohorts: the first, weighted 70%, has an initial withdrawal period of two years after the valuation date; and the second, weighted 30%, has an initial withdrawal period of ten years after the valuation date. The contract shall therefore be split into two copies; the first copy shall have Account Value and guaranteed benefit bases equal to 70% of those of the original contract, and the second copy shall have Account Value and guaranteed benefit bases equal to 30% of those of the original contract. The first copy shall be projected to begin withdrawing in two years, while the second shall be projected to begin withdrawing in 10 years. The cash flows from both copies shall thereafter be aggregated to yield the final cash flows of the overall contract.[¶]
 The following steps shall be used to construct the cohorts and determine the weights attributed to each cohort. These steps shall be conducted for each issue age for each GMWB and hybrid GMIB product that the company possesses in the modeled in force.[¶]
 a. Calculate the GMWB GAPV or the Withdrawal GAPV (for hybrid GMIBs) for each potential age of initiating withdrawals (“initial withdrawal age”) until the end of the projection period or the contract holder reaches age 120 if sooner. In each of these GAPV calculations.[¶] ... [3]

Total Lapse = (Base Lapse + Rate Factor) × ITM Factor where

ITM Factor = 1 if ITM < 1.25

ITM Factor = (1.25 ÷ ITM)² if ITM > 1.25

ITM = GAPV ÷ Account Value

Rate Factor = Market Factor × Max(0, 1 – 5 × SCPercentage) / 100

Market Factor = -1.25 × (CR – MR)^{2.5} if CR ≥ MR

Market Factor = 0 if MR > CR ≥ (MR – BF)

Market Factor = 1.25 × (MR – BF – CR)^{2.5} if CR < (MR – BF)

Minimum Lapse = 1%

Maximum Lapse = 60% if other than interest rate guarantee period

Maximum Lapse = 90% if at the end of the interest guaranteed period

CR = the crediting rate at the time of the projection

MR = the market competitor rate at the time of the projection

BF = a buffer factor where dynamic lapses do not occur

Commented [VM224]: Buffer Factor needs to be specified

Deleted: The full surrender rate for all contracts shall be calculated based on the Standard Table for Full Surrenders as detailed below in Table 6.3, except for simple 403... [4]

Deleted: 7

Deleted: that do not have a GMIB

Deleted: For GMIB contracts, the annuitization rate shall be synonymous with the benefit exercise rate. As such, the annuitization rate is 0% in projection intervals during which the GMIB is not exercisable.[¶] ... [5]

6. Annuitizations

Commented [VM225]: Review whether appropriate to keep this section and apply to index strategy/ fixed account transfers for FIAs

The annuitization rate for contracts shall be 0% at all projection intervals.

Deleted: Table 6.5: Standard Table for Traditional GMIB Annuitization ... [6]

7. Index Transfers and Future Deposits

a. No transfers between fixed and index strategies or accounts shall be assumed in the projection unless required by the contract (e.g., contractual rights given to the insurer to implement a contractually specified portfolio insurance management strategy). When transfers must be modeled, to the

Deleted: Account

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Deleted: transfers from a dollar cost averaging fund or

Deleted: or a contract operating under an automatic re-balancing option

extent not inconsistent with contract language, the allocation of transfers to indices, accounts, or funds must be in proportion to the contract's current allocation to funds.

- b. ~~No~~ future deposits to account value shall be assumed unless required by the terms of the contract, in which case they must be modeled. When future deposits must be modeled, to the extent not inconsistent with contract language, the allocation of the deposit to funds must be in proportion to the contract's current allocation to such funds.

Deleted: Except for simple 403(b) VA contracts, n

Deleted: to prevent contract or guaranteed benefit lapse

8. Mortality

The following mortality rates shall be used:

a. Individual annuity contracts within the Accumulation Reserving Category shall use the mortality rates in Section 6.C.3.h.i with Projection Scale G2 mortality improvement factors applied from December 31, 2021 up until each future projection year.

Deleted: <#>For simple 403(b) VA contracts, total deposits to account value in any projected future policy year shall be modeled as a percentage of the total deposits from the immediately preceding policy year. The percentage shall be determined based on the following table.¶

Table 6.48: Deposit Rates, 403(b)¶
 Attained Age

... [7]

b. Individual annuity contracts within the Payout Annuity Reserving Category other than Structured Settlement Contracts shall use the mortality rates in Section 6.C.3.h.ii with Projection Scale G2 mortality improvement factors applied from December 31, 2021 up until each future projection year.

Commented [VM226]: SOA will provide the table central date and scale of improvement in their recommendation; reflect the central date in the GAPV section, and then include improvement from the central date to the projection date in this section

c. Individual Structured Settlement Contracts shall use the mortality rates in Section 6.C.3.h.iii with the following mortality improvement factors applied from December 31, 2021 up until each future projection year.

Commented [VM227]: Same comment as above for payout annuities

[Future improvement]

d. Group annuities, international business, and contracts within the Longevity Reinsurance Category shall use the mortality rates in Section 6.C.3.h.iv with Projection Scale AA mortality improvement factors applied from the valuation date up until each future projection year. However, if the company's prudent estimate assumption is used in Section 6.C.3.h.iv and already reflects mortality improvement from December 31, 2021 up until the projection year, then Projection Scale AA mortality improvement factors shall not be used.

Deleted: <#>mortality rate for a contract holder with age x in year (2012 + n) shall be calculated using the following formula, where q_x denotes mortality from the 2012 IAM Basic Mortality Table multiplied by the appropriate factor (F_x) from Table 6.9 and G2, denotes mortality improvement from Projection Scale G2.¶
 $q_x^{2012+n} = q_x^{2012} (1 - G2_x)^n * F_x$ ¶
Table 6.9¶
 Attained Age (x)

... [8]

9. Account Value Depletions

The following assumptions shall be used when a contract's Account Value reaches zero:

- a. If the contract has a guaranteed living benefit, the contract shall take benefits that are equal in amount each year to the guaranteed maximum annual withdrawal amount.

Deleted: 10

Deleted: GMWB

Deleted: partial withdrawals

Deleted: ¶

b. If the contract has a GMIB, the contract shall annuitize immediately. If the GMIB contractually terminates upon account value depletion, such termination provision is assumed to be voided in order to approximate the contract holder's election to annuitize immediately before the depletion of the account value.

Deleted: c

terminate upon account value depletion, such termination provisions are assumed to be voided in order to approximate the contract holder's retaining adequate Account Value to maintain the guaranteed benefits in-force. At the option of the company, fees associated with the contract and guaranteed benefits may continue to be charged and modeled as collected even if the account value has reached zero. While the contract must remain in-force, benefit features may still be terminated according to contractual terms other than account value depletion provisions.

~~9.~~ If the contract has no minimum guaranteed benefits, the contract should be terminated according to contractual terms.

Deleted: d

~~10.~~ Other Voluntary Contract Terminations

Deleted: 11

For contracts that have other elective provisions that allow a contract holder to terminate the contract voluntarily, the termination rate shall be calculated as detailed above in Section 6.C.5 with the following adjustments:

Deleted: based on the Standard Table for Full Surrenders

Deleted: 4Table 6.3

a. If the contract holder is not yet eligible to terminate the contract under the elective provisions, the termination rate shall be zero.

b. After the contract holder becomes eligible to terminate the contract under the elective provisions, the termination rate shall be determined using assumptions in Section 6.C.5.

Deleted: 4the "Subsequent years" column of Table 6.3

c. In Section 6.C.5, the ITM of a contract's guaranteed benefit shall be calculated based on the ratio of the guaranteed benefit's GAPV to the termination value of the contract. The termination value of the contract shall be calculated as the GAPV of the payment stream that the contract holder is entitled to receive upon termination of the contract; if the contract holder has multiple options for the payment stream, the termination value shall be the highest GAPV of these options.

Deleted: using Table 6.3

Deleted: 4

d. For contracts with guaranteed living benefits, for all contract years in which a withdrawal is projected, the termination rate obtained from Section 6.C.5 shall be additionally multiplied by 60%.

Deleted: GMWB or hybrid GMIB

Deleted: 4Table 6.3

~~11.~~ Crediting Rates and Investment Spread

a. For Fixed Index Annuities, the option budget is the assumed crediting rate for quantifying the investment spread between the net portfolio earned rate and the crediting rate.

Deleted: For calculating the ITM of a hybrid GMIB, the guaranteed benefit's GAPV shall be the larger of the Amortization GAPV or the Withdrawal GAPV.
 e. For contracts with no minimum guaranteed benefits, the ITM is 0%; for all contract years in which a withdrawal is projected, the termination rate obtained from Table 6.3 shall be the row in the table for ITM < 50% using the "Subsequent years" column of Table 6.3.

b. With respect to setting a limit on the annual spread between the net portfolio earned rate and the crediting rate:

i. The maximum annual spread is [2.25%] for policies without an initial bonus.

ii. For policies with an initial bonus of [B%], the maximum annual spread is [2.25%] + [B%]/SCP during the surrender charge period (SCP). The maximum annual spread is reduced back to [2.25%] after the SCP.

iii. The extra maximum annual spread [B%]/SCP allows the insurer to recapture the initial bonus via higher spread during the SCP.

iv. An insurer may ask the regulators in its state of domicile for special permission if the insurer can justify an exception.

Guidance Note: As it can create non-uniform practices among states, such permission should only be granted with strong supports and may be scrutinized by VAWG. In other words, granting such permission should be a rare event.

Commented [VM228]: Consider whether to remove if companies are allowed to make simplifications/approximations in general?

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Draft: 7/19/23

Valuation Manual (VM)-22 (A) Subgroup
Virtual Meeting
June 13, 2023

The VM-22 (A) Subgroup of the Life Actuarial (A) Task Force met June 13, 2023. The following Subgroup members participated: Ben Slutsker, Chair (MN); Elaine Lam and Thomas Reedy (CA); William Leung (MO); Seong-min Eom (NJ); Bill Carmello (NY); Rachel Hemphill and Iris Huang (TX); Tomasz Serbinowski (UT); and Craig Chupp (VA).

1. Discussed Tier 3 and 4 Comments on the VM-22 Draft

Slutsker introduced a comment from Chupp relating to a desire for consistency between the error factor language in VM-21, Requirements for Principle-Based Reserves for Variable Annuities, and that in the VM-22, Requirements for Principle-Based Reserves for Non-Variable Annuities draft. He noted that it appeared that language specifying that a series of examples was not exhaustive was dropped from the VM-22 draft. After a short discussion, with Lam noting support for Chupp's comment, the Subgroup agreed to make the change suggested by Chupp. Slutsker then walked through a comment from Brian Bayerle (American Council of Life Insurers—ACLI) that suggested that a list of assumptions where sensitivity testing is needed should be revised to be more reflective of those used in modeling fixed annuities. After some discussion, the Subgroup decided to leave the language in the VM-22 draft as is.

Slutsker then introduced a comment from the ACLI on a section of the VM-22 draft stating that policyholder behavior assumptions should be at least as conservative as company experience unless clear evidence indicates otherwise. He said the ACLI suggested replacing "clear evidence" with "sufficient credibility" and including a reference to materiality. After some discussion, the Subgroup settled on replacing "clear evidence" with "credible evidence." After concluding the Tier 3 comments discussion, the Subgroup resolved some editorial Tier 4 items on which Chupp had commented.

Having no further business, the VM-22 (A) Subgroup adjourned.

SharePoint/NAIC Support Staff Hub/Member Meetings/A CMTE/LATF/2023-2-Summer/VM-22 Calls/06 13/June 13 Minutes.docx

Draft: 8/1/23

Valuation Manual (VM)-22 (A) Subgroup
Virtual Meeting
May 24, 2023

The Valuation Manual (VM)-22 (A) Subgroup of the Life Actuarial (A) Task Force met May 24, 2023. The following Subgroup members participated: Ben Slutsker, Chair (MN); Elaine Lam and Thomas Reedy (CA); Lei Rao-Knight (CT); Vincent Tsang (IL); Nicole Boyd (KS); William Leung (MO); Seong-min Eom (NJ), Bill Carmello (NY); Rachel Hemphill and Iris Huang (TX); Tomasz Serbinowski (UT); and Craig Chupp (VA).

1. Discussed Tier 3 Comments on the VM-22 Draft

Slutsker noted that the Subgroup would discuss several comments on the VM-22, Requirements for Principle-Based Reserves for Non-Variable Annuities, draft (VM-22 draft) related to the exemption from the exclusion test for payout annuities. Slutsker described the first comment from Brian Bayerle (American Council of Life Insurers—ACLI) that suggested including a reference to exhibit 7 of the NAIC Annual Statement to reinforce that term certain payout annuities would be eligible for the exemption from the exclusion test and included in the exemption threshold. Chris Conrad (American Academy of Actuaries—Academy), Lam, and Huang all noted support for the ACLI’s comment, and the Subgroup agreed to make the suggested changes.

Slutsker then introduced another comment from the ACLI to consider allowing for “plain-vanilla” forms of longevity reinsurance to be eligible for the exemption from the exclusion test. Conrad suggested that the Academy could be supportive of this idea if there was a proposal for a methodology to distinguish “plain vanilla” longevity reinsurance agreements from more complex ones. Bayerle noted that he could take this issue back to his group to provide a proposal. Several regulators approved of the approach to have the ACLI come back with a proposal, but Reedy noted that he would like to see a rigorous methodology applied to distinguishing between “plain vanilla” and more complex longevity reinsurance arrangements. After further discussion, the Subgroup agreed to move forward with having the ACLI draft a proposal.

Bayerle then described the ACLI’s next comment, which suggested that if a “plain-vanilla” form of longevity reinsurance could be exempted from the exclusion test, then that business should not be included in the determination of the overall VM-22 exclusion threshold. Slutsker noted that this brings up two issues: 1) contracts with guaranteed living benefits (GLBs) are not allowed to be excluded from VM-22 calculations but are included in the exemption threshold in the current VM-22 draft; and 2) there may be a desire for consistency with exemption language in VM-20, Requirements for Principle-Based Reserves for Life Products. Bayerle noted that broad consistency with other sections of the *Valuation Manual* made sense but that it could also be appropriate for some framework-specific differences. Conrad noted that it was the Academy’s position that any business not eligible for exemption not be included in the determination of the exemption threshold. Chupp noted that it may be helpful to look at the definitions for longevity reinsurance and pension risk transfer (PRT) and isolate where the risk is and what should be automatically excluded. Slutsker requested that when the ACLI looks into a proposal that it leverages the definitions available in the VM-22 draft, to which Bayerle agreed.

Slutsker said that the final comment on the exclusion test was from the ACLI and concerned provisions that did not allow for contracts with: 1) changes to benefits in excess of 5% over time; and 2) material policyholder options to automatically pass the exclusion test. Slutsker further said that the commenter was concerned that contracts with cost-of-living adjustments (COLAs) and joint and survivor annuities would not be allowed to automatically pass the exclusion test. Conrad noted that the Academy felt that contracts with a predetermined schedule of increases that are not based on an index or are capped at a predefined level could be allowed to automatically

pass exclusion testing. Chupp said he could support modifying the current VM-22 language to allow for scheduled increases, but he is concerned with the potential for vague enough language to allow contracts with balloon payments to be automatically excluded from VM-22 calculations. After additional discussion from regulators and interested parties, the Subgroup decided to modify the VM-22 draft language to include the examples mentioned in the ACLI comment while maintaining the existing guardrails.

Chupp noted that VM-21, Requirements for Principle-Based Reserves for Variable Annuities, has two additional sentences (compared to the VM-22 draft) that define what the investment policy adopted by the board of directors must include when companies are following one or more future hedging strategies and requested that the additional sentences from VM-21 be added to the VM-22 draft. The Subgroup decided to add these additional sentences into the next version of the VM-22 draft.

Having no further business, the VM-22 (A) Subgroup adjourned.

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Draft: 8/2/23

Valuation Manual (VM)-22 (A) Subgroup
Virtual Meeting
May 10, 2023

The Valuation Manual (VM)-22 (A) Subgroup of the Life Actuarial (A) Task Force met May 10, 2023. The following Subgroup members participated: Ben Slutsker, Chair (MN); Elaine Lam and Thomas Reedy (CA); Lei Rao-Knight (CT); Vincent Tsang (IL); Nicole Boyd (KS); William Leung (MO); Seong-min Eom (NJ), Bill Carmello (NY); Rachel Hemphill and Iris Huang (TX); Tomasz Serbinowski (UT); and Craig Chupp (VA).

1. Discussed Tier 3 Comments

Brian Bayerle (American Council of Life Insurers—ACLI) discussed the ACLI's comment that longevity risk transfer (LRT) premiums are usually predetermined, and therefore language in the VM-22, Requirements for Principle-Based Reserves for Non-Variable Annuities, draft implying otherwise should be removed. Eom asked to confirm that the premium amount for the LRT would not change despite deviations from expectations, such as the number of annuitants remaining. Laura Hanson (Pacific Life) stated that typically a company would pay a set premium to the assuming company that would not vary based on, for example, the number of annuitants remaining on the plan versus expectations. Additional discussion ensued, and it was decided that LRT comments would be lumped together and discussed during a future meeting.

Slutsker noted comments from the American Academy of Actuaries (Academy) and the ACLI on an apparent inconsistency in the language where the projection period was required to be as long as needed until: 1) no obligations remain as in the VM-22 draft compared to 2) when no material business is remaining in VM-31, PBR Actuarial Report Requirements for Business Subject to a Principle-Based Valuation, and 3) no materially greater total asset requirement would result in VM-21, Requirements for Principle-Based Reserves for Variable Annuities. Hemphill said that each of these specific callouts to the projection period length are unnecessary, as they are already covered by the overarching concept of materiality and that the existing language in the VM-22 draft is appropriate. There was additional discussion from Subgroup members, and then a roll call vote was held, which determined the language should be left as is.

Chris Conrad (Academy) then described the Academy's comment that if a certain portion of assets, beyond a materiality threshold, are held at market value in support of the product, then that portion of cash surrender value should be subject to a market value adjustment (MVA). Carmello said that given that statutory accounting was focused primarily on book value, the MVA should be ignored. After additional discussions from Subgroup members and interested parties, the Subgroup decided to move forward with Carmello's approach and add a guidance note for additional clarity.

Bayerle spoke to the ACLI's comment that a guidance note that discussed longevity reinsurance contracts where a single deterministic assumption would not adequately capture the risk should either be further clarified or removed. Carmello suggested removing the guidance note given that stochastic mortality had not yet been implemented in principle-based reserves, to which Eom agreed. The Subgroup decided to remove the guidance note.

Having no further business, the VM-22 (A) Subgroup adjourned.

SharePoint/NAIC Support Staff Hub/Member Meetings/A CMTE/LATF/2023-2-Summer/VM-22 Calls/05 10/May 10 Minutes.docx

Draft: 8/2/23

Valuation Manual (VM)-22 (A) Subgroup
Virtual Meeting
April 26, 2023

The Valuation Manual (VM)-22 (A) Subgroup met April 26, 2023. The following Subgroup members participated: Ben Slutsker, Chair (MN); Elaine Lam and Thomas Reedy (CA); Lei Rao-Knight (CT); Mike Yanacheak (IA); Vincent Tsang (IL); Nicole Boyd (KS); Seong-min Eom (NJ), Bill Carmello (NY); Rachel Hemphill and Iris Huang (TX); Tomasz Serbinowski (UT); and Craig Chupp (VA).

1. Discussed Tier 3 Comments

Slutsker discussed the first comment from the American Council of Life Insurers (ACLI) that questioned why “after-issuance” language was included in the section of the VM-22, Requirements for Principle-Based Reserves for Non-Variable Annuities, draft that determined whether to value a rider in combination with the base policy or on a standalone basis. To explain the rationale behind the language, Chris Conrad (American Academy of Actuaries—Academy) gave an example of a waiver of premium rider that may reference the overall premium amount at issue but does not depend on policy values after issue, compared to a long-term care (LTC) combination product where base contract benefits that could vary after issue may be drawn upon in the event of an LTC claim. Subgroup members supported the inclusion of the after-issuance language.

Slutsker noted that the next comment from the ACLI suggested there was an inconsistency in the VM-22 draft with language that stated policyholder behavior efficiency will increase over time unless there was credible experience to the contrary and language elsewhere that said that it may generally be assumed that policyholders elect the most valuable benefit if more than one option exists. Colin Masterson (ACLI) said that the “may generally” should be replaced with “should” for the election of the most valuable benefit to be consistent. Discussion ensued, and the Subgroup decided that replacing “may generally” with “should generally” would make the two sections consistent.

Slutsker said that the next comment from the ACLI concerned the definition of longevity reinsurance and that the ACLI suggested striking the “over the expected lifetime of benefits, paid to specified annuitants” language to allow for more flexibility in the definition. Carmello suggested adding the word “generally” to the language to add flexibility, which Subgroup members approved. Slutsker then said that the next comment from the ACLI suggested removing references to separate accounts in the VM-22 draft. Masterson further stated that a survey question could be asked of the future VM-22 field test participants asking if they had any separate accounts supporting their VM-22 business, and Subgroup members agreed with striking the language and adding a field test question.

Slutsker introduced the next comment from the ACLI that stated that the language in a guidance note, specifying contacts valued under VM-A, Appendix A – Requirements, and VM-C, Appendix C – Actuarial Guidelines, are ones that pass exclusion tests and elect not to use modeling, should be included in the main body of the text rather than a guidance note. Subgroup members agreed to moving the language into the main body from a guidance note. Slutsker then moved on to an ACLI comment stating that reserving categories should be determined in a principle-based fashion rather than prescribed. Masterson added that principle-based reserving (PBR) categories could be included in the field test. Conrad noted that aggregation was going to be looked at as part of the field test.

Masterson spoke to the ACLI’s next comment that suggested including a definition in the *Valuation Manual* for supplementary contracts. Chupp noted that there are several items that are not defined in the *Valuation Manual*

and wondered whether it was necessary to have a definition for supplementary contracts. Additional discussion ensued and a roll call vote was taken, which resulted in the Subgroup deciding not to add a definition for supplementary contracts.

Having no further business, the VM-22 (A) Subgroup adjourned.

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Draft: 7/31/23

Valuation Manual (VM)-22 (A) Subgroup
Virtual Meeting
April 19, 2023

The Valuation Manual (VM)-22 (A) Subgroup met April 19, 2023. The following Subgroup members participated: Ben Slutsker, Chair (MN); Elaine Lam and Thomas Reedy (CA); Lei Rao-Knight (CT); Vincent Tsang (IL); Nicole Boyd (KS); Seong-min Eom (NJ), Bill Carmello (NY); Rachel Hemphill and Iris Huang (TX); Tomasz Serbinowski (UT); and Craig Chupp (VA).

1. Discussed the Tier 2 Item – Combo Product Valuation

Slutsker introduced a question from Chupp regarding whether the nursing home riders and other combo products should be valued under principle-based reserving (PBR) or the prior formulaic reserve method. Chupp pointed out that the reference to nursing home benefits was removed in the October 2022 exposure of the VM-22, Requirements for Principle-Based Reserves for Non-Variable Annuities, draft, but it was kept in the current exposure. Slutsker asked if there were any comments from the American Academy of Actuaries (Academy) on why nursing home benefits were included or any thoughts on combo products. Chris Conrad (Academy) mentioned that the Academy wanted to include nursing home benefits in the VM-22 draft to ensure that there is an explicit reserve for them. Regarding other combo products, Conrad said that the Academy recommendation is that combo products be included in the model reserves for the base policy. Further discussion ensued, and the Subgroup agreed no changes would be made to the VM-22 draft.

2. Discussed the Tier 2 Item – Reserving Category for GLB with Depleted AV

Slutsker said that the current VM-22 draft places deferred annuities (DAs) with guaranteed living benefits (GLBs) in the payout reserving category once the account value (AV) has been depleted. Slutsker further noted that this can lead to implementation and conceptual challenges given that these contracts start out in the accumulation reserving category. Conrad commented that because this is a principle-based framework, the Academy supports leaving it to the actuary to decide whether to categorize GLB contracts with depleted fund values as either belonging to payout or accumulation reserving categories if they are able to justify that treatment in their VM-31, PBR Actuarial Report Requirements for Business Subject to a Principle-Based Valuation, report. Colin Masterson (American Council of Life Insurers—ACLI) commented that allowing optionality to align categorization with how business is managed is conceptually and operationally appropriate.

Additional discussion ensued, with state insurance regulators split on whether to allow optionality for GLB contracts with depleted AVs or to categorize the contracts in either the payout or accumulation reserving category. Slutsker then asked Subgroup members to voice-vote on whether to allow optionality for categorizing GLB contracts with depleted fund values. The result of the vote was that the majority of Subgroup members supported not allowing optionality. Slutsker then conducted a second voice vote to decide to categorize GLBs with depleted AVs. Because the result of the voice vote was unclear, Slutsker directed Scott O’Neal (NAIC) to conduct a roll call vote, with the accumulation categorization ending up supported by the majority of Subgroup members. Slutsker noted that based on this vote, there will be an edit to the VM-22 draft where the DA contracts with GLBs whose AV is depleted will be removed from the payout reserving category and included in the accumulation reserving category.

3. Discussed the Tier 2 Item – Frequency of Reviewing PBR Assumptions

Slutsker noted that the VM-22 draft currently specified reviewing experience annually and updating assumptions periodically as appropriate, and that there was a question about whether VM-22 should be more prescriptive with the frequency of assumption updates. Subgroup members discussed options, including: 1) either changing the word “periodically” to “annually” to make assumption updates consistent with annual reviews; or 2) changing periodically to every three years like VM-20, Requirements for Principle-Based Reserves for Life Products, and VM-21, Requirements for Principle-Based Reserves for Variable Annuities. The Subgroup voted to update the language from “periodically” to “annually.”

Having no further business, the Subgroup adjourned.

SharePoint/NAIC Support Staff Hub/Member Meetings/A CMTE/LATF/2023-2-Summer/VM-22 Calls/04 19/Apr 19 Minutes.docx

Draft: 7/25/23

Valuation Manual (VM)-22 (A) Subgroup
Virtual Meeting
April 12, 2023

The VM-22 (A) Subgroup met April 12, 2023. The following Subgroup members participated: Ben Slutsker, Chair (MN); Elaine Lam and Thomas Reedy (CA); Lei Rao-Knight (CT); Mike Yanacheak (IA); Vincent Tsang (IL); Nicole Boyd (KS); William Leung (MO); Seong-min Eom (NJ); Bill Carmello (NY); Rachel Hemphill and Iris Huang (TX); Tomasz Serbinowski (UT); and Craig Chupp (VA).

1. Discussed the VM-22 Exemption

Slutsker said the purpose of the call would be to go over comments received on the latest exposed version of the VM-22, Requirements for Principle-Based Reserves for Non-Variable Annuities draft (Attachment Twenty-One-A). He noted that the Subgroup voted on the VM-22 exemption threshold for the individual company level, but the group threshold still needs to be determined. Chupp said he supports a \$2 billion threshold level, to which Reedy agreed. Hearing no objections from the Subgroup, Slutsker noted that the \$2 billion level for the group exemption threshold would be included in the revised VM-22 draft.

Slutsker then asked whether business included in the Other Annuities column of the Analysis of the Increase in Reserves exhibit should be included in the determination of the threshold, noting that the column could include business that is out of the scope of VM-22. Carmello said business in the Other Annuities column should be included unless it is valued under VM-21, Requirements for Principle-Based Reserves for Variable Annuities. Leung also noted that there is additional business included in the Other Annuities column that is not in the scope of VM-21 but is also exempt from VM-22. Hearing no objection from the Subgroup, Slutsker noted that the revised VM-22 draft would include business in the Other Annuities column in the determination of VM-22 exemption, with language to exclude business subject to VM-21 or otherwise excluded from VM-22.

Slutsker said the current VM-22 draft does not allow for annuities with guaranteed living benefits (GLBs) to be exempted from VM-22. Arguments for and against allowing GLBs to be eligible for exemption were discussed. The Subgroup decided to leave the current language as is for the next draft, leaving room for future proposals to add language to allow companies that are no longer issuing business exemptions for previously issued GLBs on claim status.

2. Discussed Longevity Reinsurance

Brian Bayerle (American Council of Life Insurers—ACLI) noted that the k-factor approach to determining reserves for longevity reinsurance would be complex, and there is likely a simpler method that would also address regulators' concerns with potential negative reserves. Eom noted that the k-factor could be determined at issue and held constant throughout the life of the contract, therefore reducing complexity. Additional discussion ensued, but the Subgroup agreed to continue with the k-factor approach for longevity reinsurance.

3. Discussed Tier 2 Items

Slutsker said discussions of Tier 1 comments had concluded, and the Subgroup would now move on to Tier 2 comments. For the first Tier 2 item, he said a set of principles exists in the draft (VM Section II) that determines whether business would be scoped into VM-21 or VM-22, and both the ACLI and American Academy of Actuaries (Academy) commented on how prescriptive the language should be. Chris Conrad (Academy) noted a preference

for using the prescriptive “shall” language to strictly delineate VM-21 and VM-22 business, while Bayerle expressed support for more flexible language. Subgroup members voted to include the more prescriptive language in the next version of the VM-22 draft.

Having no further business, the VM-22 (A) Subgroup adjourned.

SharePoint/NAIC Support Staff Hub/Member Meetings/A CMTE/LATF/2023-2-Summer/VM-22 Calls/04 12/Apr 12 Minutes.docx

Comment Categories:

- Tier 1: Key Decision Points – Discuss first
- Tier 2: High Substance Edits – Discuss second
- Tier 3: Moderate Substance Edits – Discuss third
- Tier 4: Noncontroversial or Low Substance Edits – Will expose and only discuss upon comment

VM-22 PBR: Requirements for Principle-Based Reserves for Non-Variable Annuities

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Valuation Manual Section II. Reserve Requirements

Subsection 2: Annuity Products

- A. This subsection establishes reserve requirements for all contracts classified as annuity contracts as defined in SSAP No. 50 in the AP&P Manual.
- B. Minimum reserve requirements for variable annuity (VA) contracts and similar business, specified in VM-21, Requirements for Principle-Based Reserves for Variable Annuities, shall be those provided by VM-21. The minimum reserve requirements of VM-21 are considered PBR requirements for purposes of the *Valuation Manual*, and therefore are applicable to VM-G.
- C. Minimum reserve requirements for non-variable annuity contracts issued prior to 1/1/2025 are those requirements as found in VM-A, VM-C, and VM-V as applicable, with the exception of the minimum requirements for the valuation interest rate for single premium immediate annuity contracts, and other similar contracts, issued after Dec. 31, 2017, including those fixed payout annuities emanating from host contracts issued on or after Jan. 1, 2017, and on or before Dec. 31, 2017. The maximum valuation interest rate requirements for those contracts and fixed payout annuities are defined in VM-V, Statutory Maximum Valuation Interest Rates for Formulaic Reserves.
- D. Minimum reserve requirements for non-variable annuity contracts issued on 1/1/2025 and later are those requirements as found in VM-22, with the exception of Guaranteed Investment Contracts, Synthetic Guaranteed Investment Contracts, and other Stable Value Contracts which shall follow the requirements found in VM-A, VM-C, and VM-V. The minimum reserve requirements of VM-22 are considered PBR requirements for purposes of the *Valuation Manual*, and therefore are applicable to VM-G.
- E. Annuity PBR Exemption
 - 1. A company meeting at least one of the conditions in Subsection 2.E.2 below may file a statement of exemption for annuity contracts or certificates, except for contracts or certificates in Subsection 2.E.4 below, issued directly or assumed during the current calendar year, that would otherwise be subject to VM-22. If a company has no business issued directly or assumed during the current calendar year that would otherwise be subject to VM-22, a statement of exemption is not required. For a filed statement of exemption, the statement must be filed with the domiciliary commissioner prior to July 1 of that year certifying that at least one of the two conditions in Subsection 2.E.2 was met, and the statement of exemption must also be included with the NAIC filing for the second quarter of that year.

The domiciliary commissioner may reject such statement prior to Sept. 1 and require the company to follow the requirements of VM-22 for the annuity contracts or certificates covered by the statement.

If a filed statement of exemption is not rejected by the domiciliary commissioner, the filing of subsequent statements of exemption is not required as long as the company continues to qualify for the exemption; rather, ongoing statements of exemption for each new calendar year will be deemed to not be rejected, unless: 1) the company does not meet either condition in Subsection 2.E.2 below; 2) the contracts contain those in Subsection 2.E.4 below; or 3) the domiciliary commissioner contacts the company prior

Commented [A1]: ACLI: Subsection 3 Deposit-Type Contracts also needs to be updated

Commented [VM222R1]: Added reference for VM-V in Subsection 3

Commented [VM223]: In line with ACLI edit in paragraph D. See below.

Commented [CC4]: Should VM-V be added?

Commented [VM225R4]: Edits added to address

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Commented [CC6]: Should also add exception for minimum valuation interest rate in VM-V?

Commented [VM227R6]: Edits added to address

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Deleted: stable value c

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Commented [A10]: ACLI: Guidance Note appears to apply to 2.D, so better to put the text there. Also propose similar change for VM-21 PBR requirements.

Commented [VM2211R10]: Took out of Guidance Note

Deleted: The requirements in VM-22this section are still considered a part of PBR requirements and therefore are applicable to VM-G.

Deleted: ¶

Commented [A12]: Incorrect reference (several instances)

Commented [VM2213R12]: Edits added to address

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Commented [CC14]: s/b Subsection 2.E.4

Commented [VM2215R14]: Edits added to address

Deleted: D

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Commented [CC16]: s/b Subsection 2.E.2

Commented [VM2217R16]: Edits added to address

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Commented [CC18]: s/b Subsection 2.E.2

Commented [VM2219R18]: Edits added to address

Deleted: D

Commented [CC20]: s/b Subsection 2.E.4

Commented [VM2221R20]: Edits added to address

Deleted: D

Deleted: 3

to Sept. 1 and notifies them that the statement of exemption is rejected. If any of these three events occur, then the statement of exemption for the current calendar year is rejected, and a new statement of exemption must be filed and not rejected in order for the company to exempt additional contracts or certificates. In the case of an ongoing statement of exemption, rather than include a statement of exemption with the NAIC filing for the second quarter of that year, the company should enter "SEE EXPLANATION" in response to the Annuity PBR Exemption supplemental interrogatory and provide as an explanation that the company is utilizing an ongoing statement of exemption.

2. Condition for Exemption:

- a. The company has less than \$1.0 billion of Exemption Reserves, and if the company is a member of an NAIC group that includes other life insurance companies, the group has combined exempted prior year reserves of less than \$2 billion; or
- b. The only new contract or certificates that would otherwise be subject to VM-22 being issued or assumed by the company are due to election of contract benefits or features from existing contracts or certificates valued under VM-A and VM-C and the company was exempted from, or otherwise not subject to, the requirements of VM-22 in the prior year.

Drafting Note: Request feedback on whether the reserve threshold for the Annuity PBR Exemption should be determined on a gross of reinsurance or net of reinsurance basis.

Drafting Note: Request feedback on the appropriate level for a reserve threshold. Original proposal was based on gross reserves set to \$3 billion for each company and \$6 billion for a group of companies. Discussion on the NAIC VM-22 Subgroup suggested that a lower threshold may be necessary to limit the majority of companies for being eligible for the exemption, resulting in an initial placeholder of \$0.5 billion for each company.

3. Exemption reserves are determined as follows:

- a. The amount reported in the prior calendar year life/health annual statement, Analysis of Increase in Reserves During the Year-Individual Annuities, Column 2 ("Fixed Annuities"), line 15; plus
- b. The amount reported in the prior calendar year life/health annual statement, Analysis of Increase in Reserves During the Year-Individual Annuities, Column 3 ("Indexed Annuities"), line 15; plus
- c. The amount reported in the prior calendar year life/health annual statement, Analysis of Increase in Reserves During the Year-Individual Annuities, Column 6 ("Life Contingent Payout (Immediate and Annuitizations)"), line 15; plus
- d. The amount reported in the prior calendar year life/health annual statement, Analysis of Increase in Reserves During the Year-Group Annuities, Column 2 ("Fixed Annuities"), line 15; plus
- e. The amount reported in the prior calendar year life/health annual statement, Analysis of Increase in Reserves During the Year-Group Annuities, Column 3 ("Indexed Annuities"), line 15; plus

Commented [A22]: Academy: The ARCWG proposed the \$1.0B limit as a reasonable balance between small company PBR compliance burden and companies with a meaningful block of annuities required to hold PBR reserves. Because of the size of annuity deposits, a \$0.5B limit could be easily exceeded with only a few years of sales, even by small companies. Please see the accompanying Academy letter dated January 17, 2023 (Letter) for additional detail.

This limit should be coordinated with and be larger than the limit chosen in (new) section 7.A.1.d.v (as shown in a separate exposure).

Commented [VM2223R22]: VM-22 Subgroup voted on an initial level of \$1 billion.

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Commented [CC24]: Company exemption amount was changed from \$3 billion to \$0.5 billion, so the Group exemption amount should be changed accordingly.

Commented [VM2225R24]: To confirm that, given the \$1b threshold for an individual company, the Subgroup's intention is for a \$2b threshold for a group.

Commented [A26]: ACLI: Some of our members have expressed concerns over the VM-22 draft's proposed exemption amount being set too low at \$0.5 billion in reserves. The Draft Note in the exposure indicated the original proposal of \$3 billion for a company and \$6 billion for a group was revised downward, but these higher levels may cover the vast majority of annuity reserves held (not only those subject to VM-22) and would be more appropriate. The Life PBR Exemption uses a \$300/600 million life premium limit; creating a parallel for annu...

Commented [VM2227R26]: VM-22 Subgroup voted on an initial level of \$1 billion. ... [2]

Commented [A28]: Academy: The ARCWG proposes that the exemption limits here and in Section 7.A.1.d.v be ... [3]

Commented [VM2229R28]: Subgroup voted in favor of a gross of reinsurance basis.

Commented [CC30]: Was this changed from Line 15 to Line 16? It is Line 15 in 2021 AS. Also, in b.-f. below.

Commented [VM2231R30]: Edits added to address

Commented [A32]: Corrected line reference (several instances)

Commented [VM2233R32]: Edits added to address

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- f. The amount reported in the prior calendar year life/health annual statement, Analysis of Increase in Reserves During the Year-Group Annuities, Column 6 (“Life Contingent Payout (Immediate and Annuitizations)”), line 15.
- g. Adding back in any reserves that were ceded in (a) through (f) above, in order to set the Exemption reserves on a gross of reinsurance basis

Drafting Note: Request feedback on whether to include “Other Annuities” from the Analysis of Increase in Reserve exhibit in the Annual Statement?

4. Contracts and Certificates Excluded from the Annuity PBR Exemption:

- a. Contracts or certificates with guaranteed living benefits (GMIBs, GMABs, GMMBs, GLWBs).

Drafting Note: Request feedback on whether to render guaranteed living benefits eligible or ineligible for the Annuity PBR Exemption. In addition, feedback is requested for how to treat contracts with guaranteed living benefits where only the guaranteed living benefits are reinsured.

- 5. Each exemption, or lack of an exemption, outlined in Subsection 2.E.1 to Subsection 2.E.4 above applies only to contracts or certificates issued or assumed in the current year, and it applies to all future valuation dates for those contracts or certificates. However, if contracts or certificates did not qualify for the Annuity PBR Exemption during the year of issue but would have qualified for the Annuity PBR Exemption if the current Valuation Manual requirements had been in effect during the year of issue, then the domiciliary commissioner may allow an exemption for such contracts or certificates. The minimum reserve requirements for the annuity contracts and certificates subject to the exemption are those pursuant to applicable methods required in VM-A and VM-C using the mortality tables as defined in VM-M, and valuation rates in VM-V as applicable.

F. Upon determining whether annuities fall under the requirements in Paragraphs B, C, and D in this subsection, the below principles shall be followed::

Drafting Note: Request feedback on whether the below principles should be phrased as “are generally expected to follow” or “shall follow”.

1. Contracts that do not guarantee the principal amount of purchase payments, net of any partial withdrawals, and interest credited thereto, less any deduction (without regard to its timing) for sales, administrative or other expenses or charges are generally expected to follow the requirements in Paragraph B of this subsection .
2. Contracts that do not credit a rate of interest under the contract prior to the application of any market value adjustments that is at least equal to the minimum rate required to be credited by the standard nonforfeiture law in the jurisdiction in which the contract is issued are generally expected to follow the requirements in Paragraph B of this subsection.
3. Contracts falling under the definition of Index-Linked Variable Annuities provided in VM-01 are generally expected to follow the requirements in Paragraph B of this subsection.

Commented [CC34]: Why is this still Line 15?

Commented [VM2235R34]: Edits added in other sections to make consistent

Commented [VM2236]: To put the Exemption threshold on a gross of reinsurance basis.

Commented [A37]: ACLI: We believe this should only apply to deferred status but not claim status

Commented [A38]: Academy: The ARCWG does not have a consensus opinion. Please see the Letter for arguments for and against GLB's.

Should it be decided that GLB's are not eligible for the Exemption, the ARCWG proposes that language is included in the VM to permit case by case exemptions to be granted by the domiciliary commissioner. Such language should encompass all blocks of business as many small requests for exemptions may constitute, in aggregate, material risk.

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Commented [CC39]: s/b Subsection 2.E.1-Subsection 2.E.4

Commented [VM2240R39]: Edits added to address

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Commented [A41]: ACLI: Favor "are generally expected to follow"

Commented [A42]: Academy: The ARCWG proposes the use of "shall" for consistency with the opening sentence and will remove ambiguity.

All annuity contracts that do not fall under ~~FF 1, F.2, or F.3~~ in this subsection are generally expected to shall follow the requirements in Paragraph C or D of this subsection, in accordance with the date on which the contract has been issued.

- Commented [CC43]: s/b F.1, F.2, or F.3
- Commented [VM2244R43]: Edits added to address
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- Deleted: E
- Deleted: E
- Deleted: E

Subsection 3: Deposit-Type Contracts

This subsection establishes reserve requirements for all contracts classified as deposit-type contracts defined in SSAP No. 50 in the AP&P Manual.

Minimum reserve requirements for deposit-type contracts are those requirements as found in VM-A, VM-C, ~~VM-V~~, and VM-22, as applicable.

Commented [VM2245]: Added reference for VM-V in Subsection 3, per ACLI's comment in Subsection 2

Subsection 6: Riders and Supplemental Benefits

Guidance Note: Designs of policies or contracts with riders and supplemental benefits which are created to simply disguise benefits subject to the Valuation Manual section describing the reserve methodology for the base product to which they are attached, or exploit a perceived loophole, must be reserved in a manner similar to more typical designs with similar riders.

- A. If a rider or supplemental benefit is attached to a health insurance product, deposit-type contract, or credit life or disability product, it may be valued with the base contract unless it is required to be separated by regulation or other requirements.
- B. For supplemental benefits on life insurance policies or annuity contracts, including Guaranteed Insurability, Accidental Death or Disability Benefits, Convertibility, or Disability Waiver of Premium Benefits, the supplemental benefit may be valued with the base policy or contract and follow the reserve requirements for the base policy or contract under VM-20, VM-21, VM-22, ~~VM-A, VM-C,~~ and/or ~~VM-V~~, as applicable.

- Commented [CC46]: should add VM-V?
- Commented [VM2247R46]: Edits added to address
- Deleted: C

- C. ULSG and other secondary guarantee riders on a life insurance policy and any guaranteed minimum benefits on life insurance policies or annuity contracts including, but not limited to, Guaranteed Minimum Accumulation Benefits, Guaranteed Minimum Death Benefits, Guaranteed Minimum Income Benefits, Guaranteed Minimum Withdrawal Benefits, Guaranteed Lifetime Income Benefits, Guaranteed Lifetime Withdrawal Benefits, Guaranteed Payout Annuity Floors, Waiver of Surrender Charges, Return of Premium, Systematic Withdrawal Benefits under Required Minimum Distributions, and all similar guaranteed benefits shall be valued with the base policy or contract and follow the reserve requirements for the base policy or contract under VM-20, VM-21, VM-22, and ~~VM-A, VM-C,~~ and/or ~~VM-V~~, as applicable.

- Commented [CC48]: should add "VM-V"?
- Commented [VM2249R48]: Edits added to address
- Deleted: C,
- Commented [CC50]: s/b Paragraphs B and C only
- Commented [VM2251R50]: Edits added to address

- D. If a rider or supplemental benefit to a life insurance policy or annuity contract that is not addressed in ~~Paragraphs B or C~~ above possesses any of the following attributes, the rider or supplemental benefit shall be valued with the base policy or contract and follow the reserve requirements for the base policy or contract under VM-20, VM-21, VM-22, and ~~VM-A, VM-C,~~ and/or ~~VM-V~~, as applicable.

- Commented [A52]: ACLI: Unclear why this change was made, recommend striking ", or D"
- Commented [VM2253R52]: Edits added to address
- Deleted: ,
- Deleted: , or D

- 1. The rider or supplemental benefit does not have a separately identified premium or charge.
- 2. ~~After issuance, the rider or supplemental benefit premium, charge, value or benefits are determined by referencing the base policy or contract features or performance.~~

- Commented [CC54]: should add VM-V?
- Commented [VM2255R54]: Edits added to address
- Deleted: C

Commented [A56]: ACLI: Unclear why "after issuance" was added; provide clarification or recommend deleting (two instances)

3. After issuance, the base policy or contract value or benefits are determined by referencing the rider or supplemental benefit features or performance. The deduction of rider or benefit premium or charge from the contract value is not sufficient for a determination by reference.

E. If a term life insurance rider on the named insured[s] on the base life insurance policy does not meet the conditions of Paragraph D above, and either (1) guarantees level or near level premiums until a specified duration followed by a material premium increase; or (2) for a rider for which level or near level premiums are expected for a period followed by a material premium increase, the rider is separated from the base policy and follows the reserve requirements for term policies under VM20, VM-A and/or VM-C, as applicable.

F. For all other riders or supplemental benefits on life insurance policies or annuity contracts not addressed in Paragraphs B through EE above, the riders or supplemental benefits may be valued with the base policy or contract and follow the reserve requirements for the base policy or contract under VM-20, VM-21, VM-22, VM-A, VM-C, and/or VM-V as applicable. For a given rider, the election to include riders or supplemental benefits with the base policy or contract shall be determined at the policy form level, not on a policy-by-policy basis, and shall be treated consistently from year-to-year, unless otherwise approved by the domiciliary commissioner.

Any supplemental benefits and riders offered on life insurance policies or annuity contracts that would have a material impact on the reserve (for VM-20 and VM-22) or TAR (for VM-21) if elected later in the contract life, such as joint income benefits, nursing home benefits, or withdrawal provisions on annuity contracts, shall be considered when determining reserves (for VM-20 and VM-22) or reserves and TAR (for VM-21). The company must assume that policyholders' and contract holders' efficiency will increase over time unless the company has relevant and credible experience or clear evidence to the contrary. For example, policyholders with living benefits and annuitization in the same contract may generally use the more valuable of the two benefits.

Commented [CC57]: s/b Paragraph D

Commented [VM2258R57]: Edits added to address

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Commented [CC59]: s/b Paragraphs B through E

Commented [VM2260R59]: Edits added to address

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Commented [CC61]: should add VM-V?

Commented [VM2262R61]: Edits added to address

Deleted: C

Deleted: C

Commented [CC63]: nursing home benefits were taken out in Subsection 6.B above. Should they be removed here? Are Combo Life/Annuity/LTC products valued under VM-20, VM-21 or VM-22?

Commented [A64]: ACLI: Suggest changing "may" with "should" and make this a separate item G.

VM-01: Definitions for Terms in Requirements

- The term “Deferred Income Annuity” (DIA) means an annuity contract that guarantees a periodic payment for the life of the annuitant or a term certain and payments begin 13 months or later from the issue date if the ~~contract holder and/or annuitant~~ survives to a predetermined future age.
- The term Guaranteed Investment Contract (GIC) means an accumulation-based group annuity contract issued to a retirement plan (defined contribution) under which the insurer accepts a deposit (or series of deposits) from the purchaser and guarantees to pay a specified interest rate on the funds deposited during a specified period of time.
- The term “Guaranteed Minimum Accumulation Benefit” (GMAB) means a guaranteed benefit providing, or resulting in the provision, that an amount payable on the contractually determined maturity date of the benefit will be increased and/or will be at least a minimum amount. Only such guarantees having the potential to produce a contractual total amount payable on benefit maturity that exceeds the account value, or in the case of an annuity providing income payments, an amount payable on benefit maturity other than continuation of any guaranteed income payments, are included in this definition.
- The term “~~Guaranteed Minimum Death Benefit~~” (GMDB) means a provision (or provisions) for a guaranteed benefit payable on the death of a contract holder, annuitant, participant or insured where the amount payable is either (i) a minimum amount; or (ii) exceeds the minimum amount and is:
 - Increased by an amount that may be either specified by or computed from other policy or contract values; and
 - Contains either:
 - The potential to produce a contractual total amount payable on such death that exceeds the account value, or
 - In the case of an annuity providing income payments, guarantees payment upon such death of an amount payable on death in addition to the continuation of any guaranteed income payments.
- The term “~~Guaranteed Minimum Income Benefit~~” (GMIB) means an option under which the contractholder has the right to apply a specified minimum amount that could be greater than the amount that would otherwise be available in the absence of such benefit to provide periodic income using a specified purchase basis.
- The term “Index Credit” means any interest credit, multiplier, factor, bonus, charge reduction, or other enhancement to contract values that is linked to an index or indices. Amounts credited to the contract resulting from a floor on an index account are included.
- The term “Index Credit Hedge Margin” means a margin capturing the risk of inefficiencies in the company’s hedging program supporting index credits. This includes basis risk, persistency risk, and the risk associated with modeling decisions and simplifications. It also includes any uncertainty of costs associated with managing the hedging program and changes due to investment and management decisions

Commented [A65]: ACLI: Consider adding “and/or annuitant” in addition to “contract holder” reference

Commented [VM2266R65]: Edits added to address

Commented [VM2267]: Typo

Commented [VM2268R67]: Edits added to address

Deleted: guaranteed minimum death benefit

Commented [VM2269]: Typo

Commented [VM2270R69]: Edits added to address

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Deleted: guaranteed minimum income benefit

- The term “Index Crediting Strategies” means strategies defined in a contract to determine index credits for a contract. For example, this may refer to underlying index, index parameters, date, timing, performance triggers, and other elements of the crediting method.
- The term “Index-Linked Variable Annuity” (ILVA) means an annuity contract with an account value where the contract holder has the option for a portion or all of the account value to grow at a rate linked to an external index, in addition to downside risk exposure that may not guarantee full principal repayment. These contracts may include a cap on upside returns, and may also include a floor on downside returns which may be below zero percent.
- The term “Longevity Reinsurance” means an agreement or reinsurance arrangement covering one or more group or individual annuity contracts, under which an insurance company assumes the longevity risk associated with periodic payments made to specified annuitants under one or more immediate or deferred payout annuity contracts. A common example is participants in one or more underlying retirement plans.
 - The reinsurer pays a portion of the actual benefits due to the underlying annuitants (or, in some cases, a pre-agreed amount per annuitant), while the ceding insurance company retains the assets supporting the reinsured annuity payments and pays periodic, ongoing premiums to the reinsurer over the expected lifetime of benefits paid to the specified annuitants. Such agreements may contain net settlement provisions such that only one party makes ongoing cash payments in a particular period. Under these agreements, longevity risk may be transferred on either a permanent basis or for a prespecified period of time, and these agreements may or may not permit early termination.
 - Agreements which are not treated as reinsurance under Statement of Statutory Accounting Principles (SSAP) No. 61R are not included in this definition. In particular, contracts under which payments are made based on the aggregate mortality experience of a population of lives which are not covered by an underlying group or individual annuity contract (e.g., mortality index-based longevity swaps) are not included in this definition.
- The term “Pension Risk Transfer” (PRT) means an annuity, either a group contract or reinsurance agreement, issued by an insurance company providing periodic payments to annuitants receiving immediate or deferred benefits from one or more retirement plans. Typically, the insurance company holds the assets supporting the benefits, which may be held in the general or separate account, and retains not only longevity risk but also asset risks (e.g., credit risk and reinvestment risk).
- The term “Single Premium Immediate Annuity” (SPIA) means an annuity purchased with a single premium amount which guarantees a periodic payment for the life of the annuitant or a term certain and payments begin within 13 months from the issue date.
- The term “Stable Value Contracts” means accumulation-based group contracts that provide limited investment guarantees, preserving principal while crediting steady, positive returns and protecting against losses or declines in yield. Underlying asset portfolios may consist of fixed income securities, which may sit in the insurer’s general account, a separate account, or in a third-party trust. These contracts often support defined contribution or defined benefit retirement plan liabilities.
- The term “Structured Settlement Contracts” are defined as annuity contracts that provide periodic benefits and purchased with a single premium amount stemming from various types of claims pertaining to court settlements or out-of-court settlements from tort actions arising from

Commented [A71]: ACLI: Suggest removing the struck phrase (“over the expected lifetime of benefits paid to the specified annuitants”) to allow for flexibility in how these transactions could be arranged.

accidents, medical malpractice, and other causes. Structured Settlement Contracts may be treated as either annuity contracts or deposit type contracts.

- The term “Synthetic Guaranteed Investment Contract” (SGIC) means contract that simulates the performance of a traditional GIC through a wrapper, swap, or other financial instruments, with the main difference being that the assets are owned by the contract holder or plan trust.

- The term “Term Certain Payout Annuity” means an annuity contract that offers guaranteed periodic payments for a specified period of time, not contingent upon mortality or morbidity of the annuitant. Term Certain Payouts are treated as Deposit-Type Contracts.

Commented [A72]: ACLI: See comment below about Term Certain Deposit Type contracts. Clarify that Structured Settlements can be annuity contracts or deposit type contracts

Commented [VM2273R72]: Edits added to address

Commented [A74]: ACLI: Under SSAP, Term Certain Payouts are Deposit-Type Contracts and this should be clarified in the definition

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Section 1: Background

A. Purpose

These requirements establish the minimum reserve valuation standard for non-variable annuity contracts as defined in Section II of the Valuation Manual, Subsection 2025. For all contracts encompassed by the Scope, these requirements constitute the Commissioners Annuity Reserve Valuation Method (CARVM) and, for certain contracts and certificates, the Commissioners Reserve Valuation Method (CRVM).

Guidance Note: CRVM requirements apply to some group pension contracts.

Drafting Note: There is a guidance note in VM-21 that explains that the reserve projection requirements are generally consistent with RBC C-3 Phase II requirements. However, it was decided to exclude this guidance note from VM-22 for the time being, though this may be revisited depending on whether further updates are made to the C-3 Phase I capital framework.

Commented [VM2277R76]: Edits added to address

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Commented [CC78]: Add the word "that" between "VM-21" and "explains"

Commented [VM2279R78]: Edits added to address

B. Principles

The projection methodology used to calculate the SR is based on the following set of principles. These principles should be followed when interpreting and applying the methodology in these requirements and analyzing the resulting reserves.

Guidance Note: The principles should be considered in their entirety, and it is required that companies meet these principles with respect to those contracts that fall within the scope of these requirements and are in force as of the valuation date to which these requirements are applied.

Principle 1: The objective of the approach used to determine the SR is to quantify the amount of statutory reserves needed by the company to be able to meet contractual obligations in light of the risks to which the company is exposed with an element of conservatism consistent with statutory reporting objectives.

Principle 2: The calculation of the SR is based on the results derived from an analysis of asset and liability cash flows produced by the application of a stochastic cash-flow model to equity return and interest rate scenarios. For each scenario, the greatest present value of accumulated deficiency is calculated. The analysis reflects prudent estimate assumptions for deterministic variables and is performed in aggregate (subject to limitations related to contractual provisions and prescribed guardrails) to allow the natural offset of risks within a given scenario. The methodology uses a projected total cash flow analysis by including all projected income, benefit, and expense items related to the business in the model and sets the SR at a degree of confidence using the CTE measure applied to the set of scenario specific greatest present values of accumulated deficiencies that is deemed to be reasonably conservative over the span of economic cycles.

Guidance Note: Examples where full aggregation between contracts may not be possible include experience rated group contracts and the operation of reinsurance treaties.

Principle 3: The implementation of a model involves decisions about the experience assumptions and the modeling techniques to be used in measuring the risks to which the company is exposed. Generally, assumptions are to be based on the conservative end of the confidence interval. The choice of a conservative estimate for each assumption may result in a distorted measure of the total risk. Conceptually, the choice of assumptions and the modeling decisions should be made so that the final result approximates what would be obtained for the SR at the required CTE level if it were possible to calculate results over the joint distribution of all future outcomes. In applying this concept to the actual calculation of the SR, the company should be guided by evolving practice and expanding knowledge base in the measurement and management of risk.

Guidance Note: The intent of Principle 3 is to describe the conceptual framework for setting assumptions. Section 10 provides the requirements and guidance for setting contract holder behavior assumptions and includes alternatives to this framework if the company is unable to fully apply this principle. More guidance and requirements for setting assumptions in general are provided in Section 12.

Principle 4: While a stochastic cash-flow model attempts to include all real-world risks relevant to the objective of the stochastic cash-flow model and relationships among the risks, it will still contain limitations because it is only a model. The calculation of the SR is based on the results derived from the application of the stochastic cash-flow model to scenarios, while the actual statutory reserve needs of the company arise from the risks to which the company is (or will be) exposed in reality. Any disconnect between the model and reality should be reflected in setting prudent estimate assumptions to the extent not addressed by other means.

Principle 5: A cash-flow scenario model cannot completely quantify a company's exposure to risk. A model attempts to represent reality but will always remain an approximation thereto and, hence, uncertainty in future experience is an important consideration when determining the SR. Therefore, the use of assumptions, methods, models, risk management strategies (e.g., hedging), derivative instruments, structured investments or any other risk transfer arrangements (such as reinsurance) that serve solely to reduce the calculated SR without also reducing risk on scenarios similar to those used in the actual cash-flow modeling are inconsistent with these principles. The use of assumptions and risk management strategies should be appropriate to the business and not merely constructed to exploit "foreknowledge" of the components of the required methodology.

- Commented [CC82]: s/b "cannot"
- Commented [VM2283R82]: Edits added to address
- Deleted: Neither
- Deleted: a
- Deleted: can
- Commented [A84]: ACLI: Edit for clarity
- Commented [VM2285R84]: Edits added to address

C. Risks Reflected and Risks Not Reflected

1. The risks reflected in the calculation of reserves under these requirements arise from actual or potential events or activities that are both:
 - a. Directly related to the contracts falling under the scope of these requirements or their supporting assets; and
 - b. Capable of materially affecting the reserve.

2. Categories and examples of risks reflected in the reserve calculations include, but are not necessarily limited to:

a. Asset risks

- i. Credit risks (e.g., default or rating downgrades).
- ii. Commercial mortgage loan roll-over rates (roll-over of bullet loans).
- iii. Uncertainty in the timing or duration of asset cash flows (e.g., shortening (prepayment risk) and lengthening (extension risk)).
- iv. Performance of equities, real estate, and Schedule BA assets.
- v. Call risk on callable assets.
- vi. Separate account fund performance.

Drafting Note: Feedback welcome on whether to remove reference to separate accounts in VM-22. Whether references to separate accounts are retained or removed, consider making the treatment of such references consistent throughout VM-22.

Commented [A86]: ACLI: Support eliminating references to separate accounts in VM-22

- vii. Risk associated with hedge instrument (includes basis, gap, price, parameter estimation risks, and variation in assumptions).
- viii. Currency risk.

b. Liability risks

- i. Reinsurer default, impairment, or rating downgrade known to have occurred before or on the valuation date.
- ii. Mortality/longevity, persistency/lapse, partial withdrawal, and premium/fee payment risks.
- iii. Utilization risk associated with guaranteed living benefits.
- iv. Anticipated mortality trends based on observed patterns of mortality improvement or deterioration, where permitted.
- v. Annuitization risks.
- vi. Additional premium dump-ins (high interest rate guarantees in low interest rate environments).
- vii. Applicable expense risks, including fluctuation in maintenance expenses directly attributable to the business, future commission expenses, and expense inflation/growth.

c. Combination risks

- i. Risks modeled in the company’s risk assessment processes that are related to the contracts, as described above.
 - ii. Disintermediation risk (including such risk related to payment of surrender or partial withdrawal benefits).
 - iii. Risks associated with revenue-sharing income.
- 3. Categories and examples of risks not reflected in the reserve calculations include, but are not necessarily limited to:
 - a. Asset risks
 - i. Liquidity risks associated with a “run on the bank.”
 - b. Liability risks
 - i. Reinsurer default, impairment or rating downgrade occurring after the valuation date.
 - ii. Catastrophic events (e.g., epidemics or terrorist events).
 - iii. Major breakthroughs in life extension technology that have not yet altered recently observed mortality experience.
 - iv. Significant future reserve increases as an unfavorable scenario is realized.
 - c. General business risks
 - i. Deterioration of reputation.
 - ii. Future changes in anticipated experience (reparameterization in the case of stochastic processes), which would be triggered if and when adverse modeled outcomes were to actually occur.
 - iii. Poor management performance.
 - iv. The expense risks associated with fluctuating amounts of new business.
 - v. Risks associated with future economic viability of the company.
 - vi. Moral hazards.
 - vii. Fraud and theft.
 - viii. Operational.
 - ix. Litigation.

D. Materiality

The company shall establish a standard containing the criteria for determining whether an assumption, risk factor, or other element of the principle-based valuation has a material impact on the size of the reserve. This standard shall be applied when identifying material risks.

Section 2: Scope and Effective Date

A. Scope

Non-variable annuity contracts specified in VM Section II, Subsection 2 “Annuity Products”, Paragraph D and applicable contracts in VM Section III, Subsection B are subject to VM-22 requirements.

Deleted: Contracts

Commented [A87]: ACLI: Need to include VM Section III Subsection Deposit Type Contracts

Commented [VM2288R87]: Edits added to address

B. Effective Date & Transition

Effective Date

These requirements apply for valuation dates on or after January 1, 2025.

Transition

A company may elect to establish minimum reserves pursuant to applicable requirements in VM-A, VM-C, and VM-V for business otherwise subject to VM-22 PBR requirements and issued during the first three years following the effective date of VM-22. If a company during the three-year transition period elects to apply VM-22 PBR to a block of such business, then a company must continue to apply the requirements of VM-22 for future issues of this business. Irrespective of the transition date, a company shall apply VM-22 PBR requirements to applicable blocks of business on a prospective basis starting at least three years after the effective date.

Commented [CC89]: should add VM-V?

Commented [VM2290R89]: Edits added to address

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Section 3: Reserve Methodology

A. Aggregate Reserve

The aggregate reserve for contracts falling within the scope of these requirements shall equal the SR (following the requirements of Section 4) plus the additional standard projection amount (following the requirements of Section 6) plus the DR for those contracts satisfying the Deterministic Certification Option, less any applicable PIMR for all contracts not valued under applicable requirements in VM-A and VM-C, plus the reserve for any contracts valued under applicable requirements in VM-A, VM-C, and VM-V.

Guidance Note: Contracts valued under applicable requirements in VM-A and VM-C are ones that pass the exclusion test and elect to not model PBR SRs, per the requirements in Section 3.E.

B. Impact of Reinsurance Ceded

All components in the aggregate reserve shall be determined post-reinsurance ceded, that is net of any reinsurance cash flows arising from treaties that meet the statutory requirements that allow the treaty to be accounted for as reinsurance. A pre-reinsurance ceded reserve also needs to be determined by ignoring all reinsurance cash flows (costs and benefits) in the reserve calculation.

C. The Additional Standard Projection Amount

The additional standard projection amount is determined by applying one of the two standard projection methods defined in Section 6. The same method must be used for all contracts within a group of contracts that are aggregated together to determine the reserve. The company shall elect which method they will use to determine the additional standard projection amount. The company may not change that election for a future valuation without the approval of the domiciliary commissioner.

D. The SR

1. The SR shall be determined based on asset and liability projections for the contracts falling within the scope of VM-22 requirements, excluding those contracts valued using the methodology pursuant to applicable requirements in VM-A, VM-C, and VM-V over a broad range of stochastically generated projection scenarios described in Section 8 and using prudent estimate assumptions as required in Section 3.L herein.
2. The SR amount for any group of contracts shall be determined as CTE70 of the scenario reserves following the requirements of Section 4.

E. The DR

The DR for groups of contracts for which a company elects the Deterministic Certification Option in Section 7.E shall be determined as the DR following the requirements of Section 4. The reserve may be determined in aggregate across various groups of contracts within each Reserving Category as a single model segment when determining the SR.

F. Aggregation of Contracts for the DR and SR

- Commented [CC95]:** Section 7.E uses "SR" for Deterministic Certification Option
- Commented [VM2296R95]:** DR added for clarification in 7.E
- Commented [CC97]:** Should add VM-V?
- Commented [VM2298R97]:** Edits added to address
- Deleted:** C
- Commented [A99]:** ACLI: Suggest incorporating into 3.A
- Commented [A100]:** ACLI: Be specific on what "these requirements" refers to
- Commented [VM22101R100]:** Edits added to address
- Deleted:** these
- Commented [CC102]:** Should add valuation interest requirements in VM-V?
- Commented [VM22103R102]:** Edits added to address
- Deleted:** C
- Deleted:** C
- Commented [CC104]:** s/b Section 3.I
- Commented [VM22105R104]:** Edits added to address
- Commented [A106]:** Is this the right reference? Maybe 3.I
- Commented [VM22107R106]:** Edits added to address
- Deleted:** G
- Commented [A108]:** ACLI: Is this the right reference?
- Commented [VM22109R108]:** Edits added to address
- Deleted:** ¶
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- Commented [A110]:** ACLI: Clarify this statement
- Commented [CC111]:** 3. refers to SR and is misplaced. Section 7.E uses "SR" rather than "DR" for contracts using Deterministic Certification Option.
- Commented [VM22112R111]:** DR added for clarification in 7.E
- Commented [A113]:** ACLI: Numbering is not correct
- Commented [VM22114R113]:** Edits added to address by removing reference to number 1, and combining sentence with preceding paragraph
- Commented [A115]:** ACLI: Consistent with our comments in our November 19, 2021, letter, we are concerned with the need for prescribed reserving categories because we believe the aggregation of contracts for the SR and DR should be principle-based and align with the pricing, operations, and investment management of the assets and liabilities.
- Commented [CC116]:** This entire subsection needs ... [4]
- Commented [VM22117R116]:** DR added for clarifi ... [5]

1. Groups of contracts within different Reserving Categories may not be aggregated together in determining the SR or DR. For the purposes of VM-22, Reserving Categories are classified as the following:

Commented [CC118]: There really is no "DR"
Commented [VM22119R118]: DR added for clarification in 7.E

a. The "Payout Annuity Reserving Category" includes the following categories of contracts, certificates and contract features, whether group or individual, including both life contingent and term certain only contracts, directly written or assumed through reinsurance, with the exception of benefits provided by variable annuities:

Commented [A120]: ACLI: For Section 3.F.a.iv and 3.F.a.vi: References to "Host Contracts" and "deferred Annuity Contracts" may cause confusion. VM-21 technically covers all benefit streams emanating from Variable Annuity Contracts. ACLI would like to work with regulators to update the wording in both VM-21 and VM-22 to codify current accepted practices (such as making it clear that projection of annuitizations and benefits (after AV = 0) should continue to be principle-based and reflect how the business is managed).

- i. Single Premium Immediate Annuity contracts;
- ii. Deferred Income Annuity contracts;
- iii. Structured Settlement Contracts in payout or deferred status;
- iv. Fixed income payment streams resulting from the exercise of settlement options or annuitizations of host contracts issued;
- v. Supplementary contracts, excluding contracts with no scheduled payments (such as retained asset accounts and settlements at interest);
- vi. Fixed income payment streams attributable to guaranteed living benefits associated with deferred annuity contracts, once the contract funds are exhausted;

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Drafting Note: Additional feedback is welcome for whether to permit optionality for categorizing guaranteed living benefit contracts with depleted fund value as either in the payout or accumulation reserving category.

Commented [A121]: ACLI: Need definition of "Supplementary Contract."

- vii. Certificates, emanating from non-variable group annuity contracts specified in Model #820, Section 5.C.2, purchased for the purpose of providing certificate holders fixed income payment streams upon their retirement; and
- viii. Pension Risk Transfer Annuities.

Commented [A122]: Academy: The ARCWG believes that this decision should be left up to the actuary, with appropriate justification in the VM-31 report.

Commented [A123]: ACLI: Permitting optionality to align categorization with how business is managed is conceptually appropriate. From a conceptual (principle-based) and operational perspective, living benefit contracts with depleted fund values should be included in payout or accumulation categories based on how the business is managed.

b. The term "Longevity Reinsurance Reserving Category" refers to includes Longevity Reinsurance as defined under the definition provided in VM-01 of the Valuation Manual.

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c. The "Accumulation Reserving Category" are includes all annuities within scope of VM-22 that are not in the "Payout Reserving Category" or "Longevity Reinsurance Reserving Category".

Commented [A124]: ACLI: Is this referring to section II of VM-22, or is it referring to VM Section II, Subsection 2 "Annuity Products," Paragraph D? The wording should be made clearer.

Commented [VM22125R124]: Edits added to address

2. For the purposes of calculating stochastic reserves, the stochastic exclusion test, and determining the final VM-22 reserves, do not aggregate groups of contracts for which the company elects to use the Deterministic Certification Option in Section 7.E with any groups of contracts that do not use such option.

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Commented [A126]: ACLI: Rephrase

Commented [VM22127R126]: Edits added to address

3. To the extent that aggregation results in more than one model segment, the aggregate reserve shall equal the sum of the SR amounts computed for each model segment and DR amounts computed for each model segment for which the company elects to use the Deterministic Certification Option in Section 7.E.

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Commented [CC128]: Defined as "SR" in Section 7.E

Commented [VM22129R128]: DR added for clarification in 7.E

G. Stochastic Exclusion Test

- To the extent that certain groups of contracts pass the stochastic exclusion test in Section 7.B, these groups of contracts may be valued using the methodology and statutory maximum valuation rate pursuant to applicable requirements in VM-A, VM-C, and VM-V.
- For dividend-paying contracts that pass the Stochastic Exclusion Test, a dividend liability shall be established following requirements in VM-A and VM-C, as described above, for the base contract.
- The company may not group together contract types with significantly different risk profiles when performing the exclusion test.

Commented [A130]: ACU: Is this statement only applicable if it passes the SET? Propose to add clarity

Commented [VM22131R130]: Edits added to address

Commented [CC132]: s/b "contracts"

Commented [VM22133R132]: Edits added to address

Commented [A134]: ACU: Consider if additional references than DR are needed (e.g. exclusion test).

Commented [VM22135R134]: This was due to an incorrect reference – the intention is for the only exception is for contracts that pass the exclusion test and use pre-PBR reserves

Commented [CC136]: Refers to "SR" contracts using Deterministic Certification Method in Section 7.E?

Commented [VM22137R136]: DR added for clarification in 7.E

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Commented [A138]: Academy: The ARCWG agrees with "at least once every 3 years" as it removes ambiguity around "periodically." The ARCWG also supports that this change be made in conjunction with adoption of a similar APF for VM-20/VM-21.

Commented [A139]: ACU: Need to clarify "this group"

Commented [VM22140R139]: Edits added to address

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Commented [CC141]: This review is required annually, but the prudent estimate assumptions only need be reviewed periodically, so if the review of the anticipated assumptions shows a need for a change, does the actuary need to change the prudent estimate assumption as well?

Commented [CC142]: s/b "company"

Commented [VM22143R142]: Edits added to address

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Deleted: CompanyC

Commented [A144]: ACU: Section 9 is hedging

Commented [VM22145R144]: Edits added to address

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H. Allocation of the Aggregate Reserve to Contracts

The aggregate reserve shall be allocated to the contracts falling within the scope of these requirements using the method outlined in Section 13, with the exception of contracts valued under VM-A, VM-C, or VM-V following Section 3.G, which are to be calculated on a seriatim basis.

I. Prudent Estimate Assumptions

- With respect to the SR in Section 3.D, the company shall establish the prudent estimate assumption for each risk factor in compliance with the requirements in Section 12 of Model #820 and must periodically review and update the assumptions as appropriate in accordance with these requirements.

Drafting Note: Consider replacing "periodically" with "at least every 3 years in the paragraph above upon adoption of a similar APF for VM-20/VM-21.

- The qualified actuary, to whom responsibility for a given group of contracts is assigned, shall annually review relevant emerging experience for the purpose of assessing the appropriateness of the anticipated experience assumption. If the results of the review indicate that previously anticipated experience for a given factor is inadequate, then the company shall set a new, adequate, anticipated experience assumption for the factor.
- To determine the prudent estimate assumptions, the SR shall also follow the requirements in Sections 4 and general assumptions including Section 9 for hedging assumptions, Section 10 for contract holder behavior assumptions, Section 11 for mortality assumptions, and Section 12 for general guidance and expense assumptions.

J. Approximations, Simplifications, and Modeling Efficiency Techniques

A company may use simplifications, approximations, and modeling efficiency techniques to calculate the SR and/or the additional standard projection amount required by this section if the company can demonstrate that the use of such techniques does not understate the reserve by a material amount, and the expected value of the reserve calculated using simplifications, approximations, and modeling efficiency techniques is not less than the expected value of the reserve calculated that does not use them.

Guidance Note:

Examples of modeling efficiency techniques include, but are not limited to:

1. Choosing a reduced set of scenarios from a larger set consistent with prescribed models and parameters.
2. Generating a smaller liability or asset model to represent the full seriatim model using grouping compression techniques or other similar simplifications.

There are multiple ways of providing the demonstration required by Section 3.J. The complexity of the demonstration depends upon the simplifications, approximations or modeling efficiency techniques used. Examples include, but are not limited to:

1. Rounding at a transactional level in a direction that is clearly and consistently conservative or is clearly and consistently unbiased with an obviously immaterial impact on the result (e.g., rounding to the nearest dollar) would satisfy 3.J without needing a demonstration. However, rounding to too few significant digits relative to the quantity being rounded, even in an unbiased way, may be material and in that event, the company may need to provide a demonstration that the rounding would not produce a material understatement of the reserve.
2. A brute force demonstration involves calculating the minimum reserve both with and without the simplification, approximation or modeling efficiency technique, and making a direct comparison between the resulting reserve. Regardless of the specific simplification, approximation or modeling efficiency technique used, brute force demonstrations always satisfy the requirements of Section 3.J.
3. Choosing a reduced set of scenarios from a larger set consistent with prescribed models and parameters and providing a detailed demonstration of why it did not understate the reserve by a material amount and the expected value of the reserve would not be less than the expected value of the reserve that would otherwise be calculated. This demonstration may be a theoretical, statistical or mathematical argument establishing, to the satisfaction of the insurance commissioner, general bounds on the potential deviation in the reserve estimate rather than a brute force demonstration.

Drafting Note: Add back in the WDCM method example in the above guidance note if VM-22 uses this method for the SPA calculation.

Commented [A146]: ACLI: Incorrect reference?

Commented [VM22147R146]: Edits added to address

Commented [CC148]: s/b Section 3.J

Commented [VM22149R148]: Edits added to address

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Commented [CC150]: s/b Section 3.J

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Commented [CC152]: s/b Section 3.J

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Section 4: Determination of SR

A. Projection of Accumulated Deficiencies

1. General Description of Projection

The projection of accumulated deficiencies shall be made ignoring federal income tax in both cash flows and discount rates, and it shall reflect the dynamics of the expected cash flows for the entire group of contracts, reflecting all product features, including any guarantees provided under the contracts using prudent estimate liability assumptions defined in Sections 10, 11, and 12 and asset assumptions defined in Sections 4 and 9. The company shall project cash flows including the following:

- a. Gross premium received by the company from the contract holder or the ceding company in the case of reinsurance (including any due premiums as of the projected start date). For purposes of Longevity Reinsurance, net premium shall be used in the projection and defined as the gross premium multiplied by a “K-factor,” where the K-factor is determined as:
 - i. The present value of the expected future benefits and expenses at contract inception or reinsurance effective date in the case of reinsurance using the prudent estimate assumptions determined at contract inception and an interest rate equal to the prescribed interest rate under VM-A and VM-C, divided by item ii immediately below.
 - ii. The present value of the expected future gross premiums at contract inception or reinsurance effective date in the case of reinsurance using the prudent estimate assumptions determined at contract inception or reinsurance effective date and an interest rate equal to the prescribed interest rate under VM-A and VM-C.
 - iii. The resulting amount is capped at 1, in other words the application of the K-factor shall not result in the net premium exceeding the gross premium.
- Guidance Note:** If due premiums are modeled, the final reported reserve needs to be adjusted by adding the due premium asset.
- b. Other revenues, including contractual fees and charges, and revenue-sharing income received by the company (net of applicable expenses). For purposes of Longevity Reinsurance, it is not expected that any such other revenues will apply. To the extent there are other revenues, they should be included with item ii under a. immediately above so that the calculation of the K-factor includes all expected future revenues from the contract holder.
 - c. All material benefits projected to be paid to contract holders—including, but not limited to, death claims, surrender benefits and withdrawal benefits—reflecting the impact of all guarantees and adjusted to take into account amounts projected to be charged to account values on general account business. Any guarantees, in addition

Commented [A154]: ACLI: Consistent with our comments in our August 19, 2022, letter, we do not support the use of a k-factor to modify the premiums used in the longevity reinsurance reserve calculation because the premiums for these policies are not assumptions that vary. We believe an alternative, principle-based solution with prudent margins could better address regulators’ concerns and wish to work with regulators to craft a better solution. If the k-factor approach is retained, the calculation methodology should be as principle-based as possible (e.g., reflect emerging experience and how blocks of business are managed and aggregated consistent with company practices).

Commented [CC155]: should include Section 12

Commented [VM22156R155]: Edits added to address

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Commented [A157]: ACLI: Premiums are usually pre-determined. It is not clear how this paragraph is applicable.

Commented [A158]: ACLI: References to “contract holder” and “contract inception” seem to imply directly written business. Suggest replacing “contract holder” with “contract holder or the ceding company in the case of reinsurance” and replacing “contract inception” with “contract inception or reinsurance effective date in the case of reinsurance.”

Commented [VM22159R158]: Edits added to address

to market value adjustments assessed on projected withdrawals or surrenders, shall be taken into account.

- d. Non-Guaranteed Elements (NGE) cash flows as described in Section 10.I.
- e. Insurance company expenses (including overhead and maintenance expense), commissions and other acquisition expenses associated with business inforce as of the valuation date.
- f. Cash flows associated with any reinsurance, to the extent not already covered above (for example, for longevity reinsurance).
- g. Cash flows from hedging instruments as described in Section 4 and Section 9.
- h. Cash receipts or disbursements associated with invested assets (other than policy loans) as described in Section 4.D.4, including investment income, realized capital gains and losses, principal repayments, asset default costs, investment expenses, asset prepayments, and asset sales.
- i. If modeled explicitly, cash flows related to policy loans as described in Section 10.H.2, including interest income, new loan payments and principal repayments.

Guidance Note: Future net policy loan cash flows include: policy loan interest paid in cash plus repayments of policy loan principal, including repayments occurring at death or surrender (note that the future benefits in Section 4.A.1.c are before consideration of policy loans), less additional policy loan principal (but excluding policy loan interest that is added to the policy loan principal balance).

2. Grouping of Index Crediting Strategies

Index crediting strategies for non-variable annuities may be grouped for modeling using an approach that recognizes the objectives of each index crediting strategy. In assigning each index crediting strategy to a grouping for projection purposes, the fundamental characteristics of the index crediting strategy shall be reflected, and the parameters shall have the appropriate relationship to the stochastically generated projection scenarios described in Section 8. The grouping shall reflect characteristics of the efficient frontier (i.e., returns generally cannot be increased without assuming additional risk).

Index accounts sharing similar index crediting strategies may also be grouped for modeling to an appropriately crafted proxy strategy normally expressed as a linear combination of recognized market indices, sub-indices or funds, in order to develop the investment return paths and associated interest crediting. Each index crediting strategy's specific risk characteristics, associated index parameters, and relationship to the stochastically generated scenarios in Section 8 should be considered before grouping or assigning to a proxy strategy. Grouping and/or development of a proxy strategy may not be done in a manner that intentionally understates the resulting reserve.

3. Model Cells

Projections may be performed for each contract in force on the date of valuation or by assigning contracts into representative cells of model plans using all characteristics and

Commented [A160]: ACLI: it feels like this should be its own subsection (c.)

Commented [VM22161R160]: Edits added to address

Commented [A162]: ACLI: Hedges are addressed in Section 4 and Section 9. Is this reference sufficient?

Commented [VM22163R162]: Edits added to address

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Commented [CC164]: s/b 10.H.2

Commented [VM22165R164]: Edits added to address

Commented [A166]: ACLI: Wrong reference – 10.H.2

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Commented [A168]: ACLI: If we make the 2nd paragraph of 4.A.1.b a separate reference this needs to be updated.

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criteria having a material impact on the size of the reserve. Assigning contracts to model cells may not be done in a manner that intentionally understates the resulting reserve.

4. **Modeling of Hedges**

a. For a company that does not have a future hedging strategy supporting the contracts:

- i. The company shall not consider the cash flows from any future hedge purchases or any rebalancing of existing hedge assets in its modeling, since they are not included in the company's investment strategy supporting the contracts.
- ii. Existing hedging instruments that are currently held by the company in support of the contracts falling under the scope of these requirements shall be included in the starting assets.

b. For a company that has one or more future hedging strategies supporting the contracts:

i. For a hedging program with hedge payoffs that offset interest credits associated with indexed interest strategies (indexed interest credits):

a) In modeling cash flows, the company shall include the cash flows from future hedge purchases or any rebalancing of existing hedge assets that are intended solely to offset interest credits to contract holders.

b) Existing hedging instruments that are currently held by the company for offsetting the indexed credits in support of the contracts falling under the scope of these requirements shall be included in the starting assets.

c) An Index Credit Hedge Margin for these hedge instruments shall be reflected by reducing index interest credit hedge payoffs by a margin multiple that shall be justified by sufficient and credible company experience and be no less than [X%] multiplicatively of the interest credited. This margin is intended to cover sources of potential error due the hedging itself and the ability for the company to accurately model it. In the absence of sufficient and credible company experience, a margin of [Y%] shall be assumed. There is no cap on the index credit hedge margin if company experience indicates actual error is greater than [Y%].

ii. For a company with any future hedging strategies that hedge any contractual obligation or risks other than indexed interest credits, the detailed requirements for the modeling of hedges are defined in Section 9. The following requirements do not supersede the detailed requirements.

Commented [A170]: ACLI: Hedge Modelling, whether index crediting or non-index crediting, should all be consolidated into one section in VM-22. This will help regulators and practitioners.

Commented [VM22171R170]: As discussed in prior VM-22 Subgroup call in response to this comment, the Subgroup is open to any proposals to accomplish this.

Deleted: Existing hedging instruments that are currently held by the company not for offsetting the indexed credits should be modeled consistently with the requirements of Section 4.A.4.a.ii....

Commented [A174]: Academy: The ARCWG proposes that X and Y be determined subsequent to the VM-22 field test. Modeling will help identify the appropriate level for the Index Credit Hedge Margin.

Commented [A175]: ACLI: For Factor determination, will there be documentation on how the X and Y are determined and reevaluated over time?

Commented [CC176]: the X's and Y's need to be filled in.

Commented [VM22177R176]: To fill in based on results of future field test

Commented [A178]: ACLI: All hedging should be in one section.

Commented [VM22179R178]: Comment discussed during prior VM-22 Subgroup call, during which the Subgroup expressed openness to this concept if a proposal is presented to them by the ACLI.

- a) The appropriate costs and benefits of hedging instruments that are currently held by the company in support of the contracts falling under the scope of these requirements shall be included in the projections used in the determination of the SR.
- b) The projections shall take into account the appropriate costs and benefits of hedge positions expected to be held in the future. Because models do not always accurately portray the results of hedge programs, the company shall, through back-testing and other means, assess the accuracy of the hedge modeling. The company shall determine a SR as the weighted average of two CTE values; first, a CTE70 (“best efforts”) representing the company’s projection of all of the hedge cash flows, including future hedge purchases, and a second CTE70 (“adjusted”) which shall use only hedge assets held by the company on the valuation date and only future hedge purchases associated with indexed interest credited. These are discussed in greater detail in Section 9. The SR shall be the weighted average of the two CTE70 values, where the weights reflect the error factor (U) determined following the guidance of Section 9.C.4.
- c) Consistent with Section 4.A.4.b.i, if the company has an indexed credit hedging program, the index credit hedge margin for instruments associated with indexed interest credited shall be reflected by reducing hedge payoffs by a margin multiple as defined in Section 4.A.4.b.i.c in both the “best efforts” run and the “adjusted” run.
- d) The use of products not falling under the scope of VM-22 (e.g., variable annuities) as a hedge shall not be recognized in the determination of accumulated deficiencies.

Guidance Note: Section 4.A.4.b.i is intended to address common situations for products with index crediting strategies where the company only hedges index credits or clearly separates index credit hedging from other hedging. In this case, the hedge positions are considered similarly to other fixed income assets supporting the contracts, and a margin is reflected rather than modeling using a CTE70 adjusted run with no future hedge purchases. If a company has a more comprehensive hedge strategy combining index credits, guaranteed benefit, and other risks (e.g., full fair value or economic hedging), an appropriate and documented bifurcation method should be used in the application of Sections 4.A.4.b.i and 4.A.4.b.ii above for the hedge modeling and justification. Such bifurcation methods may quantify the specific risk exposure attributable to index credit liabilities versus other liabilities such as guaranteed living benefits, and apply such for the basis for allocation.

Guidance Note: The requirements of Section 4.A.4 govern the determination of reserves for annuity contracts and do not supersede any statutes, laws or regulations of any state or jurisdiction related to the

Commented [CC182]: there is a stray “l” here. Also, in the 2023 version of VM-21, it shows an “l” instead of an “E”

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Commented [A184]: ACLI: Consider refining this to reference VM-22 Section 2 Scope

Commented [VM22185R184]: Edits added to address

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use of derivative instruments for hedging purposes and should not be used in determining whether a company is permitted to use such instruments in any state or jurisdiction.

5. Revenue Sharing

If applicable, projections of accumulated deficiencies may include income from projected future revenue sharing, net of applicable projected expenses (net revenue-sharing income) by following the requirements set forth in VM-21 Sections 4.A.5.a through 4.a.5.f.

6. Length of Projections

Projections of accumulated deficiencies shall be run for as many future years as needed so that no material obligations amount of business remain at the end of the projection periods.

7. Interest Maintenance Reserve (IMR)

The IMR shall be handled consistently with the treatment in the company's cash flow testing, and the amounts should be adjusted to a pre-tax basis.

B. Determination of Scenario Reserve

1. For a given scenario, the scenario reserve shall be determined using one of two methods described below:

- a) The starting asset amount plus the greatest present value, as of the projection start date, of the projected accumulated deficiencies; or

Guidance Note: The greatest present value of accumulated deficiencies can be negative.

- b) The direct iteration method, where the scenario reserve is determined by solving for the amount of starting assets which, when projected along with all contract cash flows, result in the defeasement of all projected future benefits and expenses at the end of the projection horizon with no positive accumulated deficiencies at the end of any projection year during the projection period.

The scenario reserve for any given scenario shall not be less than the cash surrender value in aggregate on the valuation date for the group of contracts modeled in the projection. In the case where more than [x%] of assets supporting the liability, excluding derivatives used solely to support index credits, are held at market value, the market value adjustment shall also be applied to the cash surrender value.

2. Discount Rates

In determining the scenario reserve, unless using the direct iteration method pursuant to Section 4.B.1.b, the accumulated deficiencies shall be discounted at the NAER on additional assets, as defined in Section 4.B.3.

3. Determination of NAER on Additional Invested Asset Portfolio

Commented [A188]: ACLI: Prefer to spell out the requirements to avoid companies needing to review multiple VM chapters.

Commented [VM22189R188]: Consistent with references to VM-20 for spread assumptions. Not copying same text makes it easier to maintain consistency in VM language.

Commented [A190]: Academy: This change is consistent with VM-31 Section 3.D.2.f.

Commented [A191]: ACLI: VM-21 has "no materially greater reserve value would result from longer projection periods" This language should be consistent with VM-21

Commented [A192]: Academy: Assets backing the reserves may be a combination of assets held at market and at book. X represents an immaterial amount of assets held at market such that a higher percentage requires the market value adjustment to the cash surrender value on the valuation date and amounts below X do not require such adjustment.

- a. The additional invested asset portfolio for a scenario is a portfolio of general account assets as of the valuation date, outside of the starting asset portfolio, that is required in that projection scenario so that the projection would not have a positive accumulated deficiency at the end of any projection year. This portfolio may include only (i) General Account assets available to the company on the valuation date that do not constitute part of the starting asset portfolio; and (ii) cash assets.

Guidance Note:

Additional invested assets should be selected in a manner such that if the starting asset portfolio were revised to include the additional invested assets, the projection would not be expected to experience any positive accumulated deficiencies at the end of any projection year.

It is assumed that the accumulated deficiencies for this scenario projection are known.

- b. To determine the NAER on additional invested assets for a given scenario:
 - i. Project the additional invested asset portfolio as of the valuation date to the end of the projection period,
 - a) Investing any cash in the portfolio and reinvesting all investment proceeds using the company's investment policy.
 - b) Excluding any liability cash flows.
 - c) Incorporating the appropriate returns, defaults and investment expenses for the given scenario.
 - ii. If the value of the projected additional invested asset portfolio does not equal or exceed the accumulated deficiencies at the end of each projection year for the scenario, increase the size of the initial additional invested asset portfolio as of the valuation date, and repeat the preceding step.
 - iii. Determine a vector of annual earned rates that replicates the growth in the additional invested asset portfolio from the valuation date to the end of the projection period for the scenario. This vector will be the NAER for the given scenario.
 - iv. If the projection results contain any extremely negative or positive NAER due to the depletion of assets in the denominator, the NAER shall be reset to a more appropriate discount rate, which may be carried out by imposing upper/lower limits or by using another approach, subject to actuarial judgement, that is appropriately prudent for statutory valuation.

Guidance Note: There are multiple ways to select the additional invested asset portfolio at the valuation date. Similarly, there are multiple ways to determine the earned rate vector. The company shall be consistent in its choice of methods, from one valuation to the next.

C. Projection Scenarios

1. Number of Scenarios

The number of scenarios for which the scenario reserve shall be computed shall be the responsibility of the company, and it shall be considered to be sufficient if any resulting understatement in the SR, as compared with that resulting from running additional scenarios, is not material.

2. Economic Scenario Generation

Treasury Department interest rate curves, as well as investment return paths for index funds, equities, and fixed income assets shall be determined on a stochastic basis using the methodology described in Section 8. If the company uses a proprietary generator to develop scenarios, the company shall demonstrate that the resulting scenarios meet the requirements described in Section 8.

D. Projection of Assets

1. Starting Asset Amount

a. For the projections of accumulated deficiencies, the value of assets at the start of the projection shall be set equal to the approximate value of statutory reserves at the start of the projection plus the allocated amount of PIMR attributable to the assets selected. Assets shall be valued consistently with their annual statement values. The amount of such asset values shall equal the sum of the following items, all as of the start of the projection:

- i. Any hedge instruments held in support of the contracts being valued; and
- ii. An amount of assets held in the general account equal to the approximate value of statutory reserves as of the start of the projections less the amount in (i).

b. If the amount of initial general account assets is negative, the model should reflect a projected interest expense. General account assets chosen for use as described above shall be selected on a consistent basis from one reserve valuation hereunder to the next.

2. Valuation of Projected Assets

For purposes of determining the projected accumulated deficiencies, the value of projected assets shall be determined in a manner consistent with their value at the start of the projection. For assets assumed to be purchased during a projection, the value shall be determined in a manner consistent with the value of assets at the start of the projection that have similar investment characteristics. However, for derivative instruments that are used in hedging and are not assumed to be sold during a particular projection interval, the

company may account for them at an amortized cost in an appropriate manner elected by the company.

Guidance Note: Accounting for hedge assets should recognize any methodology prescribed by a company's state of domicile.

3. General Account Assets

- a. General account assets shall be projected, net of projected defaults, using assumed investment returns consistent with their book value and expected to be realized in future periods as of the date of valuation. Initial assets that mature during the projection and positive cash flows projected for future periods shall be invested in a manner that is representative of and consistent with the company's investment policy, subject to the following requirements:
 - i. The final maturities and cash flow structures of assets purchased in the model, such as the patterns of gross investment income and principal repayments or a fixed or floating rate interest basis, shall be determined by the company as part of the model representation;
 - ii. The combination of price and structure for fixed income investments and derivative instruments associated with fixed income investments shall appropriately reflect the projected Treasury Department curve along the relevant scenario and the requirements for gross asset spread assumptions stated below;
 - iii. For purchases of public non-callable corporate bonds, follow the requirements defined in VM-20 Sections 7.E, 7.F and 9.F. The prescribed spreads reflect current market conditions as of the model start date and grade to long-term conditions based on historical data at the start of projection year four;
 - iv. For transactions of derivative instruments associated with fixed income investments, reflect the prescribed assumptions in VM-20 Section 9.F for interest rate swap spreads;
 - v. For purchases of other fixed income investments, if included in modeled company investment strategy, set assumed gross asset spreads over U.S. Treasuries in a manner that is consistent with, and results in reasonable relationships to, the prescribed spreads for public non-callable corporate bonds and interest rate swaps.
- b. Notwithstanding the above requirements, the aggregate reserve shall be the higher of that produced by the modeled company investment strategy and that produced by substituting an alternative investment strategy in which the fixed income reinvestment assets have the same weighted average life (WAL) as the reinvestment assets in the modeled company investment strategy and are all public non-callable corporate bonds with gross asset spreads, asset default costs, and investment expenses by projection year that are consistent with a credit quality blend of:

- i. ~~5% Treasury~~
- ii. 20% PBR credit rating 3 (Aa2/AA)
- iii. 80% PBR credit rating 6 (A2/A)

c. Any disinvestment shall be modeled in a manner that is consistent with the company’s investment policy and that reflects the company’s cost of borrowing where applicable, provided that the assumed cost of borrowing is not lower than the rate at which positive cash flows are reinvested in the same time period, taking into account duration, ratings, and other attributes of the borrowing mechanism. Gross asset spreads used in computing market values of assets sold in the model shall be consistent with, but not necessarily the same as, the gross asset spreads in Section 4.D.3.a.iii and Section 4.D.3.a.v, recognizing that initial assets that mature during the projection may have different characteristics than modeled reinvestment assets.

Guidance Note: This limitation is being referred to Life Actuarial (A) Task Force for review. The simple language above “provided that the assumed cost of borrowing is not lower than the rate at which positive cash flows are reinvested in the same time period” is not intended to impose a literal requirement. It is intended to reflect a general concept to prevent excessively optimistic borrowing assumptions. It is recognized that borrowing parameters and rules can be complicated, such that modeling limitations may not allow for literal compliance, in every time step, as long as the reserve is not materially affected. However, if the company is unable to fully apply this restriction, prudence dictates that a company shall not allow borrowing assumptions to materially reduce the reserve.

- Commented [A193]: ACLI: Incorrect reference
- Commented [VM22194R193]: Edits added to address
- Commented [A195]: ACLI: Incorrect reference
- Commented [VM22196R195]: Edits added to address
- Commented [CC197]: s/b Section 4.D.3.a.iii and 4.D.3.a.v
- Commented [VM22198R197]: Edits added to address
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4. Cash Flows from Invested Assets

- a. Cash flows from general account fixed income assets, including starting and reinvestment assets, shall be reflected in the projection as follows:
 - i. Model gross investment income and principal repayments in accordance with the contractual provisions of each asset and in a manner consistent with each scenario.
 - ii. Reflect asset default costs as prescribed in VM-20 Section 9.F and anticipated investment expenses through deductions to the gross investment income.
 - iii. Model the proceeds arising from modeled asset sales and determine the portion representing any realized capital gains and losses.
 - iv. Reflect any uncertainty in the timing and amounts of asset cash flows related to the paths of interest rates, equity returns or other economic values directly in the projection of asset cash flows. Asset defaults are not

subject to this requirement, since asset default assumptions must be determined by the prescribed method as noted in Section 4.a.ii above.

- b. Cash flows from index funds and general account equity assets—i.e., non-fixed income assets having substantial volatility of returns, such as common stocks and real estate— including starting and reinvestment assets, shall be reflected in the projection as follows:
 - i. Determine the grouping for asset categories and the allocation of specific assets to each category in a manner that is consistent with that used for index crediting strategies, as discussed in Section 4.A.2.
 - ii. Project the gross investment return including realized and unrealized capital gains in a manner that is consistent with the stochastically generated scenarios.
 - iii. Model the timing of an asset sale in a manner that is consistent with the investment policy of the company for that type of asset. Reflect expenses through a deduction to the gross investment return using prudent estimate assumptions.
- c. Cash flows for each projection interval for policy loan assets shall follow the requirements in Section 10.H.

Commented [CC199]: Add "Section" in front of "4.a.ii above"

Commented [VM22200R199]: Edits added to address

E. Projection of Annuitization Benefits

- 1. Assumed Annuitization Purchase Rates
 - a. For payouts specified at issue (such as single premium immediate annuities, deferred income annuities, and certain structured settlements), such purchase rates shall reflect the payout rate specified in the contract.
 - b. For purposes of projecting future elective annuitization benefits (including annuitizations stemming from the election of a GMIB) and withdrawal amounts from GMWBs, the projected annuitization purchase rates shall be determined assuming that market interest rates available at the time of election are the interest rates used to project general account assets, as determined in Section 4.D.3.
- 2. Projected Election of GMIBs, GMWBs and Other Annuitization Options
 - a. For contracts projected to elect future annuitization options (including annuitizations stemming from the election of a GMIB) or for projections of GMWB benefits once the account value has been depleted, the projections shall assume the contract will stay in force, the projected periodic payments are paid, and the associated maintenance expenses are incurred.

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F. Frequency of Projection

- 1. Use of an annual cash-flow frequency ("timestep") is generally acceptable for benefits/features that are not sensitive to projection frequency. The lack of sensitivity to projection frequency should be validated by testing wherein the company should determine

that the use of a more frequent—i.e., shorter—time step does not materially increase reserves. A more frequent time increment should always be used when the product features are sensitive to projection period frequency.

G. Compliance with ASOPs

When determining a SR, the analysis shall conform to the ASOPs as promulgated from time to time by the ASB.

Under these requirements, an actuary will make various determinations, verifications and certifications. The company shall provide the actuary with the necessary information sufficient to permit the actuary to fulfill the responsibilities set forth in these requirements and responsibilities arising from each applicable ASOP.

Deleted: Care must be taken in simulating fee income and expenses when using an annual time step. For example, recognizing fee income

Deleted: at the end of each period after market movements, but prior to persistency decrements, would normally be an inappropriate assumption. It is also important that the frequency of the investment return model be linked appropriately to the projection horizon in the liability model. ¶

Section 5: Reinsurance

A. Treatment of Reinsurance in the Aggregate Reserve

1. Aggregate Reserve Pre- and Post-Reinsurance Ceded

As noted in Section 3.B, the aggregate reserve is determined both pre-reinsurance ceded and post-reinsurance ceded. Therefore, it is necessary to determine the components needed to determine the aggregate reserve—i.e., the additional standard projection amount, the SR, DR, and/or the reserve amount valued using requirements in VM-A, VM-C, and VM-V as applicable—on both bases. Sections 5.A.2 and 5.A.3 discuss adjustments to inputs necessary to determine these components on both a post-reinsurance ceded and a pre-reinsurance ceded basis.

2. Reflection of Reinsurance Cash Flows in the DR or SR

- a. In order to determine the aggregate reserve post-reinsurance ceded, accumulated deficiencies, scenario reserves, and the resulting SR and DR shall be determined reflecting the effects of reinsurance treaties that meet the statutory requirements that would allow the treaty to be accounted for as reinsurance within statutory accounting. This involves including, where appropriate, all projected reinsurance premiums or other costs and all reinsurance recoveries, where the reinsurance cash flows reflect all the provisions in the reinsurance agreement, using prudent estimate assumptions.
 - i. In this section, reinsurance includes retrocession, and assuming company includes retrocessionaire.
 - ii. All significant terms and provisions within reinsurance treaties shall be reflected. In addition, it shall be assumed that each party is knowledgeable about the treaty provisions and will exercise them to their advantage.

Guidance Note: Renegotiation of the treaty upon the expiration of an experience refund provision or at any other time shall not be assumed if such would be beneficial to the company and not beneficial to the counterparty. This is applicable to both the ceding party and assuming party within a reinsurance arrangement.

- iii. If the company has knowledge that a counterparty is financially impaired, the company shall establish a margin for the risk of default by the counterparty. In the absence of knowledge that the counterparty is financially impaired, the company is not required to establish a margin for the risk of default by the counterparty.
 - iv. A company shall include the cash flows from a reinsurance agreement or amendment in calculating the SR if such qualifies for credit in compliance with Appendix A-791 of the Accounting Practices and Procedures Manual. If a reinsurance agreement or amendment does not qualify for credit for reinsurance but treating the reinsurance agreement or amendment as if it did so qualify would result in a reduction to the company's surplus, then the company shall increase the aggregate reserve by the absolute value of such reductions in surplus.
- b. In order to determine the SR and DR on a pre-reinsurance ceded basis, accumulated deficiencies, scenario reserves, and the resulting SR and DR shall be determined ignoring the effects of reinsurance ceded within the projections. Different approaches may be used to determine the starting assets on the ceded portion of the contracts, dependent upon the characteristics of a given treaty:

- Commented [CC207]: There really is no "DR"
- Commented [VM22208R207]: DR added for clarification in 7.E
- Commented [CC209]: Should add VM-V?
- Commented [VM22210R209]: Edits added to address
- Deleted: C
- Deleted: C
- Commented [CC211]: There really is no "DR"
- Commented [VM22212R211]: DR added for clarification in 7.E
- Commented [CC213]: There really is no "DR"
- Commented [VM22214R213]: DR added for clarification in 7.E

- Commented [CC215]: Change to "SR" to be consistent with other references
- Commented [VM22216R215]: Edits added to address
- Deleted: stochastic reserve

- Commented [CC217]: There really is no "DR"
- Commented [VM22218R217]: DR added for clarification in 7.E

- i. For a standard coinsurance treaty, where the assets supporting the ceded liabilities were transferred to the assuming reinsurer, one acceptable approach involves a projection based on using starting assets on the ceded portion of the policies that are similar to those supporting the retained portion of the ceded policies or supporting similar types of policies. Scaling up each asset supporting the retained portion of the contract is also an acceptable method.

Guidance Note: For standard pro rata insurance treaties that do not include experience refunds, where allocated expenses are similar to the renewal expense allowance, a possible approach may be multiplying the quota share by the present value of future reinsurance cash flows pertaining to the reinsured block of business.

- ii. Alternatively, a treaty may contain an identifiable portfolio of assets associated with the ceded liabilities. This could be the case for several forms of reinsurance: funds withheld coinsurance; modified coinsurance; coinsurance with a trust. To the extent these assets would be available to the cedant, an acceptable approach could involve modeling this portfolio of assets. To the extent that these assets were insufficient to defease the ceded liabilities, the modeling would partially default to the approach discussed for a standard coinsurance treaty. To the extent these assets exceeded what might be needed to defease the ceded liabilities (perhaps an over collateralization requirement in a trust), the inclusion of such assets shall be limited.

Guidance Note: Section 3.5.2 in ASOP No. 52, *Principle-Based Reserves for Life Products under the NAIC Valuation Manual*, provides possible methods for constructing a hypothetical pre-reinsurance asset portfolio, if necessary, for purposes of the pre-reinsurance reserve calculation.

- c. An assuming company shall use assumptions to project cash flows to and from ceding companies that reflect the assuming company’s experience for the business segment to which the reinsured policies belong and reflect the terms of the reinsurance agreement.
- d. The company shall assume that the counterparties to a reinsurance agreement are knowledgeable about the contingencies involved in the agreement and likely to exercise the terms of the agreement to their respective advantage, taking into account the context of the agreement in the entire economic relationship between the parties. In setting assumptions for the NGE in reinsurance cash flows, the company shall include, but not be limited to, the following:
 - i. The usual and customary practices associated with such agreements.
 - ii. Past practices by the parties concerning the changing of terms, in an economic environment similar to that projected.
 - iii. Any limits placed upon either party’s ability to exercise contractual options in the reinsurance agreement.
 - iv. The ability of the direct-writing company to modify the terms of its policies in response to changes in reinsurance terms.
 - v. Actions that might be taken by a party if the counterparty is in financial difficulty.
- e. To the extent that a single deterministic valuation assumption for risk factors associated with certain provisions of reinsurance agreements will not adequately capture the risk, the company shall do one of the following:

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Commented [A219]: ACU: Consider clarifying this guidance note.

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- i. Stochastically model the risk factors directly in the cash-flow model when calculating the SR.
- ii. Perform a separate stochastic analysis outside the cash-flow model to quantify the impact on reinsurance cash flows to and from the company. The company shall use the results of this analysis to adjust prudent estimate assumptions or to determine an amount to adjust the SR to adequately make provision for the risks of the reinsurance features.

Guidance Note: An example of reinsurance provisions where a single deterministic valuation assumption will not adequately capture the risk is longevity reinsurance.

Commented [A221]: ACLI: Guidance note should be removed or clarified.

3. Reserve Determined Upon Passing the Exclusion Test

If a company passes the stochastic exclusion test and elects to use a methodology pursuant to applicable Sections VM-A, VM-C, and VM-V as allowed in Section 3.G, it is important to note that the methodology produces reserves on a pre-reinsurance ceded basis. Therefore, the reserve must be adjusted for any reinsurance ceded accordingly.

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Commented [CC224]: s/b Section 3.G

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It should be noted that the pre-reinsurance-ceded and post-reinsurance-ceded reserves may result in different outcomes for the exclusion test. In particular, it is possible that the pre-reinsurance-ceded reserves would pass the relevant exclusion test (and allow the use of VM-A and VM-C) while the post-reinsurance-ceded reserves might not, or vice versa.

Commented [A226]: ACLI: Are there some words missing? Seems to be carried from VM-21 reference to "Alternative Methodology"

4. Additional Standard Projection Amount

Where reinsurance is ceded, the additional standard projection amount shall be calculated as described in Section 6 to reflect the reinsurance costs and reinsurance recoveries under the reinsurance treaties. The additional standard projection amount shall also be calculated pre-reinsurance ceded using the methods described in Section 6 but ignoring the effects of the reinsurance ceded.

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Deleted: In addition, reserves valued under applicable Sections in VM-A and VM-C, unadjusted for reinsurance, shall be applied to the contracts falling under the scope of these requirements to determine the aggregate reserve prior to reinsurance.

Section 6: Standard Projection Amount

Section 7: Exclusion Testing

A. Stochastic Exclusion Test Requirement Overview

1. The company may elect to exclude one or more groups of contracts from the SR calculation if the stochastic exclusion test (SET) is satisfied for each of the group of contracts. The company has the option to calculate or not calculate the SET.
 - a. If the company does not elect to calculate the SET for one or more groups of contracts, or the company calculates the SET and fails the test for such groups of contracts, the reserve methodology described in Section 4 shall be used for calculating the aggregate reserve for those groups of contracts.
 - b. If the company elects to calculate the SET for one or more groups of contracts, and passes the test for such groups of contracts, then for each group of contracts that passes the SET, the company shall choose whether or not to use the reserve methodology described in Section 4 for that group of contracts. If the reserve methodology described in Section 4 is not used for one or more groups of contracts, then the company shall use the reserve methodology pursuant to applicable requirements in VM-A, VM-C, and VM-V for those groups of contracts.
 - c. A company may not exclude a group of contracts from the SR requirements if there are one or more future hedging strategies supporting the contracts, with the exception of hedging programs solely supporting index credits as described in Section 9.A.1.
 - d. A company not eligible for the Annuity PBR Exemption described in VM Section II 2.E may nevertheless elect to automatically exclude one or more groups of contracts from the stochastic reserve calculation without passing or performing the SET if all of the following are met for all contracts in the group or groups:
 - i. All of the contracts are either:
 - a) Single Premium Immediate Annuities;
 - b) Term Certain Payout Annuities;
 - c) Fixed payout annuities resulting from the exercise of settlement options or annuitizations of host contracts;
 - d) Supplementary contracts (such as retained asset accounts and settlements at interest);
 - e) Fixed income payment streams attributable to guaranteed living benefits associated with deferred annuity contracts once the underlying funds are exhausted;
 - f) Term Certain Payout Annuities; or
 - g) Structured Settlement Contracts
 - ii. None of the contracts are pension risk transfer annuities (PRT) or are covered under a longevity reinsurance agreement;
 - iii. Future scheduled payout benefit amounts are either level or stay within 5% of the initial payout benefit amount over time;
 - iv. There is either no or an immaterial level of policyholder options permitted within the contracts; and

Commented [CC228]: Should add valuation rate requirements in VM-V?

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Commented [VM22230]: **ACLI:** This item lists Term Certain Payout Annuities as a possible group able to qualify for the exemption. Should non-life contingent annuities found in Exhibit 7 (Deposit Type Contracts) under the column labeled "Annuities Certain", as well as the column labeled "Supplementary Contracts" be a part of the Payout Annuity Exemption Reserves definition? These are separate from the life-contingent liabilities found in the Analysis of Increase in Reserves, Individual Annuities and Group Annuities pages.

Commented [VM22231]: **ACLI:** This criterion states that neither PRT nor longevity reinsurance agreement is allowed as a category possible for exemption. Certain longevity reinsurance agreements contain only contracts that would meet the remaining criteria (that is, are consistent with other "vanilla" payout annuities); a prohibition on such arrangements seems to violate consistent treatment for similar products. Further, Payout Annuity Exemption Reserves include both longevity and PRT arrangements despite not being eligible for the exclusion; it would be appropriate to remove these from the reserves contributing to the exemption. Otherwise, a company would not be able to exempt business that would otherwise meet the criteria

Commented [VM22232]: Several of our members expressed concern that Section 7.A.1.d.iii and Section 7.A.1.d.iv of the exposure may preclude application to products expected to be in scope (e.g., annuities with a fixed cost of living adjustment, 50% joint and survivor annuities, non-elective changes to contract). Such product cash flows are not impacted by changes in interest rates or current economic conditions, which appears to be the intent of the exclusion. We are suggesting two possible approaches to incorporate these edits [in the ACLI comment letter].

Additionally, we have questions about existing Section 7.A.1.d.iii. Given our proposed edits, is this criterion needed? If retained, how was the 5% developed and how does it compare to the 15% in guideline IX? Perhaps a drafting note could be included to explain the differences.

- v. The company has less than [\$X] of Payout Annuity Exemption Reserves, and if the company is a member of an NAIC group that includes other life insurance companies, the group has combined Payout Annuity Exemption Reserves of less than [\$Y] billion.
 - 1. Payout Annuity Exemption Reserves are determined as follows:
 - a) The amount reported in the prior calendar year life/health annual statement, Analysis of Increase in Reserves During the Year-Individual Annuities, Column 6 (“Life Contingent Payout (Immediate and Annuityizations)”), line 15; plus
 - b) The amount reported in the prior calendar year life/health annual statement, Analysis of Increase in Reserves During the Year-Group Annuities, Column 6 (“Life Contingent Payout (Immediate and Annuityizations)”), line 15.
- vi. A company shall file a statement of exemption certifying compliance with conditions (i) through (v) above prior to July 1 of the associated valuation year. The domiciliary commissioner may reject such statement prior to Sept. 1.
- vii. If a group of contracts that satisfies the criteria of 7.A.1.d.i to 7.A.1.d.v above for the current valuation year had been valued using the DR or SR of VM-22 for the prior year-end, the company must continue to value the contracts under the DR or SR requirements of VM-22 unless the domiciliary commissioner grants permission to value the contracts under VM-A, VM-C, and VM-V.

Commented [VM22233]: ACLI: Payout Annuity Exemption Reserves include both longevity and PRT arrangements despite not being eligible for the exclusion; it would be appropriate to remove these from the reserves contributing to the exemption. Otherwise, a company would not be able to exempt business that would otherwise meet the criteria

B. Requirement to Pass the Stochastic Exclusion Tests

Groups of contracts pass the SET if one of the following is met:

1. Stochastic Exclusion Ratio Test (SERT)—Annually within 12 months before the valuation date the company demonstrates that the groups of contracts pass the SERT defined in Section 7.C.
2. Stochastic Exclusion Demonstration Test—In the first year and at least once every three calendar years thereafter, the company provides a demonstration in the PBR Actuarial Report as specified in Section 7.D.
3. SET Certification Method—For groups of contracts that do not have guaranteed living benefits, future hedging strategies, or pension risk transfer business, in the first year and at least every third calendar year thereafter, the company provides a certification by a qualified actuary that the group of contracts is not subject to material interest rate risk, mortality and/or longevity risk, or asset return volatility risk (i.e., the risk on non-fixed-income investments having substantial volatility of returns, such as common stocks and real estate investments).

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Guidance Note: The qualified actuary should develop documentation to support the actuarial certification that presents his or her analysis clearly and in detail sufficient for another actuary to understand the analysis and reasons for the actuary’s conclusion that the group of contracts is not subject to material interest rate risk, mortality and/or longevity risk, or asset return volatility risk. Examples of methods a qualified actuary could use to support the actuarial certification include, but are not limited to:

- a) A demonstration that, for the group of contracts, reserves calculated using requirements under VM-A, VM-C, and VM-V are at least as great as the assets required to support the group of contracts and certificates using the company's cash-flow testing model under each of the 48 scenarios identified in Section 7.C.1 or alternatively each of the New York seven economic scenarios under each of the three mortality adjustment factors identified in Section 7.C.1.
- b) A demonstration that the group of contracts passed the SERT within 36 months prior to the valuation date and the company has not had a material change in its interest rate risk, mortality and/or longevity risk, or asset return volatility risk.
- c) A qualitative risk assessment of the group of contracts that concludes that the group of contracts does not have material interest rate risk, mortality and/or longevity risk, or asset return volatility. Such assessment would include an analysis of product guarantees, the company's non-guaranteed elements (NGEs) policy, assets backing the group of contracts, the company's longevity risk, and the company's investment strategy.

- Commented [CC236]: Should add VM-V?
- Commented [VM22237R236]: Edits added to address
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C. Stochastic Exclusion Ratio Test

1. In order to exclude a group of contracts from the SR requirements under the stochastic exclusion ratio test (SERT), a company shall demonstrate that the ratio of (b-a)/a is less than the lesser of [x]% and the percentage change that would trigger the company's materiality standard, where:

- a. a = the adjusted scenario reserve described in Section 7.C.2.a below using the baseline economic scenario ("scenario 9), as described in Appendix 1.E of VM-20, and 100% as the adjustment factor for mortality.
- b. b = the largest adjusted scenario reserve described in Section 7.C.2.a below under any of the 16 economic scenarios described in Appendix 1.E of VM-20 under [95]%, 100%, and [105]% of anticipated experience mortality excluding margins. Because mortality variability may differ by company, if the magnitude of the company's margin for mortality exceeds 5%, then the company shall use the baseline mortality and the mortality augmented by plus and minus the company's margin for this exercise.

- Commented [VM22239R238]: Edits added to address
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- Deleted: Paragraph
- Commented [CC240]: Change the order for clarity as follows: "the baseline economic scenario, as described in Appendix 1.E of VM-20, and 100% as the adjustment factor for mortality."
- Commented [VM22241R240]: Edits added to address
- Deleted: , the baseline economic scenario, as described in Appendix 1.E of VM-20
- Commented [VM22243R242]: Edits added to address
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Guidance Note: Note that the numerator should be the largest adjusted scenario reserve, minus the adjusted scenario reserve for the baseline economic scenario and 100% as the adjustment factor for mortality. This is not necessarily the same as the biggest difference from the adjusted scenario reserve for the baseline economic scenario and 100% as the adjustment factor for mortality, or the absolute value of the biggest difference from the adjusted scenario reserve for the baseline economic scenario and 100% as the adjustment factor for mortality, both of which could lead to an incorrect test result. There are 47 (=16x3-1) combined economic and mortality scenarios that should be compared for the determination of b.

2. In calculating the ratio in Section 7.C.1 above:

- a. The company shall calculate an adjusted scenario reserve for the group of contracts for ~~each of~~ each of the 16 economic scenarios using the three levels of mortality adjustment factors that is equal to either (i) or (ii) below:
 - i. The scenario reserve defined in Section 4, but with the following differences:
 - a) Using anticipated experience assumptions with no margins, with the exception of mortality factors described in Section 7.C.1.b of this section.
 - b) Using the interest rates and equity return assumptions specific to each scenario.
 - c) Using NAER and discount rates defined in Section 4 specific to each scenario to discount the cash flows.
 - d) Shall reflect future mortality improvement in line with anticipated experience assumptions.
 - e) Shall not reflect correlation between longevity and economic risks.
 - ii. The gross premium reserve developed from the cash flows from the company's asset adequacy analysis models, using the experience assumptions of the company's cash-flow analysis, but with the following differences:
 - a) Using the interest rates and equity return assumptions specific to each scenario.
 - b) Using the mortality scalars described in Section 7.C.1.b of this section.
 - c) Using the methodology to determine NAER and discount rates defined in Section 4 specific to each scenario to discount the cash flows, but using the company's cash-flow testing assumptions for default costs and reinvestment earnings.
 - b. The company shall use the most current available baseline economic scenario and the 15 other economic scenarios published by the NAIC. The methodology for creating these scenarios can be found in Appendix 1 of VM-20.
 - c. The company shall use assumptions within each scenario that are dynamically adjusted as appropriate for consistency with each tested scenario.
 - d. The company may not group together contract types with significantly different risk profiles for purposes of calculating this ratio.
 - e. If the company has reinsurance arrangements that are pro rata coinsurance and do not materially impact the interest rate risk, longevity risk, or asset return volatility in the contract, then the company may elect to conduct the stochastic exclusion ratio test on only a single basis, either pre-reinsurance-ceded or post-reinsurance-ceded.
3. If the ratio calculated in this section is less than [x]% pre-non-proportional reinsurance, but is greater than [x]% post-non-proportional reinsurance, the group of contracts will still pass the SERT if the company can demonstrate that the sensitivity of the adjusted

scenario reserve to economic scenarios is comparable pre- and post-non-proportional reinsurance.

Guidance Note: Further description of non-proportional reinsurance is provided in Paragraph 16 of SSAP 61R.

- a. An example of an acceptable demonstration:
 - i. For convenience in notation • SERT = the ratio $(b-a)/a$ defined in Section 7.C.1 above
 - a) The pre-non-proportional reinsurance results are “gross of non-proportional,” with a subscript “gn,” so denoted $SERT_{gn}$
 - b) The post-non-proportional results are “net of non-proportional,” with subscript “nn,” so denoted $SERT_{nn}$
 - ii. If a block of business being tested is subject to one or more non-proportional reinsurance cessions as well as other forms of reinsurance, such as pro rata coinsurance, take “gross of non-proportional” to mean net of all prorata reinsurance but ignoring the non-proportional contract(s), and “net of non-proportional” to mean net of *all* reinsurance contracts. That is, treat non-proportional reinsurance as the last reinsurance in, and compute certain values below with and without that last component.
 - iii. So, if $SERT_{gn} \leq [x]\%$ but $SERT_{nn} > [x]\%$, then compute the largest percent increase in reserve (LPIR) = $(b-a)/a$, both “gross of non-proportional” and “net of non-proportional.”

$$LPIR_{gn} = (b_{gn} - a_{gn})/a_{gn}$$

$$LPIR_{nn} = (b_{nn} - a_{nn})/a_{nn}$$

Note that the scenario underlying b_{gn} could be different from the scenario underlying b_{nn} .

If $SERT_{gn} \times LPIR_{nn}/LPIR_{gn} < [x]\%$, then the block of contracts passes the SERT.
 - b. Another more qualitative approach is to calculate the adjusted scenario reserves for the 48 combined economic and mortality scenarios both gross and net of reinsurance to demonstrate that there is a similar pattern of sensitivity by scenario.
4. The SERT may not be used for a group of contracts if, using the current year’s data, (i) the stochastic exclusion demonstration test defined in Section 7.D had already been attempted using the method of Section 7.D.2.a or Section 7.D.2.b and did not pass; or (ii) the qualified actuary had actively undertaken to perform the certification method in [Section 7.B.3](#) and concluded that such certification could not legitimately be made.

D. Stochastic Exclusion Demonstration Test

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1. In order to exclude a group of contracts from the SR requirements using the Stochastic Exclusion Demonstration Test, the company must provide a demonstration in the PBR Actuarial Report in the first year and at least once every three calendar years thereafter that complies with the following:
 - a. The demonstration shall provide a reasonable assurance that if the SR was calculated on a stand-alone basis for the group of contracts subject to the SR exclusion, the resulting stochastic reserve for those groups of contracts would not be higher than the statutory reserve determined pursuant to the applicable requirements in ~~VM-A, VM-C, and VM-V~~. The demonstration shall take into account whether changing conditions over the current and two subsequent calendar years would be likely to change the conclusion to exclude the group of contracts from the SR requirements.
 - b. If, as of the end of any calendar year, the company determines the statutory reserve determined pursuant to the applicable requirements in VM-A, ~~VM-C~~, and ~~VM-V~~ for the group of contracts no longer adequately provides for all material risks, the exclusion shall be discontinued, and the company fails the SET for those contracts.
 - c. The demonstration may be based on analysis from a date that precedes the valuation date for the initial year to which it applies if the demonstration includes an explanation of why the use of such a date will not produce a material change in the outcome, as compared to results based on an analysis as of the valuation date.
 - d. The demonstration shall provide an effective evaluation of the residual risk exposure remaining after risk mitigation techniques, such as derivative programs and reinsurance.
2. The company may use one of the following or another method acceptable to the insurance commissioner to demonstrate compliance with Section 7.D.1 above:
 - a. Demonstrate that the statutory reserve calculated in accordance with VM-A, ~~VM-C~~, and ~~VM-V~~ is greater than the SR calculated on a stand-alone basis.
 - b. Demonstrate that the statutory reserve calculated in accordance with VM-A, ~~VM-C~~, and ~~VM-V~~ is greater than the scenario reserve that results from each of a sufficient number of adverse deterministic scenarios.
 - c. Demonstrate that the statutory reserve calculated in accordance with VM-A, ~~VM-C~~, and ~~VM-V~~ is greater than the SR calculated on a stand-alone basis, but using a representative sample of contracts in the SR calculations.
 - d. Demonstrate that any risk characteristics that would otherwise cause the SR calculated on a stand-alone basis to exceed the statutory reserve calculated in accordance with VM-A, ~~VM-C~~, and ~~VM-V~~ are not present or have been substantially eliminated through actions such as hedging, investment strategy, reinsurance or passing the risk on to the contract holder by contract provision.

Commented [CC246]: Should add VM-V? Also in b-d, and 2. below.

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E. Deterministic Certification Option

1. ~~Instead of a SR, the~~ company may determine a Deterministic Reserve (DR) for a group of contracts using a single deterministic economic scenario, subject to the following conditions.
 - a. The company certifies that economic conditions do not materially influence anticipated contract holder behavior for the group of contracts and certificates. Examples of contract holder options that are materially influenced by economic conditions include surrender benefits, recurring premium payments, and guaranteed living benefits.
 - b. The company certifies that the group of contracts and certificates is not supported by a reinvestment strategy that contains future hedge purchases.
 - c. The company must perform and disclose results from the stochastic exclusion ratio test following the requirements in Section 7.C, and the company must pass the SERT when considering only the 16 economic scenarios paired with the 100% mortality scenario.
 - d. The company must disclose a description of contracts and associated features in the certification.

Commented [VM22248]: Added formal reference to "DR" to address in other sections

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2. The DR for the group of contracts under the Deterministic Certification Option is determined as follows:

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- a. Cash flows are projected in compliance with the applicable requirements in Section 4, Section 5, Section 10, and Section 11 of VM-22 over a single economic scenario (scenario 12 found in Appendix 1 of VM-20).
- b. The DR equals the scenario reserve following the requirements for Section 4.

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Section 8: To Be Determined (Scenario Generation for VM-21)

Section 9: Modeling Hedges under a Non-Index Credit Future Hedging Strategy

A. Initial Considerations

1. This section applies to modeling of hedges other than situations where the company only hedges index credits. If the company clearly separates index credit hedging from other hedging, then this section only pertains to the other hedging if the index hedging follows the requirements in Section 4.A.4.b.i.
2. The appropriate costs and benefits of hedging instruments that are currently held by the company in support of the contracts falling under the scope of these requirements shall be included in the calculation of the SR, determined in accordance with Section 3.D and Section 4.D.
3. The company shall take into account the costs and benefits of hedge positions expected to be held by the company in the future along each scenario. Company management is responsible for developing, documenting, executing and evaluating the investment strategy, including the hedging strategy, used to implement the investment policy.
4. For this purpose, the investment assets refer to all the assets, including derivatives supporting covered products and guarantees. This also is referred to as the investment portfolio. The investment strategy is the set of all asset holdings at all points in time in all scenarios. The hedging portfolio, which also is referred to as the hedging assets, is a subset of the investment assets. The hedging strategy is the hedging asset holdings at all points in time in all scenarios. There is no attempt to distinguish what is the hedging portfolio and what is the investment portfolio in this section. Nor is the distinction between investment strategy and hedging strategy formally made here. Where necessary to give effect to the intent of this section, the requirements applicable to the hedging portfolio or the hedging strategy are to apply to the overall investment portfolio and investment strategy.
5. This particularly applies to restrictions on the reasonableness or acceptability of the models that make up the stochastic cash-flow model used to perform the projections, since these restrictions are inherently restrictions on the joint modeling of the hedging and non-hedging portfolio. To give effect to these requirements, they must apply to the overall investment strategy and investment portfolio.

Commented [CC249]: What if the company does not clearly separate the hedging strategies, then what? She we add a sentence such as: "If the company does not clearly separate index credit hedging from other hedging, then this section is applicable for modeling of all hedges".

Commented [A250]: ACU: Is this meant to read as "this section only pertains"?

Commented [VM22251R250]: Edits added to address

Commented [CC252]: I believe this should say something like "then this section only pertains"

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Commented [CC254]: VM-21 has additional wording at the beginning of sentence: "If the company is following one or more future hedging strategies supporting the contracts, in accordance with an investment policy adopted by the board of directors, or a committee of board members". There is also two additional sentences about what must the investment policy include. Should these be added?

B. Modeling Approaches

1. The analysis of the impact of the hedging strategy on cash flows is typically performed using either one of two types of methods as described below. Although a hedging strategy normally would be expected to reduce risk provisions, the nature of the hedging strategy and the costs to implement the strategy may result in an increase in the amount of the SR otherwise calculated. Particular attention should be given to Section 1.B Principle 5 for the modeling of future hedging strategies.
2. The fundamental characteristic of the first type of method, referred to as the "explicit method," is that hedging positions and their resulting cash flows are included in the stochastic cash-flow model used to determine the scenario reserve, as discussed in Section 3.D, for each scenario.
3. The fundamental characteristic of the second type of method, referred to as the "implicit method," is that the effectiveness of the current hedging strategy on future cash flows is evaluated, in part or in whole, outside of the stochastic cash-flow model. There are multiple

ways that this type of modeling can be implemented. In this case, the reduction to the SR otherwise calculated should be commensurate with the degree of effectiveness of the hedging strategy in reducing accumulated deficiencies otherwise calculated.

4. Regardless of the methodology used by the company, the ultimate effect of the current hedging strategy (including currently held hedge positions) on the SR needs to recognize all risks, associated costs, imperfections in the hedges and hedging mismatch tolerances associated with the hedging strategy. The risks include, but are not limited to: basis, gap, price, parameter estimation and variation in assumptions (mortality, persistency, withdrawal, annuitization, etc.). Costs include, but are not limited to: transaction, margin (opportunity costs associated with margin requirements) and administration. In addition, the reduction to the SR attributable to the hedging strategy may need to be limited due to the uncertainty associated with the company's ability to implement the hedging strategy in a timely and effective manner. The level of operational uncertainty varies indirectly with the amount of time that the new or revised strategy has been in effect.

Guidance Note: No hedging strategy is perfect. A given hedging strategy may eliminate or reduce some but not all risks, transform some risks into others, introduce new risks, or have other imperfections.

5. A safe harbor approach is permitted for reflection of future hedging strategies supporting the contracts for those companies whose modeled hedge assets comprise only linear instruments not sensitive to implied volatility. For companies with option-based hedge strategies, electing this approach would require representing the option-based portion of the strategy as a delta-rho two-Greek hedge program. The normally modeled option portfolio would be replaced with a set of linear instruments that have the same first-order Greeks as the original option portfolio.

C. Calculation of SR (Reported)

1. The company shall calculate CTE70 (best efforts)—the results obtained when the CTE70 is based on incorporating the future hedging strategies supporting the contracts (including both currently held and future hedge positions) into the stochastic cash-flow model on a best efforts basis, including all of the factors and assumptions needed to execute the future hedging strategies supporting the contracts (e.g., stochastic implied volatility). The determination of CTE70 (best efforts) may utilize either explicit or implicit modeling techniques.
2. The company shall calculate a CTE70 (adjusted) by recalculating the CTE70 assuming the company has no future hedging strategies supporting the contracts except those to hedge interest credits, therefore following the requirements of Section 4.A.4.a and 4.A.4.b.i.

However, for a company with a future hedging strategy supporting the contracts, existing hedging instruments that are currently held by the company in support of the contracts falling under the scope of these requirements may be considered in one of two ways for the CTE70 (adjusted):

- a) Include the asset cash flows from any contractual payments and maturity values in the projection model; or
- b) No hedge positions – in which case the hedge positions held on the valuation date are replaced with cash and/or other general account assets in an amount equal to the aggregate market value of these hedge positions.

Commented [VM22256R255]: Added edits to address

Deleted: and hedge assets held by the company on the valuation date

Guidance Note: If the hedge positions held on the valuation date are replaced with cash, then as with any other cash, such amounts may then be invested following the company’s investment strategy.

A company may switch from method a) to method b) at any time, but it may only change from b) to a) with the approval of the domiciliary commissioner.

3. Because most models will include at least some approximations or idealistic assumptions, CTE70 (best efforts) may overstate the impact of the hedging strategy. To compensate for potential overstatement of the impact of the hedging strategy, the value for the SR is given by:

$$SR = CTE70 \text{ (best efforts)} + E \times \max[0, CTE70 \text{ (adjusted)} - CTE70 \text{ (best efforts)}]$$

4. The company shall specify a value for *E* (the “error factor”) in the range from 5% to 100% to reflect the company’s view of the potential error resulting from the level of sophistication of the stochastic cash-flow model and its ability to properly reflect the parameters of the hedging strategy (i.e., the Greeks being covered by the strategy), as well as the associated costs, risks and benefits. The greater the ability of the stochastic model to capture all risks and uncertainties, the lower the value of *E*. The value of *E* may be as low as 5% only if the model used to determine the CTE70 (best efforts) effectively reflects all of the parameters used in the hedging strategy. If certain economic risks are not hedged, yet the model does not generate scenarios that sufficiently capture those risks, *E* must be in the higher end of the range, reflecting the greater likelihood of error. Likewise, simplistic hedge cash-flow models shall assume a higher likelihood of error.
5. The company shall conduct a formal back-test, based on an analysis of the available relevant period of data (but no less than 12 months), to assess how well the model is able to replicate the hedging strategy in a way that supports the determination of the value used for *E*.
6. Such a back-test shall involve one of the following analyses:

- a. For companies that model hedge cash flows directly (“explicit method”), replace the stochastic scenarios used in calculating the CTE70 (best efforts) with a single scenario that represents the market path that actually manifested over the selected back-testing period and compare the projected hedge asset gains and losses against the actual hedge asset gains and losses – both realized and unrealized – observed over the same time period. For this calculation, the model assumptions may be replaced with parameters that reflect actual experience during the back-testing period. In order to isolate the comparison between the modeled hedge results and actual hedge results for this calculation, the projected liabilities should accurately reflect the actual liabilities throughout the back-testing period; therefore, adjustments that facilitate this accuracy (e.g. reflecting actual experience instead of model assumptions, including new business, etc.) are permissible.

To support the choice of a low value of *E*, the company should ascertain that the projected hedge asset gains and losses are within close range of 100% (e.g., 80–125%) of the actual hedge asset gains and losses. The company may also support the choice of a low value of *E* by achieving a high R-squared (e.g., 0.80 or higher) when using a regression analysis technique.

- b. ~~Companies~~ that model hedge cash flows implicitly by quantifying the cost and benefit of hedging using the fair value of the hedged item (an “implicit method” or

Commented [A257]: ACU: Recommend getting rid of "for" and starting the sentence with "Companies that model..."

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“cost of reinsurance method”), **should** calculate the delta, rho and vega coverage ratios in each month over the selected back-testing period in the following manner:

- i. Determine the hedge asset gains and losses—both realized and unrealized—incurred over the month attributable to equity, interest rate, and implied volatility movements.
 - ii. Determine the change in the fair value of the hedged item over the month attributable to equity, interest rate, and implied volatility movements. The hedged item should be defined in a manner that reflects the proportion of risks hedged (e.g., if a company elects to hedge 50% of a contract’s market risks, it should quantify the fair value of the hedged item as 50% of the fair value of the contract).
 - iii. Calculate the delta coverage ratio as the ratio between (i) and (ii) attributable to equity movements.
 - iv. Calculate the rho coverage ratio as the ratio between (i) and (ii) attributable to interest rate movements.
 - v. Calculate the vega coverage ratio as the ratio between (i) and (ii) attributable to implied volatility movements.
 - vi. To support the company’s choice of a low value of E, the company should be able to demonstrate that the delta and rho coverage ratios are both within close range of 100 % (e.g., 80–125%) consistently across the back-testing period.
 - vii. In addition, the company should be able to demonstrate that the vega coverage ratio is within close range of 100 % in order to use the prevailing implied volatility levels as of the valuation date in quantifying the fair value of the hedged item for the purpose of calculating CTE70 (best efforts). Otherwise, the company shall quantify the fair value of the hedged item for the purpose of calculating CTE70 (best efforts) in a manner consistent with the realized volatility of the scenarios captured in the CTE (best efforts).
- c. Companies that do not model hedge cash flows explicitly, but that also do not use the implicit method as outlined in Section 9.C.6.b above, shall conduct the formal back-test in a manner that allows the company to clearly illustrate the appropriateness of the selected method for reflecting the cost and benefit of hedging, as well as the value used for E.

7. A company that does not have 12 months of experience to date shall set E to a value that reflects the amount of experience available, and the degree and nature of any change to the hedge program. For a material change in strategy, with less than 12 months of experience and without robust mock testing, E should be 1.0. **For a material change in strategy, with less than 3 months of history, E should be 1.0. However, when a material change in hedging strategy with less than 3 months history is the introduction of hedging for a newly introduced product or newly acquired block of business and is supplemented by robust mock testing, E should instead be at least 0.3.** Moreover, with prior approval from the domestic regulator, material changes in hedge strategy with less than 3 months history but with robust mock testing may have error factors less than 1.0, though still subject to the minimum error factor specified in Section 9.C.4 and with an appropriate prudent estimate to account for additional uncertainty in anticipated hedging experience beyond that of a

Commented [A259]: ACLI: Recommend getting rid of the comma and changing this to “..should calculate the delta...”

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robust hedging program already in existence. E may also be lower than 1.0 if the change in strategy is a minor refinement rather than a material change in strategy, though still subject to the minimum error factor specified in Section 9.C.4 and with an appropriate prudent estimate to account for any additional uncertainty associated with the refinement.

Commented [CC265]: VM-21 has "E may also be"

Commented [VM22266R265]: Edits added to address

The following examples are provided as guidance for determining the E factor when there has been a change to the hedge program:

Commented [CC267]: VM-21 also has a sentence following: "These examples are not intended to be exhaustive..." Should this sentence be added?

- The error factor should be temporarily 100% for substantial changes in hedge methodology (e.g., moving from a fair-value based strategy to a stop-loss strategy) without robust mock-testing.
- An increase in the error factor may not always be needed for minor refinements to the hedge strategy (e.g., moving from swaps to Treasury futures).

8. The company shall set the value of E reflecting the extent to which the future hedging program is clearly defined. To support a value of E below 1.0, there should be very robust documentation outlining the future hedging strategies. To the extent that documentation outlining any of the future hedging strategies is incomplete, the value of E shall be increased. In particular, the value of E shall be 1.0 if documentation is materially incomplete for any of the individual CDHS attributes (a) through (j), as listed in VM-01.

Any increases required to the value of E to reflect that documentation is not available to support that the future hedging strategies are clearly defined shall be in addition to increases to the value of E to reflect a lack of historical experience or to reflect the back-testing results, subject to an overall ceiling of 1.0 for E.

Guidance Note: Companies must use judgment both in determining an E factor and in applying this requirement in the case where there are multiple future hedging strategies, particularly where some may be CDHS and some may not be CDHS. In this case, the SR should be ensured to be no less than the CTE(70) reflecting the future hedging strategies that are CDHS and not reflecting those that are not CDHS. Companies with multiple future hedging strategies with very different levels of effectiveness or with multiple future hedging strategies that include both CDHS and non-CDHS should discuss with their domestic regulator.

D. Additional Considerations for CTE70 (best efforts)

Commented [A268]: ACLI: This should be section "D"

Commented [VM22269R268]: Edits added to address

Commented [CC270]: s/b Subsection D.

Commented [VM22271R270]: Edits added to address

If the company is following one or more future hedging strategies supporting the contracts, the fair value of the portfolio of contracts falling within the scope of these requirements shall be computed and compared to the CTE70 (best efforts) and CTE70 (adjusted). If the CTE70 (best efforts) is below both the fair value and CTE70 (adjusted), the company should be prepared to explain why that result is reasonable.

For the purposes of this analysis, the SR and fair value calculations shall be done without requiring the scenario reserve for any given scenario to be equal to or in excess of the cash surrender value in aggregate for the group of contracts modeled in the projection.

E. Specific Considerations and Requirements

Commented [A272]: ACLI: This should be section "E"

Commented [VM22273R272]: Edits added to address

Commented [CC274]: s/b Subsection E.

Commented [VM22275R274]: Edits added to address

1. As part of the process of choosing a methodology and assumptions for estimating the future effectiveness of the current hedging strategy (including currently held hedge positions) for

purposes of reducing the SR, the company should review actual historical hedging effectiveness. The company shall evaluate the appropriateness of the assumptions on future trading, transaction costs, other elements of the model, the strategy, the mix of business and other items that are likely to result in materially adverse results. This includes an analysis of model assumptions that, when combined with the reliance on the hedging strategy, are likely to result in adverse results relative to those modeled. The parameters and assumptions shall be adjusted (based on testing contingent on the strategy used and other assumptions) to levels that fully reflect the risk based on historical ranges and foreseeable future ranges of the assumptions and parameters. If this is not possible by parameter adjustment, the model shall be modified to reflect them at either anticipated experience or adverse estimates of the parameters.

2. A discontinuous hedging strategy is a hedging strategy where the relationships between the sensitivities to equity markets and interest rates (commonly referred to as the Greeks) associated with the guaranteed contract holder options embedded in the non-variable annuities and other in-scope products and these same sensitivities associated with the hedging assets are subject to material discontinuities. This includes, but is not limited to, a hedging strategy where material hedging assets will be obtained when the non-variable annuity and other in-scope products account balances reach a predetermined level in relationship to the guarantees. Any hedging strategy can be a discontinuous hedging strategy if implementation of the strategy permits material discontinuities between the sensitivities to equity markets and interest rates associated with the guaranteed contract holder options embedded in the non-variable annuities and other in-scope products and these same sensitivities associated with the hedging assets. There may be scenarios that are particularly costly to discontinuous hedging strategies, especially where those result in large discontinuous changes in sensitivities (Greeks) associated with the hedging assets. Where discontinuous hedging strategies contribute materially to a reduction in the SR, the company must evaluate the interaction of future trigger definitions and the discontinuous hedging strategy, in addition to the items mentioned in the previous paragraph. This includes an analysis of model assumptions that, when combined with the reliance on the discontinuous hedging strategy, may result in adverse results relative to those modeled.
3. A strategy that has a strong dependence on acquiring hedging assets at specific times that depend on specific values of an index or other market indicators may not be implemented as precisely as planned.
4. The combination of elements of the stochastic cash-flow model—including the initial actual market asset prices, prices for trading at future dates, transaction costs and other assumptions—should be analyzed by the company as to whether the stochastic cash-flow model permits hedging strategies that make money in some scenarios without losing a reasonable amount in some other scenarios. This includes, but is not limited to:
 - a. Hedging strategies with no initial investment that never lose money in any scenario and in some scenarios make money.
 - b. Hedging strategies that, with a given amount of initial money, never make less than accumulation at the one-period risk-free rates in any scenario but make more than this in one or more scenarios.
5. If the stochastic cash-flow model allows for such situations, the company should be satisfied that the results do not materially rely directly or indirectly on the use of such strategies. If the results do materially rely directly or indirectly on the use of such strategies, the strategies may not be used to reduce the SR otherwise calculated.

6. In addition to the above, the method used to determine prices of financial instruments for trading in scenarios should be compared to actual initial market prices. In addition to comparisons to initial market prices, there should be testing of the pricing models that are used to determine subsequent prices when scenarios involve trading financial instruments. This testing should consider historical relationships. For example, if a method is used where recent volatility in the scenario is one of the determinants of prices for trading in that scenario, then that model should approximate actual historic prices in similar circumstances in history.
7. The company may also consider historical experience for similar current or past hedging programs on similar products to support the error factor determined for the projection.

Section 10: Guidance and Requirements for Setting Contract Holder Behavior Prudent Estimate Assumptions

A. General

Contract holder behavior assumptions encompass actions such as lapses, withdrawals, transfers, recurring deposits, benefit utilization, option election, etc. Contract holder behavior is difficult to predict accurately, and variance in behavior assumptions can significantly affect the reserves level. In the absence of relevant and fully credible empirical data, the company should set behavior assumptions as guided by Principle 3 in Section 1.B and by Section 12.

In setting behavior assumptions, the company should examine, but not be limited by, the following considerations:

1. Behavior can vary by product, market, distribution channel, index performance, interest credited (current and guaranteed rates), time/product duration, etc.
2. Options embedded in the product may affect behavior.
3. Utilization of options may be elective or non-elective in nature. Living benefits often are elective, and death benefit options are generally non-elective.
4. Elective contract holder options may be more driven by economic conditions than non-elective options.
5. As the value of a product option increases, there is an increased likelihood that contract holders will behave in a manner that maximizes their financial interest (e.g., lower lapses, higher benefit utilization, etc.).
6. Behavior formulas may have both rational and irrational components (irrational behavior is defined as situations where some contract holders may not always act in their best financial interest). The rational component should be dynamic, but the concept of rationality need not be interpreted in strict financial terms and might change over time in response to observed trends in contract holder behavior based on increased or decreased financial efficiency in exercising their contractual options.
7. Options that are ancillary to the primary product features may or may not be significant drivers of behavior. Whether an option is ancillary to the primary product features depends on many considerations, such as:
 - a. The purpose for which the product was purchased.
 - b. Whether the option is elective or non-elective.
 - c. Whether the value of the option is well-known.
8. External influences may affect behavior.

B. Aggregate vs. Individual Margins

1. Prudent estimate assumptions are developed by applying a margin for uncertainty to the anticipated experience assumption. The issue of whether the level of the margin applied to the anticipated experience assumption is determined in aggregate or independently for each and every behavior assumption is discussed in Principle 3 in Section 1.B.

Commented [A276]: ACU: Think this should say "and by Section 12" in order to make it clear that Principle 3 refers only to section 1.B.

Commented [VM22277R276]: Edits added to address

Commented [A278]: ACU: "product was purchased"

Commented [VM22279R278]: Edits added to address

Commented [CC280]: s/b "product was purchased"

Commented [VM22281R280]: Edits added to address

Commented [A282]: ACU: "option is"

Commented [VM22283R282]: Edits added to address

Commented [CC284]: s/b "option is elective"

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2. Although this principle discusses the concept of determining the level of margins in aggregate, it notes that the application of this concept shall be guided by evolving practice and expanding knowledge. From a practical standpoint, it may not always be possible to completely apply this concept to determine the level of margins in aggregate for all behavior assumptions.
3. Therefore, the company shall determine prudent estimate assumptions independently for each behavior (e.g., mortality, lapses and benefit utilization), using the requirements and guidance in this section and throughout these requirements, unless the company can demonstrate that an appropriate method was used to determine the level of margin in aggregate for two or more material behavior assumptions, if relevant to the risks in the product, and thus the approach will not understate the reserve.

C. Sensitivity Testing

The impact of behavior can vary by product, time period, etc. For any assumption that is not prescribed or stochastically modeled, the company shall use sensitivity testing to ensure that the assumption is set at the conservative end of the plausible range. The company shall sensitivity test:

- Surrenders.
- Partial withdrawals.
- Benefit utilization.
- Account transfers.
- Future deposits.
- Other behavior assumptions if relevant to the risks in the product.

Sensitivity testing of assumptions is required and shall be more appropriately reflective of the risk of adverse deviations from the baseline assumption. For example, a base lapse assumption plus or minus X% across all contracts may not achieve this objective. A more appropriate sensitivity test in this example might be to devise parameters in a dynamic lapse formula to reflect more out-of-the-money contracts lapsing and/or more holders of in-the-money contracts persisting and eventually using the guarantee. The company should apply more caution in setting assumptions for behaviors where testing suggests that stochastic modeling results are sensitive to small changes in such assumptions. For such sensitive behaviors, the company shall use higher margins when the underlying experience is less than fully relevant and credible.

The company shall examine the results of sensitivity testing to understand the materiality of prudent estimate assumptions on the modeled reserve. The company shall update the sensitivity tests periodically as appropriate, considering the materiality of the results of the tests. The company may update the tests less frequently (but no less than every 3 years) when the tests show less sensitivity of the modeled reserve to changes in the assumptions being tested or the experience is not changing rapidly. Providing there is no material impact on the results of the sensitivity testing, the company may perform sensitivity testing:

1. Using samples of the contracts in force rather than performing the entire valuation for each alternative assumption set.

Commented [A286]: ACI: Section 10.C and Section 12: Sections should be updated to reflect materiality language consistent with language adopted in APF 2021-11, if applicable. The list of assumptions should be updated to better reflect the material assumptions for fixed annuities; for example, remove account transfers and future deposits.

Commented [A287]: Academy: There appears to be an inconsistency with Section 10.D.2.a. Account transfers are required to be sensitivity tested yet they "might be ignored." The ARCWG suggest either eliminating the sensitivity requirement or changing the language in Section 10.D.2.a.

Commented [VM22288R287]: Edits added to address

Commented [A289]: Academy: The ARCWG proposes changes in this paragraph as complexity is not necessarily the goal of the sensitivity.

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2. Using data from prior periods.

D. Specific Considerations and Requirements

1. Within materiality considerations, the company should consider all relevant forms of contract holder behavior and persistency, including, but not limited to, the following:
 - a. Mortality (additional guidance and requirements regarding mortality is contained in Section 11).
 - b. Surrenders.
 - c. Partial withdrawals (systematic and elective).
 - d. Account transfers (switching/exchanges).
 - e. Resets/ratchets of the guaranteed amounts (automatic and elective).
 - f. Future deposits.
 - g. Income start date for the benefit utilization.
 - h. Commutation of benefit (from periodic payment to lump sum or vice versa.)

2. However, the company should exercise caution in assuming that current behavior will be indefinitely maintained. For example, it might be appropriate to test the impact of a shifting asset mix and/or consider future deposits to the extent they can reasonably be anticipated and increase the calculated amounts.

3. Normally, the underlying model assumptions would differ according to the attributes of the contract being valued. This would typically mean that contract holder behavior and persistency may be expected to vary according to such characteristics as (this is not an exhaustive list):

- a. Gender.
- b. Attained age.
- c. Issue age.
- d. Contract duration.
- e. Time to maturity.
- f. Tax status.
- g. Account value.
- h. Interest credited (current and guaranteed).
- i. Available indices.
- j. Guaranteed benefit amounts.
- k. Surrender charges, transaction fees or other contract charges.

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Deleted: . It may be acceptable to ignore certain items that might otherwise be explicitly modeled in an ideal world, particularly if the inclusion of such items reduces the calculated provisions. ¶
 For example:¶
 a. The impact of account transfers (intra-contract index “switching”) might be ignored, unless required under the terms of the contract (e.g., automatic re-allocation/rebalancing,) or if the contract provisions incentivize the contract holders to transfer between accounts. ¶
 b. Future deposits might be excluded from the model, unless required by the terms of the contracts under consideration and then only in such cases where future premiums can reasonably be anticipated (e.g., with respect to timing and amount). ¶
 c. For some non-elective benefits (nursing home benefits for example), a zero incidence rate after the surrender charge has ended, or the cash value has depleted, may be acceptable since use of a non-zero rate could reduce the modeled reserve.¶

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I. Distribution channel.

4. Unless there is clear evidence to the contrary, behavior assumptions should be no less conservative than past experience. Margins for contract holder behavior assumptions shall assume, without relevant and credible experience or clear evidence to the contrary, that contract holders' efficiency will increase over time.

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Commented [A292]: ACLI: Should have a callout here for credibility and/or materiality. Possibly covered by the 'may' in #4 above.

5. In determining contract holder behavior assumptions, the company shall use actual experience data directly applicable to the business segment (i.e., direct data) if it is available. In the absence of direct data, the company should then look to use data from a segment that is similar to the business segment (i.e., other than direct experience), whether or not the segment is directly written by the company. If data from a similar business segment are used, the assumption shall be adjusted to reflect differences between the two segments. Margins shall reflect the data uncertainty associated with using data from a similar but not identical business segment.

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6. Where relevant and fully credible empirical data do not exist for a given contract holder behavior assumption, the company shall set the contract holder behavior assumption to reflect the increased uncertainty such that the contract holder behavior assumption is shifted towards the conservative end of the plausible range of expected experience that serves to increase the SR. If there are no relevant data, the company shall set the contract holder behavior assumption to reflect the increased uncertainty such that the contract holder behavior assumption is at the conservative end of the range. Such adjustments shall be consistent with the definition of prudent estimate, with the principles described in Section I.B, and with the guidance and requirements in this section.

Commented [A293]: ACLI: Why is "empirical" used here? I think this can be deleted for the sake of clarity.

Commented [VM22294R293]: To keep consistent with VM-21 for now, and since this is not a material item, will retain the same wording

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7. Ideally, contract holder behavior would be modeled dynamically according to the simulated economic environment and/or other conditions. It is important to note, however, that contract holder behavior should neither assume that all contract holders act with 100% efficiency in a financially rational manner nor assume that contract holders will always act irrationally. These extreme assumptions may be used for modeling efficiency if the result is more conservative.

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E. Dynamic Assumptions

1. Consistent with the concept of prudent estimate assumptions described earlier, the liability model should incorporate margins for uncertainty for all risk factors that are not stochastically modeled.
2. The company should exercise care in using static assumptions when it would be more appropriate to use a dynamic model or other scenario-dependent formulation for behavior. With due allowance for appropriate simplifications, approximations and modeling efficiency techniques, the use of dynamic models is encouraged, but not mandatory. Static assumptions that could reasonably be expected to vary according to a stochastic process, or future states of the world (especially in response to economic drivers), may require higher margins and/or signal a need for higher margins for certain other assumptions.
3. Risk factors that are modeled dynamically should encompass the plausible range of behavior consistent with the economic scenarios and other variables in the model, including the non-scenario tested assumptions. The company shall test the sensitivity of results to understand the materiality of making alternate assumptions and follow the guidance discussed above on setting assumptions for sensitive behaviors.

F. Consistency with the CTE Level

1. All behaviors (i.e., dynamic, formulaic and non-scenario tested) should be consistent with the scenarios used in the CTE calculations (generally, the top 30% of the loss distribution). To maintain such consistency, it is not necessary to iterate (i.e., successive runs of the model) in order to determine exactly which scenario results are included in the CTE measure. Rather, in light of the products being valued, the company should be mindful of the general characteristics of those scenarios likely to represent the tail of the loss distribution and consequently use prudent estimate assumptions for behavior that are reasonable and appropriate in such scenarios. For non-variable annuities, these “valuation” scenarios would typically display one or more of the following attributes:
 - a. Declining, increasing and/or volatile index values, where applicable.
 - b. Price gaps and/or liquidity constraints.
 - c. Volatile interest rates or persistently low interest rates.
2. The behavior assumptions should be logical and consistent both individually and in aggregate, especially in the scenarios that govern the results. In other words, the company should not set behavior assumptions in isolation, but give due consideration to other elements of the model. The interdependence of assumptions (particularly those governing customer behaviors) makes this task difficult and by definition requires professional judgment, but it is important that the model risk factors and assumptions:
 - a. Remain logically and internally consistent across the scenarios tested.
 - b. Represent plausible outcomes.
 - c. Lead to appropriate, but not excessive, asset requirements.
4. The company should remember that the continuum of “plausibility” should not be confined or constrained to the outcomes and events exhibited by historic experience.
5. Companies should attempt to track experience for all assumptions that materially affect their risk profiles by collecting and maintaining the data required to conduct credible and meaningful studies of contract holder behavior.

G. Additional Considerations and Requirements for Assumptions Applicable to Guaranteed Living Benefits

Experience for contracts without guaranteed living benefits may be of limited use in setting a lapse assumption for contracts with in-the-money or at-the-money guaranteed living benefits. Such experience may only be used if it is appropriate (e.g., lapse experience on contracts without a living benefit may have relevance to the early durations of contracts with living benefits) and relevant to the business.

H. Policy Loans

If policy loans are applicable for the block of business, the company shall determine cash flows for each projection interval for policy loan assets by modeling existing loan balances either explicitly or by substituting assets that are a proxy for policy loans (e.g., bonds, cash, etc.) subject to the following:

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1. If the company substitutes assets that are a proxy for policy loans, the company must demonstrate that such substitution:
 - a. Produces reserves that are no less than those that would be produced by modeling existing loan balances explicitly.
 - b. Complies with the contract holder behavior requirements stated in Section 10.A to Section 10.G above.
2. If the company models policy loans explicitly, the company shall:
 - a. Treat policy loan activity as an aspect of contract holder behavior and subject to the requirements above in this section.
 - b. Assign loan balances either to exactly match each contract's utilization or to reflect average utilization over a model segment or sub-segments if the results are materially similar.
 - c. Model policy loan interest in a manner consistent with contract provisions and with the scenario. Include interest paid in cash as a positive policy loan cash flow in that projection interval, but do not include interest added to the loan balance as a policy loan cash flow. (The increased balance will require increased repayment cash flows in future projection intervals.)
 - d. Model policy loan principal repayments, including those that occur automatically upon death or surrender. Include policy loan principal repayments as a positive policy loan cash flow, per Section 4.A.1.h.
 - e. Model policy loan principal. Include additional policy loan principal as a negative policy loan cash flow, per Section 4.A.1.h (but do not include interest added to the loan balance as a negative policy loan cash flow).
 - f. Model any investment expenses allocated to policy loans and include them either with negative policy loan cash flows or insurance expense cash flows.

I. Non-Guaranteed Elements

Consistent with the definition in VM-01, Non-Guaranteed Elements (NGEs) are elements within a contract that affect contract costs or values and are not guaranteed or not determined at issue. NGEs consist of elements affecting contract holder costs or values that are both established and subject to change at the discretion of the insurer.

Examples of NGEs specific to non-variable annuities include but are not limited to the following: the credited rates on fixed accounts, index parameters (caps, spreads, participation rates, etc.), rider fees, rider benefit features being subject to change (rollup rates, rollup period, etc.), account value charges, and dividends under participating policies or contracts.

1. Except as noted below in Section 10.I.5, the company shall include NGE in the models to project future cash flows beyond the time the company has authorized their payment or crediting.
2. The projected NGE shall reflect factors that include, but are not limited to, the following (not all of these factors will necessarily be present in all situations):

- a. The nature of contractual guarantees.
 - b. The company's past NGE practices and established NGE policies.
 - c. The timing of any change in NGE relative to the date of recognition of a change in experience.
 - d. The benefits and risks to the company of continuing to authorize NGE.
3. Projected NGE shall be established based on projected experience consistent with how actual NGE are determined.
 4. Projected levels of NGE in the cash-flow model must be consistent with the experience assumptions used in each scenario. Contract holder behavior assumptions in the model must be consistent with the NGE assumed in the model.
 5. The company may exclude any portion of an NGE that is not based on some aspect of the contract's experience.
 6. However, if the board has guaranteed a portion of the NGE into the future, the company must model that amount. In other words, the company cannot exclude from its model any NGE that the board has guaranteed for future years, even if it could have otherwise excluded them, based on this subsection.

Drafting Note: Comments are sought for any insight into whether authorization from the board or documentation should be considered in allowing exclusion of NGEs.

7. The liability for contract holder dividends declared but not yet paid that has been established according to statutory accounting principles as of the valuation date is reported separately from the statutory reserve. The contract holder dividends that give rise to this dividend liability as of the valuation date may or may not be included in the cash-flow model at the company's option.
 - a. If the contract holder dividends that give rise to the dividend liability are not included in the cash-flow model, then no adjustment is needed to the resulting SR.
 - b. If the contract holder dividends that give rise to the dividend liability are included in the cash-flow model, then the resulting SR should be reduced by the amount of the dividend liability.
8. All projected cash flows associated with NGEs shall reflect margins for adverse deviations and estimation error in prudent estimate assumptions.

Section 11: Guidance and Requirements for Setting Prudent Estimate Mortality Assumptions

A. Overview

1. Intent

The guidance and requirements in this section apply to setting prudent estimate mortality assumptions when determining the SR. The intent is for prudent estimate mortality assumptions to be based on facts, circumstances and appropriate actuarial practice.

2. Description

Prudent estimate mortality assumptions shall be determined by first developing expected mortality curves based on either available experience or published tables. Where necessary, margins shall be applied to the experience to reflect data uncertainty. The expected mortality curves shall then be adjusted based on the credibility of the experience used to determine the expected mortality curve. Section 11.B addresses guidance and requirements for determining expected mortality curves, and Section 11.C addresses guidance and requirements for adjusting the expected mortality curves to determine prudent estimate mortality.

Finally, the credibility-adjusted tables shall be adjusted for mortality improvement (where such adjustment is permitted or required) using the guidance and requirements in Section 11.D.

3. Business Segments

For purposes of setting prudent estimate mortality assumptions, the products falling under the scope of these requirements shall be grouped into business segments with different mortality assumptions. The grouping, at a minimum, should differentiate between payout annuities or deferred annuity contracts that contain GLBs, and deferred annuity contracts with no guaranteed benefits or only GMDBs. Where appropriate, the grouping should also differentiate between segments which are known or expected to contain contract holders with sociodemographic, geographic, or health factors reasonably expected to impact the mortality assumptions for the segment (e.g., annuitants drawn from different countries, geographic areas, industry groups, or impaired lives on individually underwritten contracts such as structured settlements). The grouping should also generally follow the pricing, marketing, management and/or reinsurance programs of the company.

Guidance Note: This paragraph contemplates situations where it may be appropriate to differentiate mortality assumptions by segment or even by contract due to varying sociodemographic, geographic, or health factors. Particularly, though not exclusively, in the context of group payout annuity contracts, companies may have credible, contract-specific mortality experience data or relevant pooled data from annuitants drawn from similar industries or geographies that may be used to sub-divide inforce blocks into business segments for purposes of setting prudent estimate mortality assumptions.

For example, a company may sell group PRT contracts both to union plans in the U.S. and to private single-employer plans in another country. While both are “PRT contracts,” it would be appropriate to differentiate them for mortality assumption purposes, similar to how payout annuities vs. deferred annuities are distinguished.

4. Margin for Data Uncertainty

The expected mortality curves that are determined in Section 11.B may need to include a margin for data uncertainty. The margin could be in the form of an increase or a decrease in mortality, depending on the business segment under consideration. The margin shall be applied in a direction (i.e., increase or decrease in mortality) that results in a higher reserve. A sensitivity test may be needed to determine the appropriate direction of the provision for uncertainty to mortality. The test could be a prior year mortality sensitivity analysis of the business segment or an examination of current representative cells of the segment.

For purposes of this section, if mortality must be increased (decreased) to provide for uncertainty, the business segment is referred to as a mortality (longevity) segment.

It may be necessary, because of a change in the mortality risk profile of the segment, to reclassify a business segment from a mortality (longevity) segment to a longevity (mortality) segment to the extent compliance with this section requires such a reclassification.

B. Determination of Expected Mortality Curves

1. Experience Data

In determining expected mortality curves, the company shall use actual experience data directly applicable to the business segment (i.e., direct data) if it is available. In the absence of direct data, the company should then look to use data from a segment that is similar to the business segment (i.e., other than direct experience). See Section 11.B.2 for additional considerations. Finally, if there is no data, the company shall use the applicable table, as required in Section 11.B.3.

2. Data Other Than Direct Experience

Adjustments shall be applied to the data to reflect differences between the business segments, and margins shall be applied to the adjusted expected mortality curves to reflect the data uncertainty associated with using data from a similar but not identical business segment.

To the extent the mortality of a business segment is reinsured, any mortality charges that are consistent with the company's own pricing and applicable to a substantial portion of the mortality risk also may be a reasonable starting point for the determination of the company's expected mortality curves.

3. Little or No Data Requirements

- i. When little or no experience or information is available on a business segment, the company shall use expected mortality curves that would produce expected deaths no less than:

[2021 SOA Deferred Annuity Mortality Table] with [Projection Scale G2] for individual deferred annuities that do not contain guaranteed living benefits

$$q_x^{20XX+n} = q_x^{20XX}(1 - G2_x)^n$$

Commented [CC295]: should this table be in VM-M?
Commented [VM22296R295]: Not yet – will be determined upon settling the standard projection amount calculation, in which case it would need to be added to VM-M in the future

ii. When little or no experience or information is available on a business segment, the company shall use expected mortality curves that would produce expected deaths no greater than:

- a. [The appropriate percentage (F_x) from Table 11.1 applied to the 2012 IAM Basic Mortality Table] with [Projection Scale G2] for individual payout annuity contracts and deferred annuity contracts with guaranteed living benefits

$$q_x^{2012+n} = q_x^{2012}(1 - G2_x)^n * F_x$$

- b. [1983 Table "a"] for structured settlements or other contracts with impaired mortality

- c. [1994 GAR Table] with [Projection Scale AA] for group annuities

$$q_x^{1994+n} = q_x^{1994}(1 - AA_x)^n$$

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Commented [VM22298R297]: Not yet – will be determined upon settling the standard projection amount calculation, in which case it would need to be added to VM-M in the future

Commented [CC299]: should this table be in VM-M?

Commented [VM22300R299]: Not yet – will be determined upon settling the standard projection amount calculation, in which case it would need to be added to VM-M in the future

Table 11.1

Attained Age (x)	F_x
<=65	80.0%
66	81.5%
67	83.0%
68	84.5%
69	86.0%
70	87.5%
71	89.0%
72	90.5%
73	92.0%
74	93.5%
75	95.0%
76	96.5%
77	98.0%
78	99.5%
79	101.0%
80	102.5%
81	104.0%
82	105.5%
83	107.0%
84	108.5%
85	110.0%
86	110.0%
87	110.0%
88	110.0%
89	110.0%
90	110.0%

91	110.0%	
92	110.0%	
93	110.0%	
94	110.0%	
95	110.0%	
96	109.0%	
97	108.0%	
98	107.0%	
99	106.0%	
100	105.0%	
101	104.0%	
102	103.0%	
103	102.0%	
104	101.0%	
>=105	100.0%	

iii. For a business segment with non-U.S. insureds, when little or no experience or information is available on a business segment, an established industry or national mortality table and mortality improvement scale may be used, with approval from the domiciliary commissioner.

4. Additional Considerations Involving Data

The following considerations shall apply to mortality data specific to the business segment for which assumptions are being determined (i.e., direct data discussed in Section 11.B.1 or other than direct data discussed in Section 11.B.2).

a. Underreporting of Deaths

Mortality data shall be examined for possible underreporting of deaths. Adjustments shall be made to the data if there is any evidence of underreporting. Alternatively, exposure by lives or amounts on contracts for which death benefits were in the money may be used to determine expected mortality curves. Underreporting on such exposures should be minimal; however, this reduced subset of data will have less credibility.

b. Experience by Contract Duration

Experience of a ~~mortality~~ segment shall be examined to determine if mortality by contract duration increases materially due to selection at issue. In the absence of information, the company shall assume that expected mortality will increase by contract duration for an appropriate select period. As an alternative, if the company determines that mortality is affected by selection, the company could apply margins to the expected mortality in such a way that the actual mortality modeled does not depend on contract duration.

c. Modification and Relevance of Data

Even for a large company, the quantity of life exposures and deaths are such that a significant amount of smoothing may be required to determine expected mortality curves from mortality experience. Expected mortality curves, when applied to the recent historic exposures (e.g., three to seven years), should not

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result in an estimate of aggregate number of deaths less (greater) than the actual number deaths during the exposure period for ~~mortality (longevity)~~ segments.

In determining expected mortality curves (and the credibility of the underlying data), older data may no longer be relevant. The “age” of the experience data used to determine expected mortality curves should be documented.

d. Other Considerations

In determining expected mortality curves, consideration should be given to factors that include, but are not limited to, trends in mortality experience, trends in exposure, volatility in year-to-year A/E mortality ratios, mortality by lives relative to mortality by amounts, changes in the mix of business and product features that could lead to mortality selection.

C. Adjustment for Credibility to Determine Prudent Estimate Mortality

1. Adjustment for Credibility

The expected mortality curves determined in Section 11.B shall be adjusted based on the credibility of the experience used to determine the curves in order to arrive at prudent estimate mortality. The adjustment for credibility shall result in blending the expected mortality curves including margins for uncertainty with the mortality assumptions described in Section 11.B.3. The approach used to adjust the curves shall suitably account for credibility.

Guidance Note: For example, when credibility is zero, an appropriate approach should result in a mortality assumption consistent with 100% of the industry mortality assumption described in Section 11.B.3 used in the blending.

2. Adjustment of Industry Mortality for Improvement

For purposes of the adjustment for credibility, the industry mortality table for a ~~mortality~~ segment may be and the industry mortality table for a ~~longevity~~ segment must be adjusted for mortality improvement. Such adjustment shall reflect the mortality improvement scale described in Section 11.B.3 from the effective date of the respective industry mortality table to the experience weighted average date underlying the data used to develop the expected mortality curves.

3. Credibility Procedure

The credibility procedure used shall:

- a. Produce results that are reasonable.
- b. Not tend to bias the results in any material way.
- c. Be practical to implement.
- d. Give consideration to the need to balance responsiveness and stability.
- e. Take into account not only the level of aggregate claims but the shape of the mortality curve.

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- f. Contain criteria for full credibility and partial credibility that have a sound statistical basis and be appropriately applied.
4. Further Adjustment of the Credibility-Adjusted Table for Mortality Improvement

The credibility-adjusted table used for ~~mortality~~ segments may be and the credibility adjusted table used for ~~longevity~~ segments ~~must be adjusted for mortality improvement~~ using the applicable mortality improvement scale described in Section 11.B.3 from the experience weighted average date underlying the company experience used in the credibility process to the valuation date.

Any adjustment for mortality improvement beyond the valuation date is discussed in Section 11.D.

D. Future Mortality Improvement

The mortality assumption resulting from the requirements of Section 11.C shall be adjusted for mortality improvements beyond the valuation date if such an adjustment would serve to increase the resulting SR. If such an adjustment would reduce the SR, such assumptions are permitted, but not required. In either case, the assumption must be based on current relevant data with a margin for uncertainty (increasing assumed rates of improvement if that results in a higher reserve or reducing them otherwise).

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Section 12: Other Guidance and Requirements for Assumptions

A. Overview

This section provides guidance and requirements in general for setting prudent estimate assumptions when determining either the SR or DR. It also provides specific guidance and requirements for expense assumptions.

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B. General Assumption Requirements

1. The company shall use prudent estimate assumptions for risk factors that are not stochastically modeled by applying margins to the anticipated experience assumptions if such risk factors have been categorized as material risks by following Section 1.B Principle 3 and requirements in Section 12.C.
2. The company shall establish the prudent estimate assumptions for risk factors in compliance with the requirements in Section 12 of Model #820 and must periodically review and update the assumptions as appropriate in accordance with these requirements.
3. The company shall model the following risk factors stochastically unless the company elects the stochastic exclusion test defined in Section 7:
 - a. Interest rate movements (i.e., Treasury interest rate curves).
 - b. Equity performance (e.g., Standard & Poor's 500 index [S&P 500] returns and returns of other equity investments).
4. If the company elects to stochastically model risk factors in addition to the economic scenarios, the requirements in this section for determining prudent estimate assumptions for these risk factors do not apply.

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It is expected that companies will not stochastically model risk factors other than the economic scenarios, such as contract holder behavior or mortality, until VM-22 has more specific guidance and requirements available. Companies shall discuss with domiciliary regulators if they wish to stochastically model other risk factors.

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5. The company shall use its own experience, if relevant and credible, to establish an anticipated experience assumption for any risk factor. To the extent that company experience is not available or credible, the company may use industry experience or other data to establish the anticipated experience assumption, making modifications as needed to reflect the circumstances of the company.
 - a. For risk factors (such as mortality) to which statistical credibility theory may be appropriately applied, the company shall establish anticipated experience assumptions for the risk factor by combining relevant company experience with industry experience data, tables or other applicable data in a manner that is consistent with credibility theory and accepted actuarial practice.
 - b. For risk factors (such as utilization of guaranteed living benefits) that do not lend themselves to the use of statistical credibility theory, and for risk

factors (such as some of the lapse assumptions) to which statistical credibility theory can be appropriately applied but cannot currently be applied due to lack of industry data, the company shall establish anticipated experience assumptions in a manner that is consistent with accepted actuarial practice and that reflects any available relevant company experience, any available relevant industry experience, or any other experience data that are available and relevant. Such techniques include:

- i. Adopting standard assumptions published by professional, industry or regulatory organizations to the extent they reflect any available relevant company experience or reasonable expectations.
 - ii. Applying factors to relevant industry experience tables or other relevant data to reflect any available relevant company experience and differences in expected experience from that underlying the base tables or data due to differences between the risk characteristics of the company experience and the risk characteristics of the experience underlying the base tables or data.
 - iii. Blending any available relevant company experience with any available relevant industry experience and/or other applicable data using weightings established in a manner that is consistent with accepted actuarial practice and that reflects the risk characteristics of the underlying contracts and/or company practices.
- c. For risk factors that have limited or no experience or other applicable data to draw upon, the assumptions shall be established using sound actuarial judgment and the most relevant data available, if such data exists. _____
 - d. For any assumption that is set in accordance with the requirements of Section 12.B.5.c, the qualified actuary to whom responsibility for this group of contracts is assigned shall use sensitivity testing and disclose the analysis performed to ensure that the assumption is set at the conservative end of the plausible range.
 - e. The qualified actuary, to whom responsibility for this group of contracts is assigned, shall annually review relevant emerging experience for the purpose of assessing the appropriateness of the anticipated experience assumption. If the results of statistical or other testing indicate that previously anticipated experience for a given factor is inadequate, then the qualified actuary shall set a new, adequate, anticipated experience assumption for the factor.
6. The company shall sensitivity test material risk factors that are not stochastically modeled and examine the impact on the stochastic reserve. The company shall update the sensitivity tests periodically as appropriate. The company may update the tests less frequently, but no less than every 3 years, when the tests show less sensitivity of the stochastic reserve to changes in the assumptions being tested or the experience is not changing rapidly. Providing there is no material impact on the results of the sensitivity testing, the company may perform sensitivity testing:

- a. Using samples of the contracts in force rather than performing the entire valuation for each alternative assumption set.
- b. Using data from prior periods.

Guidance Note: Sensitivity testing every risk factor on an annual basis is not required. For some risk factors, it may be reasonable, in lieu of sensitivity testing, to employ statistical measures for margins, such as adding one or more standard deviations to the anticipated experience assumption.

- 7. The company shall vary the prudent estimate assumptions from scenario to scenario within the stochastic reserve calculation in an appropriate manner to reflect the scenario-dependent risks.

C. Assumption Margins

The company shall include margins to provide for adverse deviations and estimation error in the prudent estimate assumptions for ~~all risk factors that are not stochastically modeled or prescribed~~, subject to the following:

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- 1. The level of margin applied to the anticipated experience assumptions may be determined in aggregate or independently as discussed in Section 1.B Principle 3. It is not permissible to set a margin less toward the conservative end of the spectrum to recognize, in whole or in part, implicit or prescribed margins that are present, or are believed to be present, in other risk factors.

Risks that are stochastically modeled (e.g., interest rates, equity returns) or have prescribed margins or guardrails (e.g., assets, revenue sharing) shall be considered material risks. Other risks generally considered to be material include, but are not limited to, mortality, contract holder behavior, maintenance and overhead expenses, inflation and implied volatility. In some cases, the list of material risks may also include acquisition expenses, partial withdrawals, policy loans, annuitizations, account transfers and deposits, and/or option elections that contain an element of anti-selection.

- 2. The greater the uncertainty in the anticipated experience assumption, the larger the required margin, with the margin added or subtracted as needed to produce a larger ~~Sr or DR than would otherwise result~~. For example, the company shall use a larger margin when:

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- a. The experience data have less relevance or lower credibility.
- b. The experience data are of lower quality, such as incomplete, internally inconsistent or not current.
- c. There is doubt about the reliability of the anticipated experience assumption, such as, but not limited to, recent changes in circumstances or changes in company policies.
- d. There are constraints in the modeling that limit an effective reflection of the risk factor.

- 3. In complying with the sensitivity testing requirements in Section 12.B.6 above, greater analysis and more detailed justification are needed to determine the level

of uncertainty when establishing margins for risk factors that produce greater sensitivity on the stochastic reserve.

4. A margin is permitted but not required for assumptions that do not represent material risks.
5. A margin should reflect the magnitude of fluctuations in historical experience of the company for the risk factor, as appropriate.
6. The company shall apply the method used to determine the margin consistently on each valuation date but is permitted to change the method from the prior year if the rationale for the change and the impact on the stochastic reserve is disclosed.

D. Expense Assumptions

1. General Prudent Estimate Expense Assumption Requirements

In determining prudent estimate expense assumptions, the company:

- a. May spread certain information technology development costs and other capital expenditures over a reasonable number of years in accordance with accepted statutory accounting principles as defined in the Statements of Statutory Accounting Principles.

Guidance Note: Care should be taken with regard to the potential interaction with the inflation assumption below.

- b. Shall assume that the company is a going concern.
- c. Shall choose an appropriate expense basis that properly aligns the actual expense to the assumption. If values are not significant, they may be aggregated into a different base assumption.

Guidance Note: For example, death benefit expenses should be modeled with an expense assumption that is per death incurred.

- d. Shall reflect the impact of inflation.
- e. Shall not assume future expense improvements.
- f. Shall not include assumptions for federal income taxes (and expenses paid to provide fraternal benefits in lieu of federal income taxes) and foreign income taxes.
- g. Shall use assumptions that are consistent with other related assumptions.
- h. Shall use fully allocated expenses.

Guidance Note: Expense assumptions should reflect the direct costs associated with the block of contracts being modeled, as well as indirect costs and overhead costs that have been allocated to the modeled contracts.

- i. Shall allocate expenses using an allocation method that is consistent across company lines of business. Such allocation must be determined in a manner that is within the range of actuarial practice and methodology and consistent with applicable ASOPs. Allocations may not be done for the purpose of decreasing the stochastic reserve.
- j. Shall reflect expense efficiencies that are derived and realized from the combination of blocks of business due to a business acquisition or merger in the expense assumption only when any future costs associated with achieving the efficiencies are also recognized.

Guidance Note: For example, the combining of two similar blocks of business on the same administrative system may yield some expense savings on a per unit basis, but any future cost of the system conversion should also be considered in the final assumption. If all costs for the conversion are in the past, then there would be no future expenses to reflect in the valuation.

- k. Shall reflect the direct costs associated with the contracts being modeled, as well as an appropriate portion of indirect costs and overhead (i.e., expense assumptions representing fully allocated expenses should be used), including expenses categorized in the annual statement as “taxes, licenses and fees” (Exhibit 3 of the annual statement) in the expense assumption.
- l. Shall include acquisition expenses associated with business in force as of the valuation date and significant non-recurring expenses expected to be incurred after the valuation date in the expense assumption.
- m. For contracts sold under a new policy form or due to entry into a new product line, the company shall use expense factors that are consistent with the expense factors used to determine anticipated experience assumptions for contracts from an existing block of mature contracts taking into account:
 - i. Any differences in the expected long-term expense levels between the block of new contacts and the block of mature contracts.
 - ii. That all expenses must be fully allocated as required under Section 12.D.1.h above.

2. Margins for Prudent Estimate Expense Assumptions

The company shall determine margins for expense assumptions following Section 12.C.

Section 13: Allocation of Aggregate Reserves to the Contract Level

Section 3.F states that the aggregate reserve shall be allocated to the contracts falling within the scope of these requirements. That allocation should be done for both the pre- and post-reinsurance ceded reserves. Contracts that have passed the stochastic exclusion test as defined in Section 7.B will not be included in the allocation of the aggregate reserve; however, contracts for which the Deterministic Certification Option is elected in Section 7.E are subject to the allocation methodology described in this Section 13. Allocation calculations shall be done separately for the DR and SR, and for different reserving categories.

Under the allocation methodology described in this section, the reserve held for any contract will be no less than the cash surrender value provided under that contract, after consideration of any reinsurance. Additionally, the reserve held for a Payout Annuity contract (whether life-contingent or not) will be no less than the present value of the liability cash flows provided under the contract, after consideration of any reinsurance, discounted using the NAER described in Section 13.B.1 or 13.B.2, as applicable. The allocation methodology is a formulaic approach that is designed, generally, to allocate the excess aggregate reserves based on a measure of the risk and, therefore, to generally allocate a greater portion of the excess aggregate reserves to contracts that have greater risk. For example, an indexed annuity contract with a high benefit GLWB will typically have a larger allocated excess reserve than an otherwise identical indexed annuity contract with a low benefit GLWB or no GLWB.

- A. The contract-level reserve for each contract shall be the sum of the following:
 - 1. The contract's minimum allocation value (MAV), as defined in Section 13.C.
 - 2. The contract's allocated excess reserve (AER), as defined in Section 13.D.
- B. Scenario actuarial present value (APV)
 - 1. For a group of contracts for which a company does not elect the Deterministic Certification Option in Section 7.E, the Scenario APV for each contract is equal to the discounted liability cash flows at the NAER, pursuant to requirements in Section 4, for the scenario that produces the aggregate scenario reserve for the group that is closest to, but not greater than the SR defined in Section 3.D.

If the Direct Iteration Method is used to satisfy the requirements in Section 4.B.1, then the company shall:

 - a. Determine a path of NAER for each model segment that reflects the net general account portfolio rate in each projection interval (i.e., monthly, quarterly, annually), which will depend primarily on:
 - i. Projected net investment earnings from the portfolio of starting assets.
 - ii. Pattern of projected asset cash flows from the starting assets and subsequent reinvestment assets.
 - iii. Pattern of net liability cash flows.
 - iv. Projected net investment earnings from reinvestment assets.
 - b. The company shall calculate the NAER as the ratio of net investment earnings divided by invested assets subject to the requirements in 1 through 4 below. All items reflected in the ratio are consistent with statutory asset valuation and accrual accounting, including reflection of due, accrued or unearned investment income

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where appropriate.

- i. The NAER for each projection interval is calculated in a manner that is consistent with the timing of cash flows and length of the projection interval of the related cash-flow model.
- ii. Net investment earnings include:
 1. Gross investment income plus capital gains and losses, minus prescribed default costs, and minus investment expenses.
 2. Income from derivative asset programs, subject to the requirements in Sections 4 and 9 of VM-22.
- iii. Invested assets are determined in a manner that is consistent with the timing of cash flows within the cash-flow model and the length of the projection interval of the cash-flow model.
- iv. The annual statement value of derivative instruments or a reasonable approximation thereof is in invested assets.

Drafting Note: The above NAER guidance is in line with the VM-20 NAER methodology, rather than the VM-21/VM-22 NAER methodology under an additional invested asset portfolio. During the exposure period, interested parties are encouraged to provide any feedback on the appropriateness of this approach.

2. For a group of contracts for which a company elects the Deterministic Certification Option defined in Section 7.E, the Scenario APV for each contract is equal to the discounted liability cash flows at the NAER in the single scenario used to calculate the reserve.
 3. For projecting future liability cash flows under either Section 13.B.1 or 13.B.2, as applicable, assume the same liability assumptions that were used to calculate the SR defined in Section 3.D.
- C. Minimum allocation value (MAV)
1. For Payout Annuity contracts, the MAV is equal to the greater of:
 - a. The Scenario APV for the contract, or
 - b. The cash surrender value provided under the contract, if any.
 2. For Account Value Based Annuity contracts, the MAV is equal to the cash surrender value provided under the contract, if any, otherwise zero.
- D. Allocated excess reserve (AER)
1. For each contract in a group of contracts, the AER is determined by allocating the excess, if any, of the group's aggregate reserve over the group's aggregate MAV to the contract in proportion to the excess of the Scenario APV over the MAV for such contract.

2. If the Scenario APV for any contract is less than the MAV, then the excess Scenario APV to be used for allocating the excess aggregate reserve to that contract shall be floored at zero.
 3. If all contracts in the group have an excess Scenario APV that is floored at zero, then use the MAV to allocate any excess aggregate reserve over the aggregate MAV.
 4. If a group's aggregate reserve is less than the group's aggregate MAV, that difference should be allocated to life contingent contracts in proportion to each life contingent contract's MAV to the sum of the life contingent contracts MAV.
- E. As a hypothetical example, consider a company with the results of the following eight contracts in reserving categories:

Table 13.1.A: Hypothetical Sample Allocation of Aggregate Reserve: Group A, Account Value Based Annuity Contracts

Contract	Example Product Type	CSV (1)	Scenario APV (2)	Minimum Allocation Value (MAV) (3) *	Excess (floored)	Aggregate Reserve (5)	Excess of Aggregate Reserve over Aggregate MAV (6) = Max[(5 Total) - (3 Total), 0]	Allocated Excess Reserve (7) = (4) x [(6 Total) / (4 Total)]	Total Contract Level Reserve (8) = (3) + (7)
					of Scenario APV over MAV (4) = Max[(2) - (3), 0]				
1	Individual annuity w/ no GLWB	95.0	91.0	95.0	-			-	95.0
2	Indexed annuity w/ low benefit GLWB	92.0	98.0	92.0	6.0			6.3	98.3
3	Indexed annuity w/ medium benefit GLWB	90.0	104.0	90.0	14.0			14.7	104.7
4	Indexed annuity w/ high benefit GLWB	88.0	111.0	88.0	23.0			24.1	112.1
Total		365.0	404.0	365.0	43.0	410.0		45.0	410.0

* MAV for Payout Annuity contracts equals Max[(1), (2)]. MAV for Account Value Based Annuity contracts equals (1) if any, otherwise zero.

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Table 13.1.B: Hypothetical Sample Allocation of Aggregate Reserve: Group B, Payout Annuity Contracts that do not have Cash Surrender Values

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Contract	Example Product Type	CSV (1)	Scenario APV (2)	Minimum Allocation Value (MAV) (3) *	Excess (floored)	Aggregate Reserve CTE 70 (5)	Excess of Aggregate Reserve over Aggregate MAV (6) = Max[(5 Total) -(3 Total),0]	Allocated Excess Reserve (7) = (3) x [(6 Total)/ (3 Total)] **	Total Contract Level Reserve (8) = (3)+(7)
					APV over MAV (4) = Max[(2)-(3),0]		Aggregate Reserve over Aggregate MAV (6) = Max[(5 Total) -(3 Total),0]	Allocated Excess Reserve (7) = (3) x [(6 Total)/ (3 Total)] **	
1	Fixed Life Contingent payout annuity	-	91.0	91.0	-			1.4	92.4
2	Fixed Life Contingent payout annuity	-	111.0	111.0	-			1.6	112.6
3	Fixed Non-life Contingent payout annuity	-	98.0	98.0	-			1.5	99.5
4	Fixed Non-life Contingent payout annuity	-	104.0	104.0	-			1.5	105.5
Total		-	404.0	404.0	-	410.0	6.0	6.0	410.0

* MAV for Payout Annuity contracts equals Max{(1), (2)}. MAV for Account Value Based Annuity contracts equals (1) if any, otherwise zero.

** Because all contracts have an excess Scenario APV of 0, the AER is allocated in proportion to MAV.

Guidance Note: The Scenario actuarial present value (APV) in the section above is separate from the Guarantee Actuarial Present Value (GAPV) referred to in the additional standard projection amount calculation in VM-21. The GAPV is only applicable to guaranteed minimum benefits and uses prescribed liability assumptions. In contrast, the Scenario APV in this section applies to the entire contract, irrespective of whether guaranteed benefits are attached, and uses company prudent estimate liability assumptions.

VM-V: Statutory Maximum Valuation Interest Rates for Formulaic Reserves

1. Income Annuities

A. Purpose and Scope

1. These requirements define for single premium immediate annuity contracts and other similar contracts, certificates and contract features the statutory maximum valuation interest rate that complies with Model #820. These are the maximum interest rate assumption requirements to be used in the CARVM and for certain contracts, the CRVM. These requirements do not preclude the use of a lower valuation interest rate assumption by the company if such assumption produces statutory reserves at least as great as those calculated using the maximum rate defined herein.
2. The following categories of contracts, certificates and contract features, whether group or individual, including both life contingent and term certain only contracts, directly written or assumed through reinsurance, with the exception of benefits arising from variable annuities and all contracts not passing the SET covered by Sections 1 through 13 of VM-22, are covered in VM-V:
 - a. Immediate annuity contracts issued after Dec. 31, 2017;
 - b. Deferred income annuity contracts issued after Dec. 31, 2017;
 - c. Structured settlements in payout or deferred status issued after Dec. 31, 2017;
 - d. Fixed payout annuities resulting from the exercise of settlement options or annuitizations of host contracts issued after Dec. 31, 2017;
 - e. Fixed payout annuities resulting from the exercise of settlement options or annuitizations of host contracts issued during 2017, for fixed payouts commencing after Dec. 31, 2018, or, at the option of the company, for fixed payouts commencing after Dec. 31, 2017;
 - f. Supplementary contracts, excluding contracts with no scheduled payments (such as retained asset accounts and settlements at interest), issued after Dec. 31, 2017;
 - g. Fixed income payment streams, attributable to contingent deferred annuities (CDAs) issued after Dec. 31, 2017, once the underlying contract funds are exhausted;
 - h. Fixed income payment streams attributable to guaranteed living benefits associated with deferred annuity contracts issued after Dec. 31, 2017, once the contract funds are exhausted; and
 - i. Certificates with premium determination dates after Dec. 31, 2017, emanating from non-variable group annuity contracts specified in Model #820, Section 5.C.2, purchased for the purpose of providing certificate holders benefits upon their retirement.

Guidance Note: For VM-V Section 1.A.2.d, Section 1.A.2.e, Section 1.A.2.f and Section 1.A.2.h above, there is no restriction on the type of contract that may give rise to the benefit.

3. Exemptions:

- a. With the permission of the domiciliary commissioner, for the categories of annuity contracts, certificates and/or contract features in scope as outlined in VM-V Section 1.A.2.d, Section 1.A.2.e, Section 1.A.2.f, Section 1.A.2.g or Section 1.A.2.h, the company may use the same maximum valuation interest rate used to value the payment stream in accordance with the guidance applicable to the host contract. In order to obtain such

permission, the company must demonstrate that its investment policy and practices are consistent with this approach.

4. The maximum valuation interest rates for the contracts, certificates and contract features within the scope of VM-V Section 1 supersede those described in Appendix VM-A and Appendix VM-C, but they do not otherwise change how those appendices are to be interpreted. In particular, *Actuarial Guideline IX-B—Clarification of Methods Under Standard Valuation Law for Individual Single Premium Immediate Annuities, Any Deferred Payments Associated Therewith, Some Deferred Annuities and Structured Settlements Contracts* (AG-9-B) (see VM-C) provides guidance on valuation interest rates and is, therefore, superseded by these requirements for contracts, certificates and contract features in scope. Likewise, any valuation interest rate references in *Actuarial Guideline IX-C—Use of Substandard Annuity Mortality Tables in Valuing Impaired Lives Under Individual Single Premium Immediate Annuities* (AG-9-C) (see VM-C) are also superseded by these requirements.

B. Definitions

1. The term “reference period” means the length of time used in assigning the Valuation Rate Bucket for the purpose of determining the statutory maximum valuation interest rate and is determined as follows:
 - a. For contracts, certificates or contract features with life contingencies and substantially similar payments, the reference period is the length of time, rounded to the nearest year, from the premium determination date to the earlier of: i) the date of the last non-life-contingent payment under the contract, certificate or contract feature; and ii) the date of the first life-contingent payment under the contract, certificate or contract feature, or
 - b. For contracts, certificates or contract features with no life-contingent payments and substantially similar payments, the reference period is the length of time, rounded to the nearest year, from the premium determination date to the date of the last non-life-contingent payment under the contract, certificate or contract feature, or
 - c. For contracts, certificates or contract features where the payments are not substantially similar, the actuary should apply prudent judgment and select the Valuation Rate Bucket with Macaulay duration that is a best fit to the Macaulay duration of the payments in question.

Guidance Note: Contracts with installment refunds or similar features should consider the length of the installment period calculated from the premium determination date as the non-life contingent period for the purpose of determining the reference period.

Guidance Note: The determination in VM-V Section 1.B.1.c above shall be made based on the materiality of the payments that are not substantially similar relative to the life-contingent payments.

2. The term “jumbo contract” means a contract with an initial consideration equal to or greater than \$250 million. Considerations for contracts issued by an insurer to the same contract holder within 90 days shall be combined for purposes of determining whether the contracts meet this threshold.

Guidance Note: If multiple contracts meet this criterion in aggregate, then each contract is a jumbo contract.

3. The term “non-jumbo contract” means a contract that does not meet the definition of a jumbo

contract.

4. The term “premium determination date” means the date as of which the valuation interest rate for the contract, certificate or contract feature being valued is determined.
5. The term “initial age” means the age of the annuitant as of his or her age last birthday relative to the premium determination date. For joint life contracts, certificates or contract features, the “initial age” means the initial age of the younger annuitant. If a contract, certificate or contract feature for an annuitant is being valued on a standard mortality table as an impaired annuitant, “initial age” means the rated age. If a contract, certificate or contract feature is being valued on a substandard mortality basis, “initial age” means an equivalent rated age.
6. The term “Table X spreads” means the prescribed VM-V Section 1 current market benchmark spreads for the quarter prior to the premium determination date, as published on the Industry tab of the NAIC website. The process used to determine Table X spreads is the same as that specified in VM-20 Appendix 2.D for Table F, except that JP Morgan and Bank of America bond spreads are averaged over the quarter rather than the last business day of the month.
7. The term “expected default cost” means a vector of annual default costs by weighted average life. This is calculated as a weighted average of the VM-20 Table A prescribed annual default costs published on the Industry tab of the NAIC website in effect for the quarter prior to the premium determination date, using the prescribed portfolio credit quality distribution as weights.
8. The term “expected spread” means a vector of spreads by weighted average life. This is calculated as a weighted average of the Table X spreads, using the prescribed portfolio credit quality distribution as weights.
9. The term “prescribed portfolio credit quality distribution” means the following credit rating distribution:
 - a. 5% Treasuries
 - b. 15% Aa bonds (5% Aa1, 5% Aa2, 5% Aa3)
 - c. 40% A bonds (13.33% A1, 13.33% A2, 13.33% A3)*
 - d. 40% Baa bonds (13.33% Baa1, 13.33% Baa2, 13.33% Baa3)*

*40%/3 is used unrounded in the calculations.

C. Determination of the Statutory Maximum Valuation Interest Rate

1. Valuation Rate Buckets

- a. For the purpose of determining the statutory maximum valuation interest rate, the contract, certificate or contract feature being valued must be assigned to one of four Valuation Rate Buckets labeled A through D.
- b. If the contract, certificate or contract feature has no life contingencies, the Valuation Rate Bucket is assigned based on the length of the reference period (RP), as follows:

Table 1.C-1: Assignment to Valuation Rate Bucket by Reference Period Only

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RP ≤ 5 Years	5Y < RP ≤ 10Y	10Y < RP ≤ 15Y	RP > 15Y
A	B	C	D

- c. If the contract, certificate or contract feature has life contingencies, the Valuation Rate Bucket is assigned based on the length of the RP and the initial age of the annuitant, as follows:

Table 1.C-2: Assignment to Valuation Rate Bucket by Reference Period and Initial Age

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Initial Age	RP ≤ 5Y	5Y < RP ≤ 10Y	10Y < RP ≤ 15Y	RP > 15Y
90+	A	B	C	D
80-89	B	B	C	D
70-79	C	C	C	D
< 70	D	D	D	D

2. Premium Determination Dates

- a. The following table specifies the decision rules for setting the premium determination date for each of the contracts, certificates and contract features listed in Section 1.A:

Table 1.C-3: Premium Determination Dates

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Section	Item Description	Premium determination date
A.2.a	Immediate annuity	Date consideration is determined and committed to by contract holder
A.2.b	Deferred income annuity	Date consideration is determined and committed to by contract holder
A.2.c	Structured settlements	Date consideration is determined and committed to by contract holder
A.2.d and A.2.e	Fixed payout annuities resulting from settlement options or annuitizations from host contracts	Date consideration for benefit is determined and committed to by contract holder
A.2.f	Supplementary contracts	Date of issue of supplementary contract
A.2.g	Fixed income payment streams from CDAs, AV becomes 0	Date on which AV becomes 0
A.2.h	Fixed income payment streams from guaranteed living benefits, AV becomes 0	Date on which AV becomes 0

A.2.i	Group annuity and related certificates	Date consideration is determined and committed to by contract holder
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Guidance Note: For the purposes of the items in the table above, the phrase “date consideration is determined and committed to by the contract holder” should be interpreted by the company in a manner that is consistent with its standard practices. For some products, that interpretation may be the issue date or the date the premium is paid.

b. Immaterial Change in Consideration

If the premium determination date is based on the consideration, and if the consideration changes by an immaterial amount (defined as a change in present value of less than 10% and less than \$1 million) subsequent to the original premium determination date, such as due to a data correction, then the original premium determination date shall be retained. In the case of a group annuity contract where a single premium is intended to cover multiple certificates, certificates added to the contract after the premium determination date that do not trigger the company’s right to reprice the contract shall be treated as if they were included in the contract as of the premium determination date.

3. Statutory Maximum Valuation Interest Rate

- a. For a given contract, certificate or contract feature, the statutory maximum valuation interest rate is determined based on its assigned Valuation Rate Bucket (VM-V Section 1.C.1) and its Premium Determination Date (VM-V Section 1.C.2) and whether the contract associated with it is a jumbo contract or a non-jumbo contract.
- b. Statutory maximum valuation interest rates for jumbo contracts are determined and published daily by the NAIC on the Industry tab of the NAIC website. For a given premium determination date, the statutory maximum valuation interest rate is the daily statutory maximum valuation interest rate published for that premium determination date.
- c. Statutory maximum valuation interest rates for non-jumbo contracts are determined and published quarterly by the NAIC on the Industry tab of the NAIC website by the third business day of the quarter. For a given premium determination date, the statutory maximum valuation interest rate is the quarterly statutory maximum valuation interest rate published for the quarter in which the premium determination date falls.
- d. Quarterly Valuation Rate:

For each Valuation Rate Bucket, the quarterly valuation rate is defined as follows:

$$I_q = R + S - D - E$$

Where:

- a. R is the reference rate for that Valuation Rate Bucket (defined in VM-V Section 1.C.4);
- b. S is the spread rate for that Valuation Rate Bucket (defined in VM-V Section 1.C.5);

- c. D is the default cost rate for that Valuation Rate Bucket (defined in VM-V Section 1.C.6);
- and
- d. E is the spread deduction defined as 0.25%.

For non-jumbo contracts, the quarterly statutory maximum valuation interest rate is the quarterly valuation rate (I_q) rounded to the nearest one-fourth of one percent (1/4 of 1%).

e. Daily Valuation Rate:

For each Valuation Rate Bucket, the daily valuation rate is defined as follows:

$$I_d = I_q + C_{d-1} - C_q$$

Where:

- a. I_q is the quarterly valuation rate for the calendar quarter preceding the business day immediately preceding the premium determination date;
- b. C_{d-1} is the daily corporate rate (defined in VM-V Section 1.C.7) for the business day immediately preceding the premium determination date; and
- c. C_q is the average daily corporate rate (defined in VM-V Section 1.C.8) corresponding to the same period used to develop I_q .

For jumbo contracts, the daily statutory maximum valuation interest rate is the daily valuation rate (I_d) rounded to the nearest one-hundredth of one percent (1/100 of 1%).

4. Reference Rate

Reference rates are updated quarterly as described below:

- a. The “quarterly Treasury rate” is the average of the daily Treasury rates for a given maturity over the calendar quarter prior to the premium determination date. The quarterly Treasury rate is downloaded from <https://fred.stlouisfed.org>, and is rounded to two decimal places.
- b. Download the quarterly Treasury rates for two-year, five-year, 10-year and 30-year U.S. Treasuries.
- c. The reference rate for each Valuation Rate Bucket is calculated as the weighted average of the quarterly Treasury rates using Table 1 weights (defined in VM-V Section 1.C.9) effective for the calendar year in which the premium determination date falls.

5. Spread

The spreads for each Valuation Rate Bucket are updated quarterly as described below:

- a. Use the Table X spreads from the NAIC website for WALs two, five, 10 and 30 years only to calculate the expected spread.

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- b. Calculate the spread for each Valuation Rate Bucket, which is a weighted average of the expected spreads for WALs two, five, 10 and 30 using Table 2 weights (defined in Section 3.I) effective for the calendar year in which the premium determination date falls.
6. Default costs for each Valuation Rate Bucket are updated annually as described below:
- a. Use the VM-20 prescribed annual default cost table (Table A) in effect for the quarter prior to the premium determination date for WAL two, WAL five and WAL 10 years only to calculate the expected default cost. Table A is updated and published annually on the Industry tab of the NAIC website during the second calendar quarter and is used for premium determination dates starting in the third calendar quarter.
 - b. Calculate the default cost for each Valuation Rate Bucket, which is a weighted average of the expected default costs for WAL two, WAL five and WAL 10, using Table 3 weights (defined in VM-V Section 1.C.9) effective for the calendar year in which the premium determination date falls.

7. Daily Corporate Rate

Daily corporate rates for each valuation rate bucket are updated daily as described below:

- a. Each day, download the Bank of America Merrill Lynch U.S. corporate effective yields as of the previous business day's close for each index series shown in the sample below from the St. Louis Federal Reserve website: <https://research.stlouisfed.org/fred2/categories/32348>. To access a specific series, search the St. Louis Federal Reserve website for the series name by inputting the name into the search box in the upper right corner, or input the following web address: [https://research.stlouisfed.org/fred2/series/\[replace with series name from the table below\]](https://research.stlouisfed.org/fred2/series/[replace with series name from the table below]).

Table 1.C-4: Index Series Names

Maturity	Series Name
1Y – 3Y	BAMLC1A0C13YEY
3Y – 5Y	BAMLC2A0C35YEY
5Y – 7Y	BAMLC3A0C57YEY
7Y – 10Y	BAMLC4A0C710YEY
10Y – 15Y	BAMLC7A0C1015YEY
15Y+	BAMLC8A0C15PYEY

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- b. Calculate the daily corporate rate for each valuation rate bucket, which is a weighted average of the Bank of America Merrill Lynch U.S. corporate effective yields, using Table 4 weights (defined in VM-V Section 1.C.9) effective for the calendar year in which the business date immediately preceding the premium determination date falls.

8. Average Daily Corporate Rate

Average daily corporate rates are updated quarterly as described below:

- a. Download the quarterly average Bank of America Merrill Lynch U.S. corporate effective yields for each index series shown in Section 1.C.7.a of VM-V from the St. Louis Federal Reserve website: <https://research.stlouisfed.org/fred2/categories/32348>. To access a specific series, search the St. Louis Federal Reserve website for the series name by inputting the name into the search box in the upper right corner, or input the following web address: [https://research.stlouisfed.org/fred2/series/\[replace with series name from VM-V Section 1.C.7.a\]](https://research.stlouisfed.org/fred2/series/[replace with series name from VM-V Section 1.C.7.a]).
- b. Calculate the average daily corporate rate for each valuation rate bucket, which is a weighted average of the quarterly average Bank of America Merrill Lynch U.S. corporate effective yields, using Table 4 weights (defined in VM-V Section 1.C.9) for the same calendar year as the weight tables (i.e. Tables 1, 2, and 3) used in calculating I_q in VM-V Section 1.C.3.e.

9. Weight Tables 1 through 4

The system for calculating the statutory maximum valuation interest rates relies on a set of four tables of weights that are based on duration and asset/liability cash-flow matching analysis for representative annuities within each valuation rate bucket. A given set of weight tables is applicable to the calculations for every day of the calendar year.

In the fourth quarter of each calendar year, the weights used within each valuation rate bucket for determining the applicable valuation interest rates for the following calendar year will be updated using the process described below. In each of the four tables of weights, the weights in a given row (valuation rate bucket) must add to exactly 100%.

Weight Table 1

The process for determining Table 1 weights is described below:

- a. Each valuation rate bucket has a set of representative annuity forms. These annuity forms are as follows:
 - i. Bucket A:
 - a) Single Life Annuity age 91 with 0 and five-year certain periods.
 - b) Five-year certain only.
 - ii. Bucket B:
 - a) Single Life Annuity age 80 and 85 with 0, five-year and 10-year certain periods.
 - b) 10-year certain only.
 - iii. Bucket C:
 - a) Single Life Annuity age 70 with 0 and 15-year certain periods.
 - b) Single Life Annuity age 75 with 0, 10-year and 15-year certain periods.
 - c) 15-year certain only.
 - iv. Bucket D:

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- a) Single Life Annuity age 55, 60 and 65 with 0 and 15-year certain periods.
- b) 25-year certain only.
- b. Annual cash flows are projected assuming annuity payments are made at the end of each year. These cash flows are averaged for each valuation rate bucket across the annuity forms for that bucket using the statutory valuation mortality table in effect for the following calendar year for individual annuities for males (ANB).
- c. The average daily rates in the third quarter for the two-year, five-year, 10-year and 30-year U.S. Treasuries are downloaded from <https://fred.stlouisfed.org> as input to calculate the present values in Step d.
- d. The average cash flows are summed into four time period groups: years 1–3, years 4–7, years 8–15 and years 16–30. (**Note:** The present value of cash flows beyond year 30 are discounted to the end of year 30 and included in the years 16–30 group. This present value is based on the lower of 3% and the 30-year Treasury rate input in Step c.)
- e. The present value of each summed cash-flow group in Step d is then calculated by using the Step c U.S. Treasury rates for the midpoint of that group (and using the linearly interpolated U.S. Treasury rate when necessary).
- f. The duration-weighted present value of the cash flows is determined by multiplying the present value of the cash-flow groups by the midpoint of the time period for each applicable group.
- g. Weightings for each cash-flow time period group within a valuation rate bucket are calculated by dividing the duration weighted present value of the cash flow by the sum of the duration weighted present value of cash flow for each valuation rate bucket.

Weight Tables 2 through 4

Weight Tables 2 through 4 are determined using the following process:

- i. Table 2 is identical to Table 1.
- ii. Table 3 is based on the same set of underlying weights as Table 1, but the 10-year and 30-year columns are combined since VM-20 default rates are only published for maturities of up to 10 years.
- iii. Table 4 is derived from Table 1 as follows:
 - a) Column 1 of Table 4 is identical to column 1 of Table 1.
 - b) Column 2 of Table 4 is 50% of column 2 of Table 1.
 - c) Column 3 of Table 4 is identical to column 2 of Table 4.
 - d) Column 4 of Table 4 is 50% of column 3 of Table 1.
 - e) Column 5 of Table 4 is identical to column 4 of Table 4.
 - f) Column 6 of Table 4 is identical to column 4 of Table 1.

10. Group Annuity Contracts

For a group annuity purchased under a retirement or deferred compensation plan (VM-V Section 1.A.2.i), the following apply:

1850 M Street NW Suite 300 Washington, DC 20036 Telephone 202 223 8196 Facsimile 202 872 1948 www.actuary.org

Confidential

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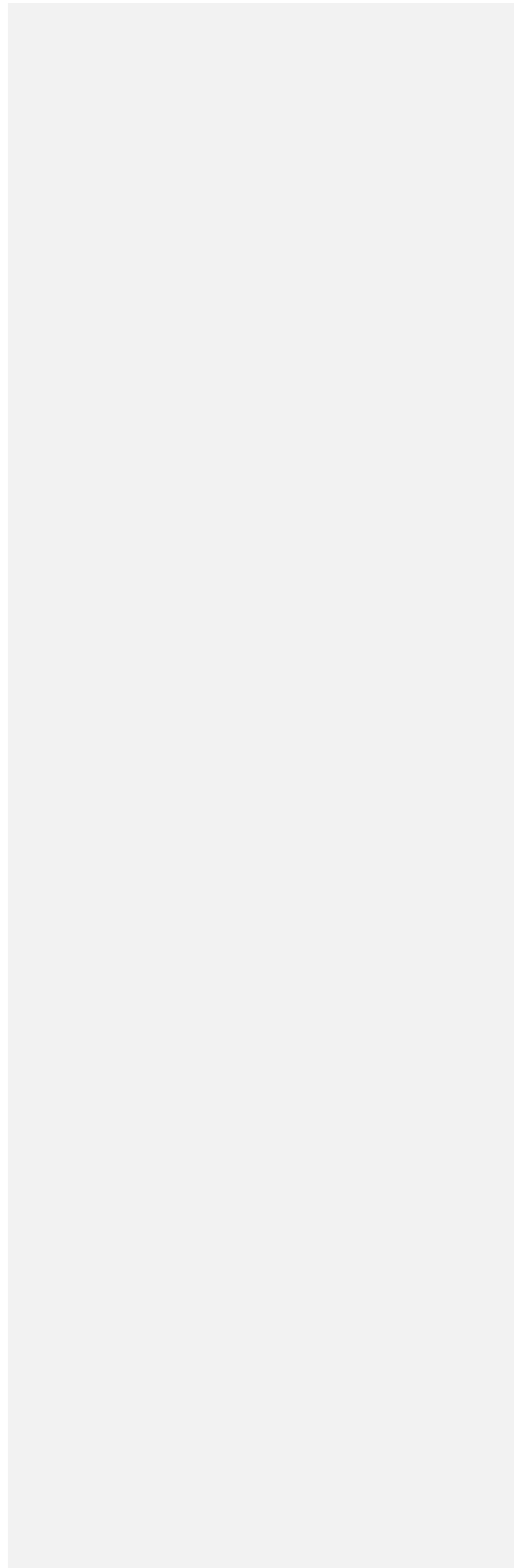
- a. The statutory maximum valuation interest rate shall be determined separately for each certificate, considering its premium determination date, the certificate holder's initial age, the reference period corresponding to its form of payout and whether the contract is a jumbo contract or a non-jumbo contract.

Guidance Note: Under some group annuity contracts, certificates may be purchased on different dates.

- b. In the case of a certificate whose form of payout has not been elected by the beneficiary at its premium determination date, the statutory maximum valuation interest rate shall be based on the reference period corresponding to the normal form of payout as defined in the contract or as is evidenced by the underlying pension plan documents or census file. If the normal form of payout cannot be determined, the maximum valuation interest rate shall be based on the reference period corresponding to the annuity form available to the certificate holder that produces the most conservative rate.

Guidance Note: The statutory maximum valuation interest rate will not change when the form of payout is elected.

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Page 5: [1] Commented [A26] Author

ACLI: Some of our members have expressed concerns over the VM-22 draft's proposed exemption amount being set too low at \$0.5 billion in reserves. The Draft Note in the exposure indicated the original proposal of \$3 billion for a company and \$6 billion for a group was revised downward, but these higher levels may cover the vast majority of annuity reserves held (not only those subject to VM-22) and would be more appropriate. The Life PBR Exemption uses a \$300/600 million life premium limit; creating a parallel for annuities looking at reserves would inherently be greater than the proposed \$0.5/1.0 billion limits. We would request that the NAIC consider researching and consider implementing "equivalency" between life premiums and annuity reserves. Our hope is that exemption levels will be set so that small annuity writers are not included within the scope of PBR requirements.

Page 5: [2] Commented [VM2227R26] VM-22 Subgroup 4/3/2023 1:07:00 PM

VM-22 Subgroup voted on an initial level of \$1 billion.

Page 5: [3] Commented [A28] Author

Academy: The ARCWG proposes that the exemption limits here and in Section 7.A.1.d.v be based on amounts gross of reinsurance. It is possible that a carrier could have material liability gross of reinsurance and an immaterial liability, ignoring counterparty risk, net of reinsurance.

Page 17: [4] Commented [CC116] Craig Chupp 10/13/2022 1:23:00 PM

This entire subsection needs renumbered and there is no "DR"

Page 17: [5] Commented [VM22117R116] VM-22 Subgroup 11/28/2022 1:00:00 PM

DR added for clarification in 7.E

Findings from Regulator Reviews of Company Filings for Actuarial Guideline 53

Fred Andersen, FSA, MAAA

8/11/2023

1

Notice Regarding Confidentiality

AG 53 provides uniform guidance for the asset adequacy testing, and is effective for reserves reported with respect to the Dec. 31, 2022, and subsequent annual statutory financial statements. A statement of actuarial opinion on the adequacy of the reserves and assets supporting reserves after the operative date of the Valuation Manual is required under Section 3B of the NAIC Standard Valuation Law (#820) and VM-30 of the Valuation Manual. Section 14A of Model #820 provides that actuarial opinions and related documents, including an asset adequacy analysis, are confidential information, while Section 14B provides that such confidential information may be shared with other state regulatory agencies and the NAIC. The asset adequacy analyses required under AG 53 reviewed in the preparation of this report were shared with the Valuation Analysis (E) Working Group and the NAIC in accordance with these requirements, and continue to remain confidential in nature.

2

Data Limitations

- Asset information shown in the slides that follow rely on data submitted by companies in their AG 53 templates. The NAIC took steps to review the data for reasonableness. However, the accuracy and reliability of the results are ultimately dependent on the quality of participant submissions.
- Some of the submitted data was adjusted to make it useable and help ensure greater consistency of reporting across companies. For example: 1) units were changed from dollars to millions where necessary; 2) asset types were mapped to those listed in the standard AG 53 template for companies that substituted different asset descriptions; 3) aggregated initial asset summary templates were created for companies that provided templates by segment but not in total; 4) templates submitted as PDFs were converted to Excel.
- Some companies did not submit AG 53 templates or did not complete all of the AG 53 template tabs.

3

Summary

1. AG 53 background
2. AG 53 review activities
3. Net yield assumption findings
4. Upcoming review steps

4

AG 53 Background

- Actuarial Guideline 53 was adopted in 2022
- Main purpose: help ensure claims paying ability even if complex assets do not perform as expected
- Requires disclosures and asset-related information for most life insurers over a size threshold
 - An opportunity for companies to tell their stories regarding:
 - Their complex assets & associated risks
 - How their cash-flow testing models address those risks
- First submissions were due April 2023

5

AG 53 Reviews - activity to date

Done:

- ✓ AG 53 filings received from 246 life insurers
- ✓ AG 53 Review Group (within the Valuation Analysis Working Group) formed
 - Team of actuaries, investment experts, and other financial staff to perform reviews
- ✓ Review process started with company prioritization, based on prior knowledge and template information

In Progress:

- AG 53 Review Group meeting frequently, with various state regulators presenting their review findings
- Identifying companies with outlier net yield assumptions
- Engaging with domestic regulators with the goal of decreasing highest net yield assumptions to remove companies from outlier list

6

Implications of Higher Investment Net Yield Assumptions

- More favorable asset adequacy analysis results
- Lower amounts of assets needed for reserves to be considered adequate
 - A signal that more money could be released (dividends or other)
- Concern is, if risk is understated and assets underperform, reserves will turn out to be inadequate and that previously released money may have been needed

Amount to fund \$1 Billion liability in 15 years

Company assumption type	Assumed net yield for high- yield assets	Adequate reserve per company's CFT	Adequate reserve per average conservative company's CFT	Amount (in excess of adequate reserve) available to be released per company's CFT
Most conservative	4.5%	\$ 520,000,000	\$ 520,000,000	\$ -
Moderately conservative	5.8%	\$ 430,000,000	\$ 520,000,000	\$ 90,000,000
Fairly aggressive	6.5%	\$ 390,000,000	\$ 520,000,000	\$ 130,000,000
Outlying / aggressive	7.8%	\$ 320,000,000	\$ 520,000,000	\$ 200,000,000

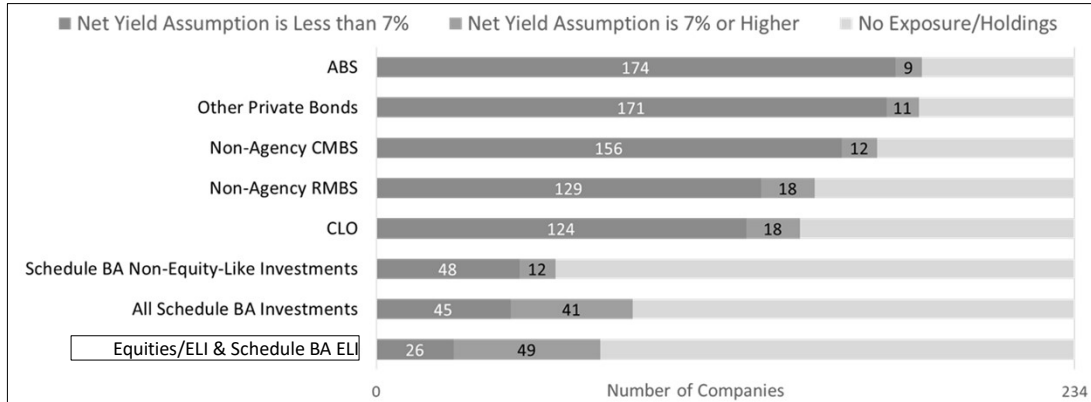
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Range of Practice for Net Yield Assumptions

- Some companies are assuming outlier levels of high net yield assumptions. Reducing those outlying assumptions could result in:
 1. Less reliance on sustained high levels of investment returns (e.g., 8% for 30 years) in order to:
 - a. Make reserves adequate
 - b. Pay claims
 2. Not encouraging more companies to assume unreasonably high net yield assumptions to compete
- A vast majority of life insurers have reasonable net yield assumptions

8

Net Yield Assumptions A majority of companies assumed Net Yields < 7% for Initial Assets, but a sizable number of companies assumed Net Yields ≥ 7%



ELI = Equity-Like Investments/Instruments

*The Equities or ELI asset type and the Schedule BA ELI asset type were aggregated so that, for each company, the maximum yield among the two categories is reflected.

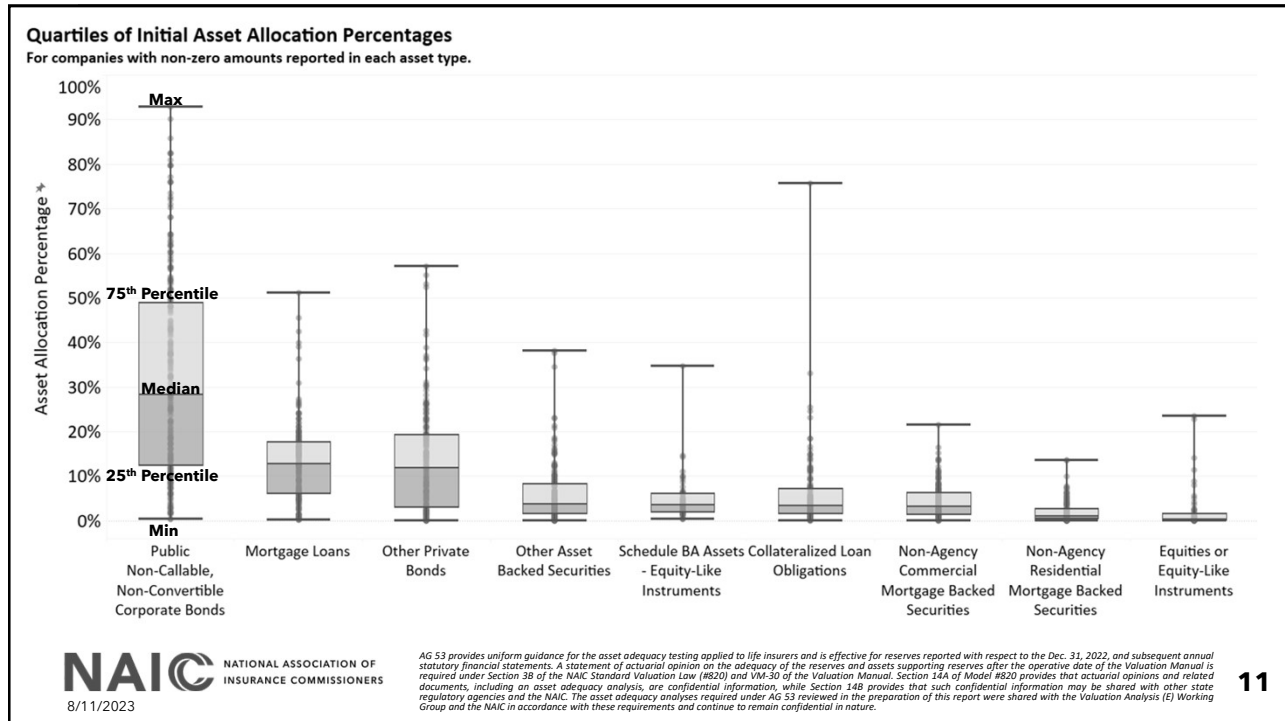
Net Yield Assumptions For many asset types, a majority of companies assumed Net Yields < 5%

Net Yield for Initial Assets	ABS	Other Private Bonds	Non-Agency CMBS	Non-Agency RMBS	CLO	Schedule BA Non-ELI	All Schedule BA	Equities/ELI & Schedule BA ELI*
Less than 5%	134	129	124	103	58	26	24	12
5%-5.99%	27	31	18	17	38	17	14	6
6%-6.99%	13	11	14	9	28	5	7	8
7%-7.99%	6	4	6	8	9	2	9	16
8%-9.99%	1	5	6	6	7	10	24	23
10%+	2	2	0	4	2	0	8	10

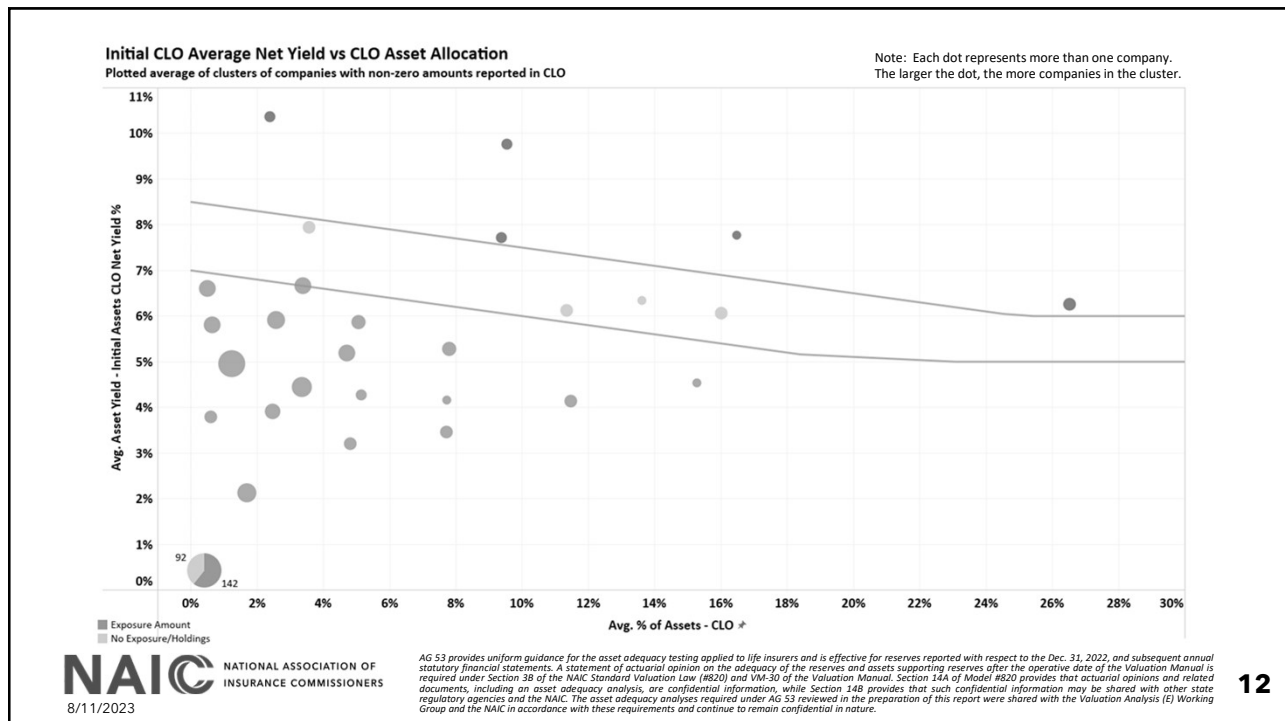
Net Yield for Reinvestments	ABS	Other Private Bonds	Non-Agency CMBS	Non-Agency RMBS	CLO	Schedule BA Non-ELI	All Schedule BA	Equities/ELI & Schedule BA ELI*
Less than 5%	28	129	26	25	11	26	1	1
5%-5.99%	39	31	29	24	21	17	5	2
6%-6.99%	30	11	13	6	14	5	6	4
7%-7.99%	1	4	11	0	17	2	1	6
8%-9.99%	1	5	0	0	8	10	10	16
10%+	0	2	0	0	4	0	3	4

ELI = Equity-Like Investments/Instruments

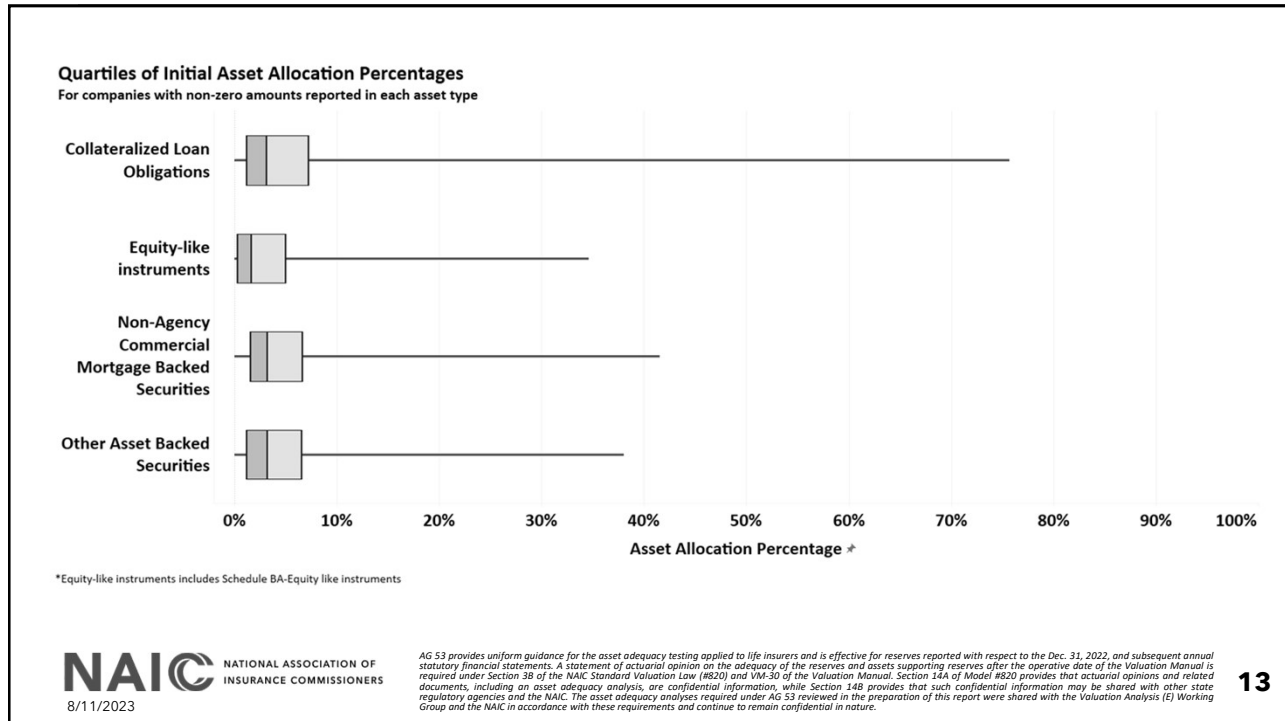
*The Equities or ELI asset type and the Schedule BA ELI asset type were aggregated so that, for each company, the maximum yield among the two categories is reflected.



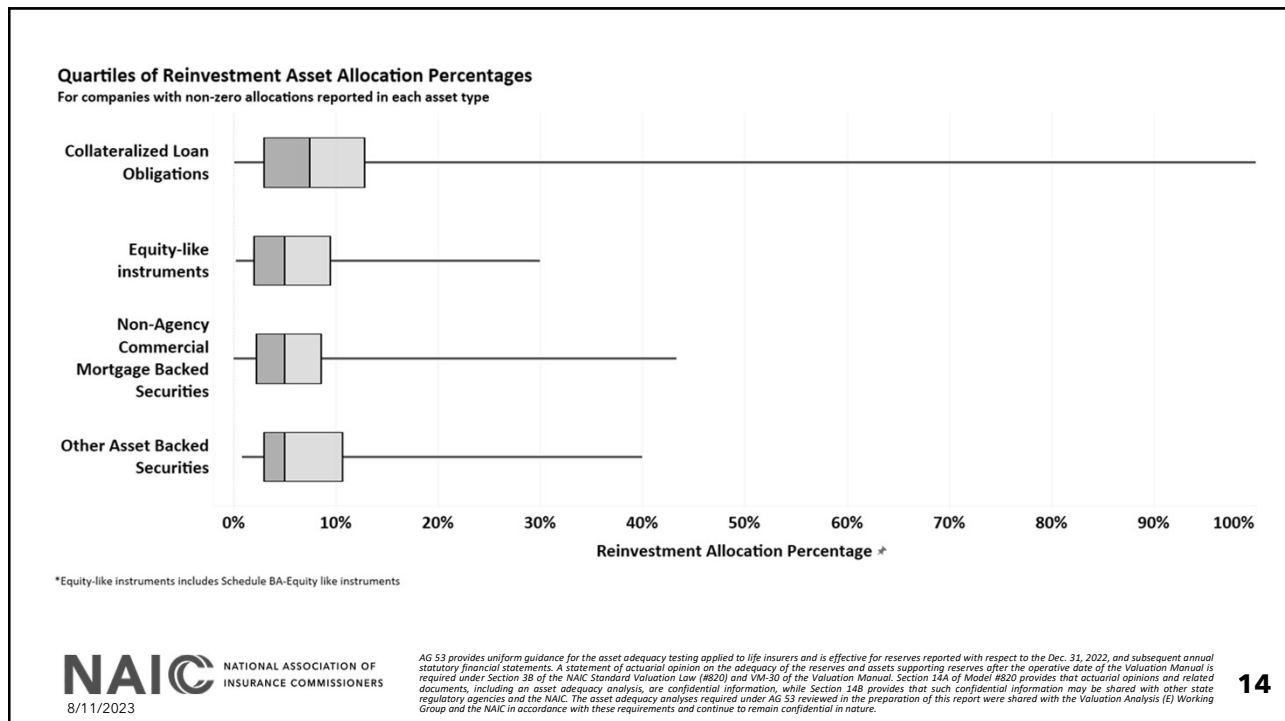
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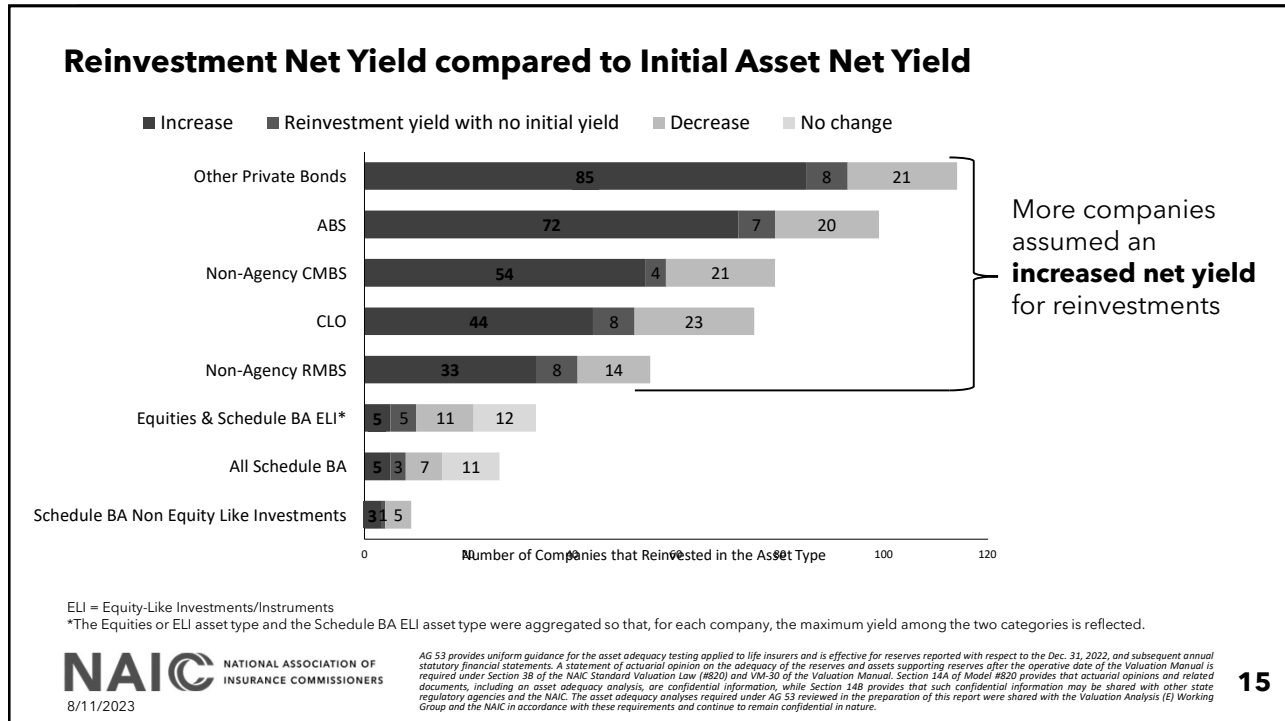
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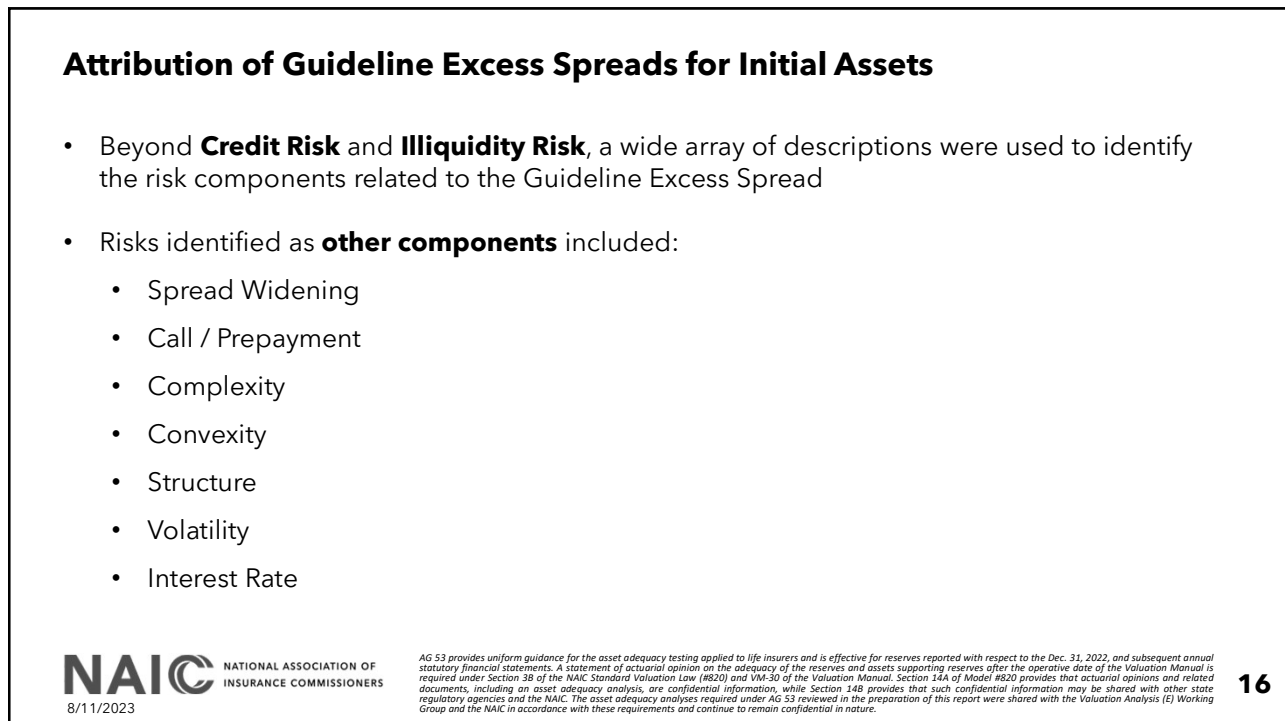
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16

Examples of range of general practices

- **Assumptions in 30-year+ cash-flow testing projection:**

- **Company 1** (reflective of most companies)

- High performance will continue for a short time
- Narrative: as markets increase in efficiency, yields will decline over time
- Excess returns over market risk/return expectations not reflected in reinvestment assets

- **Company 2** (reflective of small number of companies with outlying assumptions)

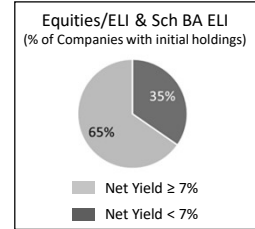
- High performance will continue throughout the projection with little downside risk
- Little explanation in narrative, risks “too complicated to model”
- Attribution analysis: illiquidity or complexity are described as reasons for excess returns
- Future reinvestments are projected to continue to have high performance

Regulator reactions to outlying practices

- Work with Company 2 types
 - Plan A: a soft touch – encourage adding conservatism to assumptions
 - Plan B: firmer tone – highly recommend adding conservatism
 - Plan C (if company resists Plans A and B): exercise regulatory authority as appropriate
- Domestic regulator is typically the point person
- If regulators are concerned about more widespread practice:
 - Typically work with LATF for potential consideration of rulemaking
 - Cash-flow testing of equity return assumptions may fit this category

Equity return assumptions

- For other asset types, above 7% assumed net returns are bordering on being an outlier
- For equities, it's more common for life insurers to assume returns in excess of 7%
 - While fixed-income securities are subject to interest rate scenarios, equities are typically modeled simplistically, with the return assumed to be the same each year
 - Other standards impacting life insurer products require reflection of volatility
 - e.g., VM-20, VM-21
- Even a small allocation to equities grows to be a substantial allocation over time if equities are assumed to earn excess returns in all scenarios
- Consideration for future LATF discussion - guardrails on assumed equity returns in asset adequacy analysis



Q&A on Reviews of Net Yields

AG 53 Next steps - Reinsurance collectability risk

- Requests for additional information from ceding companies are being sent in targeted situations:
 - Particularly if assuming company does not submit a VM-30 actuarial memorandum to a state
 - Inquiry:
 - Description and reason for significant reinsurance ceded transactions
 - Process and metrics used to evaluate the counterparty's asset risk and financial health
 - Reasons for review:
 - Help ensure future claims are paid and the US insurer's balance sheet is accurate
 - Are significant risks associated with reinsurance ceded appropriately addressed in the actuarial memorandum?
 - A US ceding company should not act like they've wiped their hands and balance sheet of the risk if the assuming company will be some combination of weakly capitalized, under-reserved, or with risky assets supporting reserves.
 - Bottom line: are there enough quality assets at the reinsurer to pay reinsurance claims in moderately adverse conditions?

AG 53 Next steps - Guidance Document

- Guidance Document for year-end 2023
 - Add clarification / fill in gaps identified during reviews of year-end 2022 filings, including:
 - Sensitivity test for currently-held equities
 - Structured asset information by tranche and related to payments in kind
 - Information about asset allocations in future projection years
 - Help ensure less volatility in classification as a projected high net yield asset
 - Template clarification and updates

AG 53 Reviews - "Phases"

- Transition to "Phase 2" reviews
 - Phase 1 focused on active companies with outlying net yield assumptions
 - Phase 2 will be other issues:
 - Incomplete documentation
 - Focus on narrative answers
 - Identify best / outlying practices (e.g., determination of fair value of internally-valued assets)

Mortality Improvements Life Working Group (MILWG): 2023 HMI and FMI Scale Update



Academy Mortality Improvements Life Work Group (MILWG)
SOA Mortality and Longevity Oversight Advisory Council (MLOAC)

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PRESENTED ON Life Actuarial Task Force (LATF) Call—7/20/23

1

Revisit Smoothing Process



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Review Smoothing Approach

	Current Method	Recommendation
1. Ages 0-15 (juvenile)	Use adult average (18-84) x 1.5	Use 0-20 average
2. Ages 16-20	Linear interpolation from juvenile rate to adult rate at age 21	Use 0-20 average
3. Ages 21-84	Use Adult Average 18-84	Break into more detailed age groups: 0-20 25-40 45-60 65-85 Linear interpolation between groups.
4. Ages 85-94	Linear interpolation from adult rate to .0025 per year ultimate level at age 95	Linear interpolation from 65-85 average to .001 per year ultimate level at age 95 (use .001 due to COVID considerations)
5. Ages 95 and later	Use constant .0025 (used .001 for 2022 due to COVID impact considerations)	Use constant .001 due to COVID considerations



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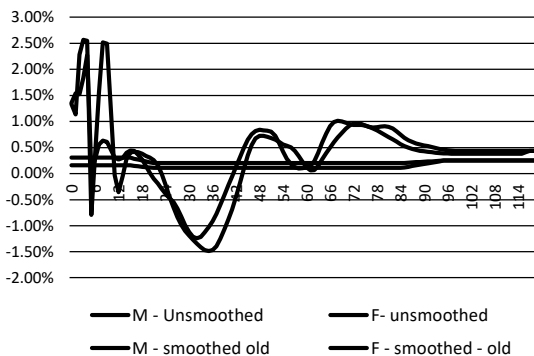
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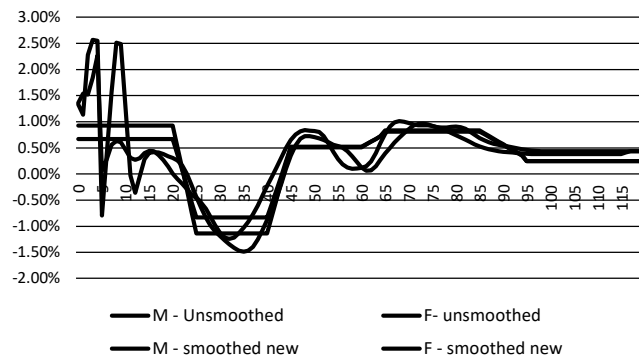
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Comparison of Smoothing Approaches

Smoothing—OLD



2023 Recommended HMI scale
 Smoothing—NEW



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COVID-19 Impact—2023 Approach



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COVID-19 Impact

COVID-19 Impact considerations

- Ensuring COVID-19 impact is considered
- Some companies with high credibility will use their best estimate mortality (including implied historical improvement) for long periods before grading to industry
 - Creates potential disconnect between HMI and the recommended industry FMI scale

Recommendation: COVID impact will be included in the first few years of the FMI scale for 2023 (similar to approach for 2022 scale work)



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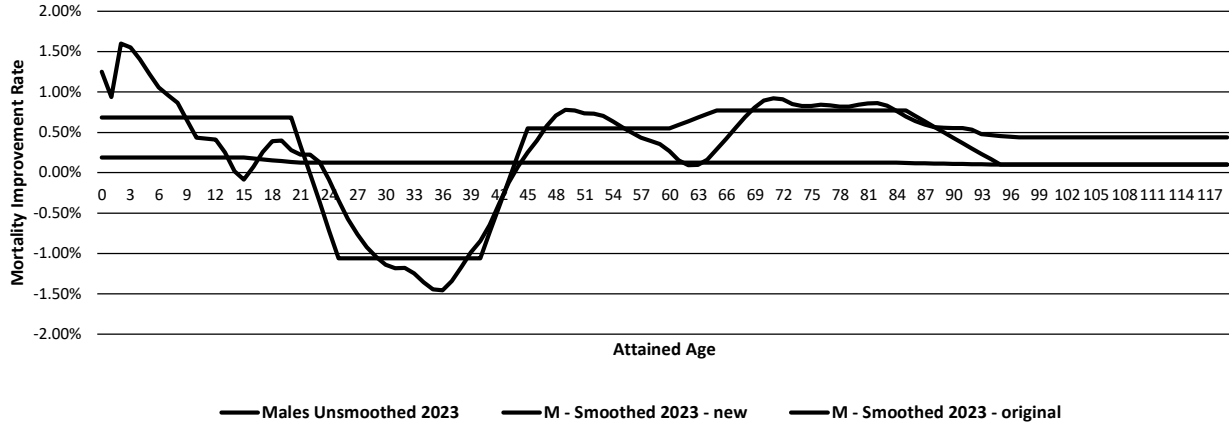
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Slide 6

DJNO Added -19
David J. Nolan, 2023-07-17T16:04:55.427

HMI 2023 Recommendation Male, Mortality Improvement Rates



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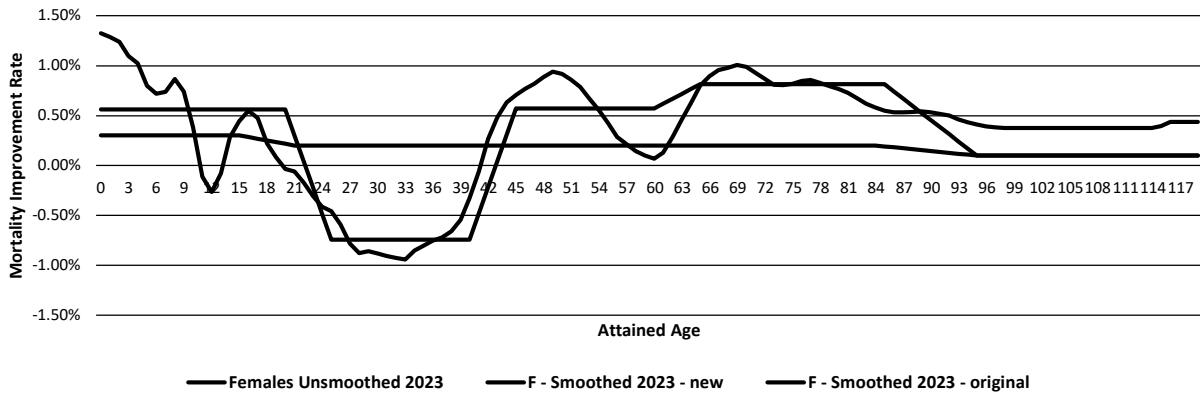


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HMI 2023 Recommendation Female, Mortality Improvement Rates



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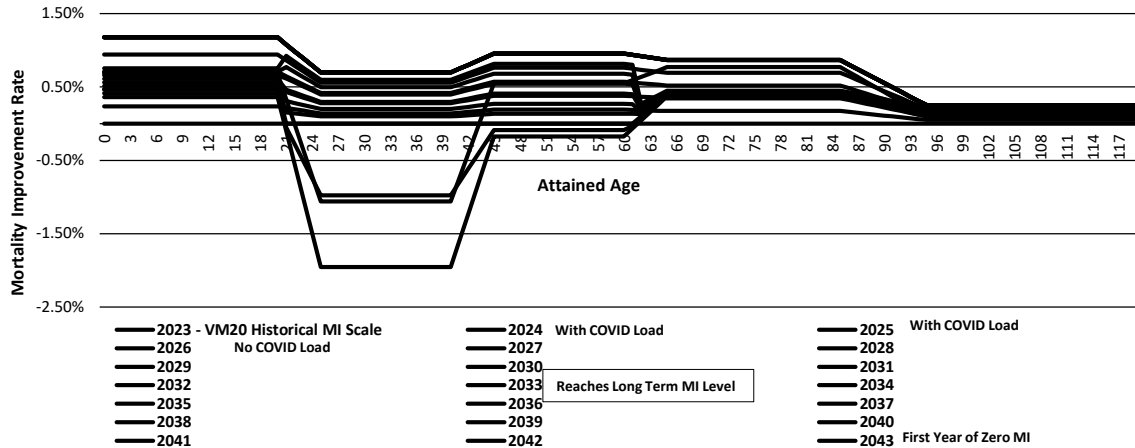


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FMI 2023 Recommendation—Basic Scale Male, Future Mortality Improvement Rates



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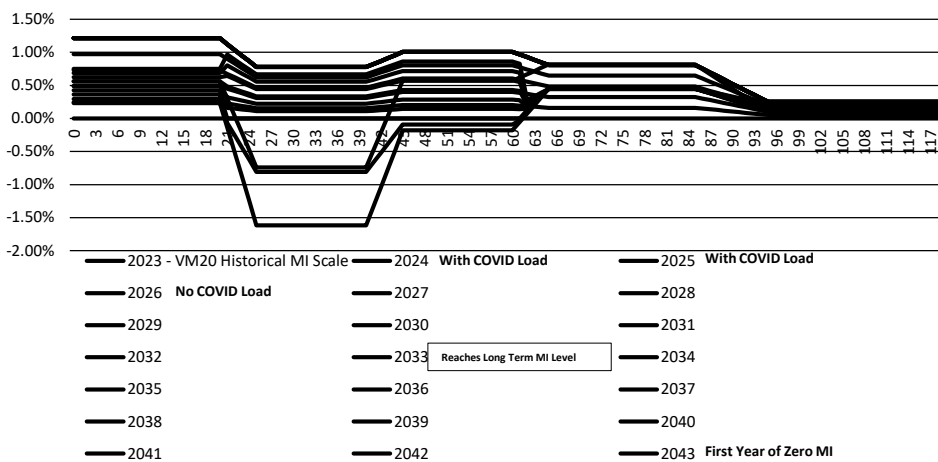


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FMI 2023 Recommendation—Basic Scale Female, Future Mortality Improvement Rates



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Questions?



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Contact Information

Marianne Purushotham, FSA, MAAA
Corporate Vice President, Research Data Services
LLGlobal
mpurushotham@limra.com

Amanda Barry-Moilanen
Life Policy Analyst
American Academy of Actuaries
barrymoilanen@actuary.org



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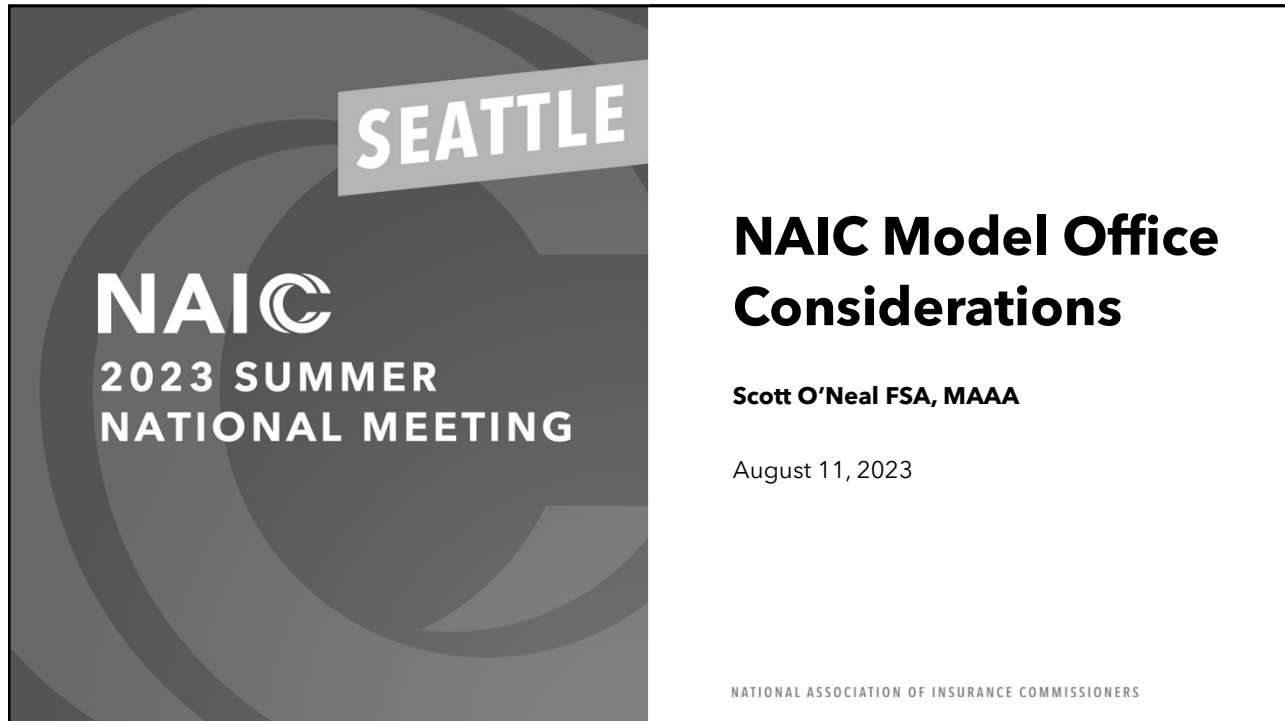
Life MI Subgroup Members

Marianne Purushotham, FSA, MAAA (Chair)
Cynthia Edwalds, FSA, MAAA
Sam Gutterman, FSA, MAAA
Tim Hoxha, FSA, MAAA
Mary Simmons, FSA, MAAA
Jean-Marc Fix, FSA, MAAA
Larry Stern, FSA, MAAA
Mark Rosa, FSA, MAAA
Cynthia MacDonald, FSA, MAAA

Members available to provide supplementary information and explanation as needed.



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SEATTLE

NAIC
2023 SUMMER NATIONAL MEETING

NAIC Model Office Considerations

Scott O'Neal FSA, MAAA

August 11, 2023

NATIONAL ASSOCIATION OF INSURANCE COMMISSIONERS

1

2023 SUMMER NATIONAL MEETING NAIC

NAIC Model Office

ULSG

Universal Life with Secondary Guarantees (ULSG) model—long-duration product, larger potential for reserve reduction

- Model office and assumptions same as used in the yearly renewable term (YRT) representative model analysis
- Lifetime shadow account secondary guarantee
- No reinsurance in the model

Component	Values
Issue ages	Decennial issue ages 30 – 70
Gender	Male Female
Risk classes	Preferred non-tobacco Standard non-tobacco Standard tobacco
Face bands	Low (\$250,000) High (\$1,000,000)

Term

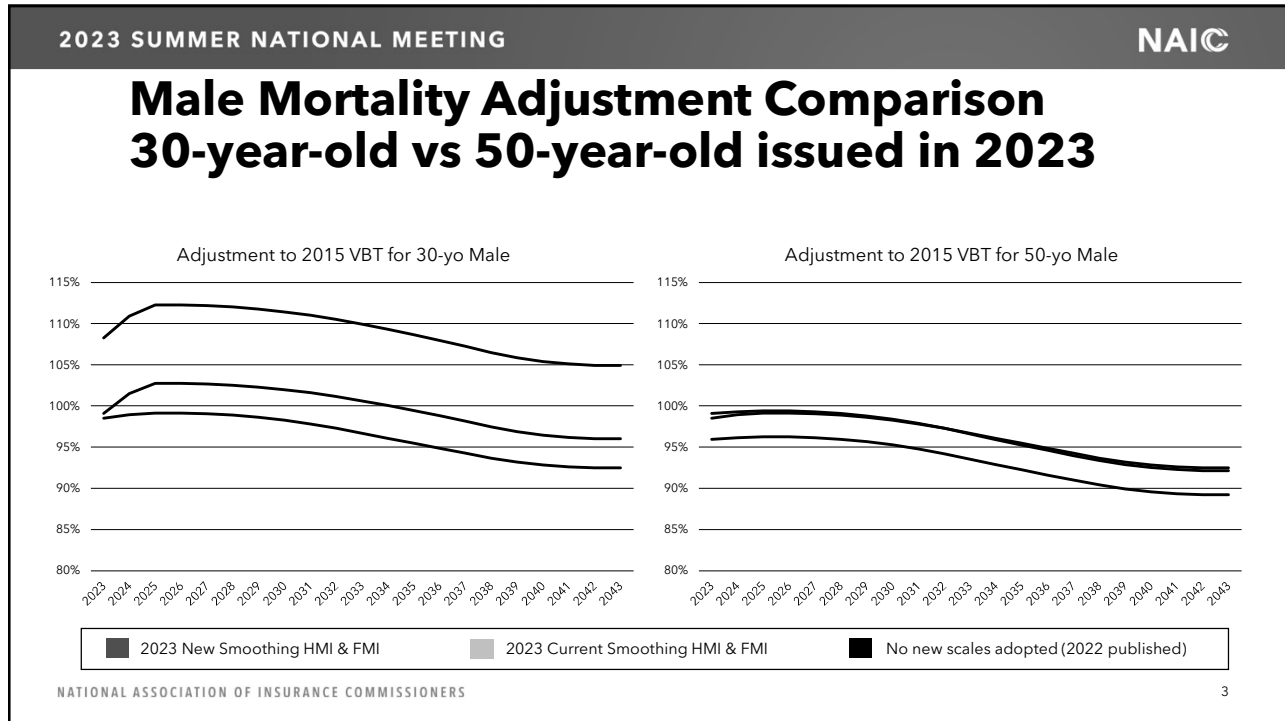
Term Life Insurance Product with 10- and 20-year level premium periods

- Model office and assumptions same as used in the YRT representative model analysis
- Mature at age 95
- 100% shock lapse at end of level term period

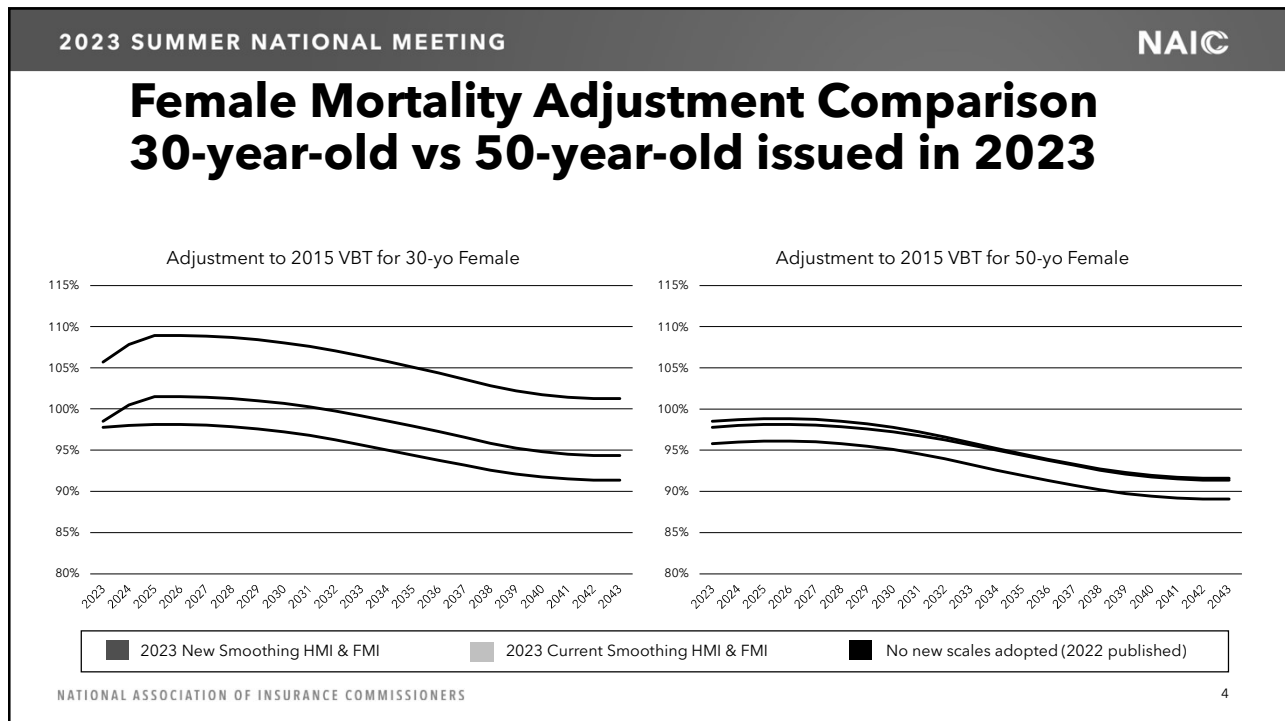
Component	Values
Issue ages	Decennial issue ages 20 – 60
Gender	Male Female
Risk classes	Preferred non-tobacco Standard non-tobacco Standard tobacco
Face bands	Low (\$250,000) High (\$1,000,000)
Term lengths	10 year 20 year

NATIONAL ASSOCIATION OF INSURANCE COMMISSIONERS 2

2



3



4

NAIC Model Office Considerations

- Model office has an equal weight of each issue age, risk class, gender, face amount which may not be representative of the industry.
- For YE 2023, the scalar applied to the model office: $(1-HMI)^{7.5}$ (6/2015 to 12/2023)
 - The proposed HMI has deterioration for the proposed smoothing method for ages 25-40: **1.08** for a 30-yo male
 - The proposed HMI has slight improvement to mortality for ages 45-60: **0.96** for a 50-yo male
- We apply the HMI factors to both industry and company mortality in the model office, though companies that have highly credible data may not use the HMI to adjust the company mortality.
- GOES Field Test Participation:
 - Term: About half the GOES Field Test Participants for VM-20 had negative Term DR
 - ULSG: All baseline DR was positive

5

Next Steps

- Compare Term and ULSG model office results to understand the new HMI smoothing methodology impact to reserves
- Analyze model office results of a cohort with mortality deterioration and a cohort with mortality improvement cohorts to illustrate the new smoothing impact to reserves
 - 30-year-olds represent mortality deterioration
 - 50-year-olds represent mortality improvement
- Present findings after summer national meeting

6

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form*

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Identification:

Rachel Hemphill, FSA, FCAS, MAAA, Ph.D.

Title of the Issue:

Add guidance on consistency of HMI and FMI rates.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

VM-20 Section 9.C.2.h

January 1, 2023 NAIC Valuation Manual

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

For the last two years, the SOA has been restricted in the form of the historical and future mortality improvement rates that they are able to recommend, as the *Valuation Manual* pairs the industry future mortality improvement with both company-specific historical mortality improvement as well as industry historical mortality improvement. Therefore, the SOA’s future mortality improvement recommendation has not been able to assume a specific treatment of any considerations, such as COVID, in the historical mortality improvement.

Rather than continuing this restricted form of recommendations, this APF proposes to require that companies ensure that they are applying historical mortality improvement rates that are consistent with any considerations specifically identified by the SOA, adopted by LATF, and published along with the mortality improvement factors (e.g., COVID).

Also, because mortality improvement may be negative, the requirement should be that HMI “shall” be applied to the company mortality rates not “may” be applied.

* This form is not intended for minor corrections, such as formatting, grammar, cross-references or spelling. Those types of changes do not require action by the entire group and may be submitted via letter or email to the NAIC staff support person for the NAIC group where the document originated.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
7/20/23	SO		
Notes: 2023-09			

VM-20 9.C.2.h

h. Mortality improvement shall not be incorporated beyond the valuation date in the company experience mortality rates. However, historical mortality improvement from the central point of the underlying company experience data to the valuation date ~~may~~ shall be incorporated. The company shall ensure that any specific considerations identified by the SOA, adopted by the Life Actuarial (A) Task Force, and published on the SOA website, at [link/reference to SOA site TBD] are reflected in the development of the company's historical mortality improvement assumption.

Guidance Note: Mortality improvement may be positive or negative (i.e., deterioration).

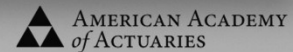
Interest Rates— Update on proposed Acceptance Criteria

Jason Kehrberg, MAAA, FSA
Chairperson, Economic Scenario Generator Subcommittee (ESGS)

Link Richardson, MAAA, FSA, CERA
Member, Economic Scenario Generator Subcommittee (ESGS)

National Association of Insurance Commissioners (NAIC)
Life Actuarial (A) Task Force (LATF)—August 12, 2023

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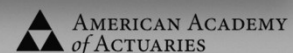


1

Agenda—Acceptance criteria for simulated interest rates 2

1. Background
2. Changes to previously proposed criteria
3. Newly proposed criteria
4. Discussion and Q&A
5. Appendix 1—Slides from Academy's 12/11/2022 presentation on interest rates

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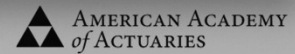
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Background

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3

Background

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LATF asked the Academy to deliver a series of presentations focused on proposing qualitative **Stylized Facts** and quantitative **Acceptance Criteria** for the three major components of an ESG used for statutory reporting purposes: **Interest Rates, Equity Returns, and Corporate Bond Fund Returns.**

This presentation provides an update on the Academy's work to propose **Acceptance Criteria for Interest Rates**, including both newly developed criteria and minor changes to previously proposed criteria.

Prior presentations in this series:

- A Framework for Working with ESGs (8/8/22)
- ESG Governance Considerations (8/8/22)
- Equity Returns—Stylized Facts (8/9/22)
- Corporate Credit & Bond Fund Returns—Stylized Facts, Acceptance Criteria, and a Simplified Model (10/27/22)
- Interest Rates—Stylized Facts and Acceptance Criteria (12/11/22)

This and future presentations in this series:

- **Interest Rates—Update on Proposed Acceptance Criteria (8/12/22)**
- Equity Returns—Acceptance criteria, including criteria for the joint distribution of equity returns and interest rates (TBD)

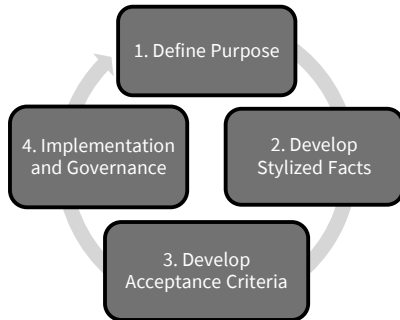
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4

A framework for developing, implementing, and evaluating ESGs and the scenario sets they produce

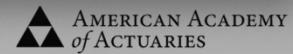
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*“Statistical criteria are important in assessing the quality of an ESG. Statistical calibration criteria are usually numerically specified but can also be qualitative in nature. Statistical criteria belong to one of two broad categories: qualitative features and quantitative measures. The issues one must address in both categories are not amenable to a checklist approach, however, and expert judgment plays a role.”
(quote from p. 96 of the 2020 CAS/Conning research paper on ESGs)*

- 1. Define Purpose:** The intended purpose of the ESG informs the economic variables to be simulated and the relative importance of their “stylized facts.”
- 2. Develop Stylized Facts:** Stylized facts describe properties of the economic variables to be simulated. They are based on historical market data and economic theory and are prioritized relative to the defined purpose at hand. The establishment of stylized facts is critical for selecting candidate ESG models and a key prerequisite for the development of acceptance criteria.
- 3. Develop Acceptance Criteria:** A set of quantitative metrics or target values at different time horizons or in different economic conditions that provide a simplified framework for ensuring sets of scenarios produced by the ESG are consistent with key stylized facts.
- 4. Implementation and Governance:** ESG models are selected based on their ability to reflect the stylized facts, then calibrated in accordance with acceptance criteria. Validation reports are produced on each candidate scenario set generated by the ESG. These reports compare scenario set statistics to acceptance criteria and contain other charts and tables useful for evaluation and signoff, which is ultimately a matter of judgement (no automatic “pass” or “fail” based only on acceptance criteria). Implementation is an iterative process. It is important to periodically review and recalibrate the ESG as market conditions change over time.

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2.

Changes to previously proposed criteria

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6

Rate level
Criteria for the distribution of steady state interest rates

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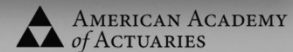
Percentile	20Y Criteria	1Y Criteria	"Buffers" can provide guidance on "too extreme"
99 th	> 13.55%	> 13.86%	[275 bps]
95 th	> 9.35%	> 9.02%	[250 bps]
85 th	> 7.54%	> 6.22%	[225 bps]
50 th	> 3.35% and < 4.88%	> 1.31% and < 3.34%	n/a
15 th	< 2.31%	< 0.16%	[70 bps]
5 th	< 1.78%	< 0.10%	[80 bps]
1 st	< 1.15%	< 0.07%	[90 bps]

- Criteria are based on 15-year half-life PEWs calculated from 1953.04 to 2021.12.
- Scenarios should be "plausibly more extreme" than the PEWs; however, scenarios that exceed the PEWs by more than a "buffer" may be "too extreme".
- Note, the range for the 50th percentile (Median) is based on the [40th] and [60th] PEW.
- Note, other categories of criteria cover rate dynamics in initial periods.

Changes from 12/11/2022 presentation:

- Min/Max criteria moved to new criteria focused on bounds and worse-than-history events.
- Removed 30th/70th percentile criteria.
- Steady state period changed from month [600] to months [961 through 1200] (years [80 through 100]).

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Rate volatility
Criteria for the standard deviation of monthly yield changes

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Bucket	Yield Level (BOM)	1Y volatility		20Y volatility	
		Historical Stat	Desired range for scenario stat	Historical Stat	Desired range for scenario stat
Low	[≤ 3%]	0.59%	0.30% to 0.89%	0.61%	0.31% to 0.92%
Medium	[> 3%, ≤ 8%]	1.16%	0.58% to 1.73%	0.74%	0.37% to 1.12%
High	[> 8%]	3.32%	1.67% to 5.02%	1.54%	0.78% to 2.33%

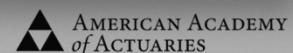
Notes:

- The relevant statistic is the annualized standard deviation of monthly yield changes across all scenarios, bucketed by the rate level at the beginning of month (BOM).
- Desired ranges use a [50%] buffer on either side of the historical statistic.

Changes from 12/11/22 presentation:

- Steady state period changed from months [600] to months [961] through [1200] (years [80] through [100]). Initial period remains the first [10] years.
- A specific buffer of [50%] has been illustrated.

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Yield curve slope

Criteria for the shape of the yield curve

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Percentiles of [20Y]-[1Y]	Bucketed by level of [20Y] rate		
	<=[3%]	>[3%] to <=[8%]	>[8%]
99 th	2.81% to 3.31%	4.06% to 4.56%	2.76% to 3.26%
95 th	2.64% to 3.14%	3.71% to 4.21%	2.41% to 2.91%
90 th	2.52% to 3.02%	3.44% to 3.94%	2.05% to 2.55%
85 th	2.28% to 2.78%	3.23% to 3.73%	1.94% to 2.44%
15 th	-0.01% to 0.49%	-0.56% to -0.06%	-1.46% to -0.96%
10 th	-0.11% to 0.39%	-0.71% to -0.21%	-1.79% to -1.29%
5 th	-0.23% to 0.27%	-0.97% to -0.47%	-2.06% to -1.56%
1 st	-0.32% to 0.18%	-1.73% to -1.23%	-3.43% to -2.93%

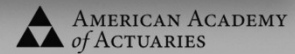
Changes from 12/11/22 presentation:

- Added percentiles further out in the tails.
- Steady state period changed from months 600 to months 961 through 1200 (years 80 through 100). Initial period remains the first 10 years.

Notes:

- Based on historical percentiles using data from [1953.04 to 2021.12] and a [50 bps] buffer.
- Historical statistics are in black.

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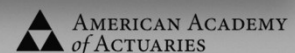
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Newly proposed criteria

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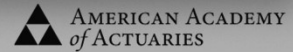
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Description of new categories of acceptance criteria

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- Criteria for upper and lower bounds and worse-than-history frequencies for rate and slope levels
- Criteria for reversion of median rate and slope levels
- Low-for-long criteria

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Criteria for upper and lower bounds and worse-than-history frequencies for rate and slope levels

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	Bucket	Lower Bound	Upper Bound	Historical Min and Max (for reference) ¹	Worse-Than-History Frequencies ²
Rates:					
1Y	n/a	-0.5% to -1%	20% to 24%	0.05% & 16.97%	0.5% to 1.5%
20Y	n/a	0% to 0.5%	17% to 20%	0.95% & 15.78%	0.5% to 1.5%
Slopes:					
20Y-1Y	20Y <= 3%	-0.5% to -1.5%	3% to 4%	0.02% & 2.85%	0.5% to 2%
20Y-1Y	3% < 20Y <= 8%	-2% to -3.5%	4.5% to 6%	-1.38% & 4.15%	0.5% to 2%
20Y-1Y	8% < 20Y	-4% to -5%	3.5% to 5.5%	-3.36% & 2.90%	0.5% to 2%

¹ Historical Min and Max determined using monthly observations from 1953.04 to 2021.12.

² The same Worse-Than-History frequency ranges are proposed for both the left and right tail.

³ These criteria are applied to the steady state period, i.e., months [961] through [1200] (years [80] through [100])

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12

Slide 12

eh0 Where is fn 3 referrer ?
eric harding, 2023-08-04T13:52:26.111

JK0 0 The 3rd footnote applies to the entire slide.
Jason Kehrberg, 2023-08-07T17:50:36.810

Criteria for reversion of median rate and slope levels

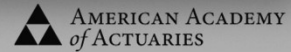
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Proposed criteria for interim rate levels is expressed in terms of the length of time it takes for initial rates and slopes to revert 50% of the way to their steady state levels (e.g., half-lives).

The Academy is currently using reference models to further explore potential additional interim criteria.

	Proposed range for half-life of median reversion
Rates:	
1Y	[10] to [20] years
20Y	[10] to [20] years
Slopes:	
20Y-1Y	[2] to [8] years

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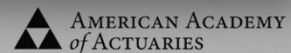
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Low-for-long criteria for steady state interest rate levels

14

- Proposed *additional, steady state*, low-for-long criteria uses the concept of “sojourn length,” i.e., the number of years an interest rate stays within a defined corridor.
 - Criteria for [1Y] rate: During months [961 to 1200] (years [80 to 100]), the 1Y rate stays below [0.5%] for at least [5] consecutive years in at least [X%] of scenarios.
 - Criteria for [20Y] rate: During months [961 to 1200] (years [80 to 100]), the 20Y rate stays below [2%] for at least [5] consecutive years in at least [X%] of scenarios.
- This steady state low-for-long criteria can be combined with the NAIC’s current initial period low-for-long criteria to ensure desired low-for-long behavior throughout the simulation. DB0
- Reference models can and should be used to refine the numbers in brackets.

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14

Slide 14

DB0 I just want to make sure that we want to use this spelling?
Devin Boerm, 2023-08-02T19:59:21.526

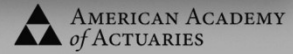
JK0 0 I'd go with "behavior" since intended for US audience
Jason Kehrberg, 2023-08-07T17:51:52.423

15

4.

Discussion and Q&A

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15

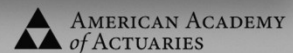
Thank You

16

Contact:

Amanda Barry-Moilanen, Life Policy Analyst,
barrymoilanen@actuary.org

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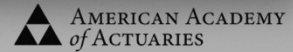


16

5.

Appendix 1 – Slides from Academy’s 12/11/2022 presentation on Interest Rates

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Interest Rates— Stylized Facts and Acceptance Criteria

Jason Kehrberg, MAAA, FSA
Chairperson, Economic Scenario Generator Work Group (ESGWG)

Link Richardson, MAAA, FSA, CERA
Member, Economic Scenario Generator Work Group (ESGWG)

National Association of Insurance Commissioners (NAIC) Life Actuarial (A) Task Force (LATF)
December 11, 2022

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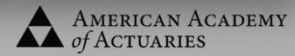
18

Agenda—Interest rates

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1. Background
2. Stylized Facts
3. Acceptance Criteria
4. Discussion and Q&A

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20

1.

Background

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Background

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LATF asked the Academy to deliver a series of presentations focused on proposing qualitative **Stylized Facts** and quantitative **Acceptance Criteria** for the three major components of an ESG used for statutory reporting purposes: **Interest Rates, Equity Returns, and Corporate Bond Fund Returns**.

This presentation proposes **Stylized Facts** and **Acceptance Criteria** for Interest Rates that (a) are independent of any specific ESG model, (b) can be used to identify and evaluate candidate ESG models, and (c) can be used to evaluate a set of stochastic scenarios.

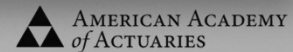
Prior presentations in this series:

- A Framework for Working with ESGs (8/8/22)
- ESG Governance Considerations (8/8/22)
- Equity Returns—Stylized Facts (8/9/22)
- Corporate Credit & Bond Fund Returns—Stylized Facts, Acceptance Criteria, and a Simplified Model (10/27/22)

This and future presentations in this series:

- **Interest Rates—Stylized Facts and Acceptance Criteria**
- Equity Returns—Acceptance Criteria

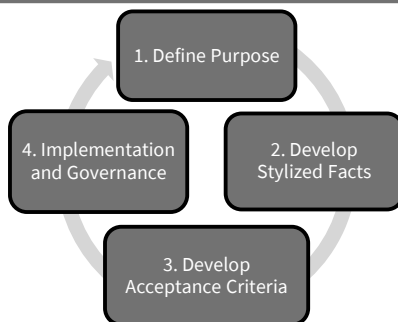
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A framework for developing, implementing, and evaluating ESGs and the scenario sets they produce

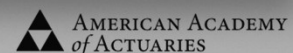
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“Statistical criteria are important in assessing the quality of an ESG. Statistical calibration criteria are usually numerically specified but can also be qualitative in nature. Statistical criteria belong to one of two broad categories: qualitative features and quantitative measures. The issues one must address in both categories are not amenable to a checklist approach, however, and expert judgment plays a role.”
 (quote from p. 96 of the 2020 CAS/Conning research paper on ESGs)

- 1. Define Purpose:** The intended purpose of the ESG informs the economic variables to be simulated and the relative importance of their “stylized facts.”
- 2. Develop Stylized Facts:** Stylized facts describe properties of the economic variables to be simulated. They are based on historical market data and economic theory and are prioritized relative to the defined purpose at hand. The establishment of stylized facts is critical for selecting candidate ESG models and a key prerequisite for the development of acceptance criteria.
- 3. Develop Acceptance Criteria:** A set of quantitative metrics or target values at different time horizons or in different economic conditions that provide a simplified framework for ensuring sets of scenarios produced by the ESG are consistent with key stylized facts.
- 4. Implementation and Governance:** ESG models are selected based on their ability to reflect the stylized facts, then calibrated in accordance with acceptance criteria. Validation reports are produced on each candidate scenario set generated by the ESG. These reports compare scenario set statistics to acceptance criteria and contain other charts and tables useful for evaluation and signoff, which is ultimately a matter of judgement (no automatic “pass” or “fail” based only on acceptance criteria). Implementation is an iterative process. It is important to periodically review and recalibrate the ESG as market conditions change over time.

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Excerpts from the 2020 Casualty Actuarial Society (CAS)/Conning research paper on ESGs

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High-level features of a good ESG:

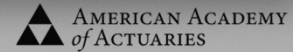
- “It produces simulation results that reflect the economic view of the risk manager.
- Scenarios are consistent with **realistic market dynamics**.
- A large simulation should produce some **extreme but plausible results** (i.e., the simulation covers and moderately exceeds the benchmark stylized facts).
- Component models and architecture must have sufficient flexibility to serve in multiple roles.

If one discusses the essential features of a good ESG with a diverse group of ESG experts, those experts’ lists of features and the relative importance of those features will vary. However, they will set forth a common core of ideas that can serve as a checklist of best practices.”

A good ESG:

1. “has a solid methodological foundation for the way the models are built and the way the variables are interrelated, and models are parsimonious, practical, and comprehensive.
2. provides a comprehensive suite of macroeconomic and financial variables and a multi-economy capability.
3. can accommodate many types of calibration views across a wide range of benchmarks.
4. produces simulation results that reflect a relevant view.
5. produces some extreme but plausible outcomes.
6. embeds realistic market dynamics.
7. is computationally efficient and numerically stable.
8. has fast and robust recalibration capabilities.
9. meets the requirements of regulators and auditing firms.
10. produces sufficient simulation detail for extensive validation.”

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The NAIC presented LATF with preliminary goals for interest rates on 12/3/20 and preliminary boundary guidance on 2/17/22

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Preliminary goal

1. The model’s starting yield curve should fit the actual starting yield curve as closely as possible.
2. The model should produce a variety of yield curve shapes, and they should change over time.

Preliminary boundary guidance

Yield curve fit and Yield curve shape (priority 4)

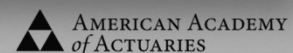
- a) Review initial actual vs. fitted spot curve differences for a sampling of 5 dates representing different shapes and rate levels for the entire curve and review fitted curves qualitatively to confirm they stylistically mimic the different actual yield curve shapes
- b) The frequency of different yield curve shapes in early durations should be reasonable considering the shape of the starting yield curve (e.g., a flatter yield curve leads to more inversions).
- c) The steady state curve has normal shape (not inverted for short maturities, longer vs shorter maturities, or between long maturities)

3. Interest rates can be negative.

Negative rates (priority 3)

- a) All maturities could experience negative interest rates
- b) Interest rates may remain negative for multi-year time periods
- c) Rates should generally not be lower than -1.5%

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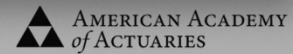


24

The NAIC presented LATF with preliminary goals for interest rates on 12/3/20 and preliminary boundary guidance on 2/17/22 (continued)²⁵

Preliminary goal	Preliminary boundary guidance
4. The model should be capable of producing a reasonable range of results for very long simulations.	<p><i>High rates (priority 2)</i></p> <p>a) The scenario set should reasonably reflect history, with some allowance for more extreme high and low interest rate environments</p> <p>b) Upper Bound:</p> <ul style="list-style-type: none"> i. 20% is >= 99th percentile on the 3M yield fan chart, and no more than 5% of scenarios have 3M yields that go above 20% in the first 30 years ii. 20% is >= 99th percentile on the 10Y yield fan chart, and no more than 5% of scenarios have 10Y yields that go above 20% in the first 30 years
5. The ESG should be capable of producing low interest rates for an extended period of time.	<p><i>Low for long (priority 1)</i></p> <p>a) For scenarios generated as of 12/31/20, at least 10% of scenarios should have a 10-year geometric average of the 20-year US Treasury yield that is below its current level (e.g., 1.45% at 12/31/20)</p> <p>b) For scenarios generated as of 12/31/20, at least 5% of scenarios should have a 30-year geometric average of the 20-year US Treasury yield that is below its current level (e.g., 1.45% at 12/31/20)</p>

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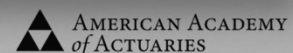


25

The NAIC presented LATF with preliminary goals for interest rates on 12/3/20 and preliminary boundary guidance on 2/17/22 (continued)²⁶

Preliminary goal	Preliminary boundary guidance
6. The model should produce interest rate levels that fluctuate significantly over long periods.	<p><i>Volatility (no priority given)</i></p> <p>Preliminary boundary guidance not specified</p>
7. The interest rate generator should be arbitrage free.	<p><i>Arbitrage free (priority 3)</i></p> <p>No longer considered an explicit requirement in the 2/17/22 preliminary boundary guidance since the NAIC's ESG Drafting Group was proposing the use of a generalized fractional floor.</p>
8. The ESG should be calibrated using an appropriate historical period.	<p><i>Historical calibration period (no priority given)</i></p> <p>Preliminary boundary guidance not specified</p>

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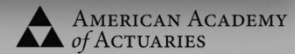
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2.

Stylized Facts

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Groupings for stylized facts about interest rates

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Stylized Facts have been grouped into the following three categories:

1. Level of Interest Rates
2. Volatility of Interest Rates
3. Term Structure of Interest Rates (shape of yield curve)

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Stylized Facts

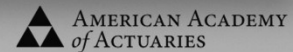
1. Level of Interest Rates

29

The level of interest rates (the cost of borrowing money) changes due to a variety of complex and interrelated factors (e.g., supply of and demand for financing, business cycle, GDP, inflation, central bank actions to stimulate the economy or control inflation).

- a. Short-term rates (which the Fed has more control of) have generally fallen within a range of 0% to 20% and have most often been within the lower part of that range. Long-term rates have generally been within 300 bps of short-term rates.
- b. Negative interest rates are possible (have been observed outside the U.S.) but unlikely due to structural and market differences between the U.S. and other economies.
- c. Interest rates can exhibit multi-year trends (e.g., up, down, low-for-long). Interest rates can stay at very low levels for several years. Short-term rates can stay very near their lower bound for several years while higher long-term rates continue to fluctuate.

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Stylized Facts

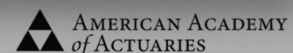
2. Volatility of Interest Rates

30

The volatility of interest rates varies over time, with periods of both high and low volatility.

- a. Monthly changes in interest rates are generally limited in size (less than 80 bps) but changes tend to be greater when the level of interest rates is higher.
- b. Monthly changes in short-term rates tend to be larger than monthly changes in long-term rates when short-term rates are not near their lower bound, but the opposite relationship tends to hold when short-term rates are near their lower bound.
- c. Volatility tends to increase in stressed markets.

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Stylized Facts

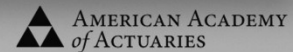
3. Term Structure of Interest Rates (shape of yield curve)

31

The yield curve embodies the term structure of interest rates and takes a variety of shapes.

- a. The normal yield curve shape is upward sloping (long-term rates greater than short-term rates) and concave downward. Normal yield curve shapes can persist for extended periods of time.
- b. Non-normal yield curve shapes include inversions (downward sloping), humps, and valleys. Inversions (and other non-normal yield curve shapes) are often associated with key points in the business cycle (e.g., recession indicator) but generally don't persist for extended periods of time.
- c. The slope of the yield curve tends to be lower (even negative/inverted) when short-term rates are at relatively high levels.

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31

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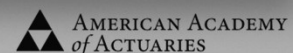
3.

Acceptance Criteria

Unless otherwise specified, tables and charts on the following slides are based on two primary data sources:

1. Historical U.S. Treasury yields from the "Historical Curves" tab of the August 2022 Academy Interest Rate Generator (AIRG) located at <https://soa.org/resources/tables-calcs-tools/research-scenario/>
2. Simulated U.S. Treasury yields from "10000_Path_Set_1a_Conning_GFF_Baseline_Equity_123121" located at <https://naic.conning.com/scenariofiles>

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This section discusses acceptance criteria around four key properties of interest rates identified in the stylized facts 33

1. Rate level
 - Includes criteria around high, low, and negative rates.
 - Only **steady state** criteria is being proposed at this point. **Interim** rate level criteria, which depend heavily on initial conditions, are being developed and will be proposed later.
2. Rate volatility
 - Criteria varies by rate level (applies to interim and steady state).
3. Yield curve shape
 - Criteria varies by rate level (applies to interim and steady state).
4. Low-for-long
 - Although the ESGWG has not finalized its proposal for this key property of interest rates, we present our qualitative understanding of low-for-long for discussion and feedback.

Acceptance criteria provide a simplified framework for validating key scenario properties but are only part of a larger validation exercise that includes other charts, statistics, and of course, judgment.

Criteria were developed with the following principles in mind:

- The scenario set should include some extreme but plausible scenarios.
- Pathwise behavior is as important as point-in-time distributions.
- Scenarios should be consistent with realistic market dynamics over both short- and long-term horizons.

"The importance of pathwise model behavior is that it is the simulated path that represents the way an insurance company will experience the evolution of the economy. In other words. The pathwise behavior is the only thing of interest when we want to investigate simulation dynamics. If the overall distribution of returns for an asset class is correct but the pathwise behavior does not correspond to the nature of the fluctuations that we see in the historical record, then there is a potential model issue." (p. 107)

"A good ESG will be capable of being calibrated to coherent targets across multiple simulation horizons." (p. 106)
 (quotes from the 2020 CAS/Conning research paper on ESGs)

Rate level Historical PEWs (see appendix for additional information on PEWs) 34

- Selected 15-year half-life “Percentiles Exponentially Weighted” (PEWs) on historical month-end interest rates are proposed as steady state acceptance criteria for rate level (high, low, and negative).
 - *Ideally, corresponding percentiles on scenario sets are “plausibly more extreme” than the PEWs.*
- Calculated using data from April 1953, but unlike typical percentiles where data is weighted equally, PEWs give exponentially less weight to older data.
- PEWs are defined by their “half-life.” A half-life of 15 years means data that is 15 years older receives half the weight.
- A half-life of 15 years is suggested to give more weight to recent data while not overreacting to short-term fluctuations.

“Stability versus responsiveness: As a common trade-off and concern in general actuarial work, it is important to consider where the happy medium is between a long period of data (enhancing stability) and a recent shorter data period (that promotes responsiveness to more recent conditions).”
 (quote from p. 129 of the 2020 CAS/Conning research paper on ESGs)

15-year half-life PEWs at 12/31/21	20Y	1Y
Max	15.52%	16.97%
99 th PEW	13.55%	13.86%
95 th PEW	9.35%	9.02%
85 th PEW	7.54%	6.22%
70 th PEW	5.77%	4.88%
60 th PEW	4.88%	3.34%
50 th PEW	4.33%	2.11%
40 th PEW	3.35%	1.31%
30 th PEW	2.83%	0.49%
15 th PEW	2.31%	0.16%
5 th PEW	1.78%	0.10%
1 st PEW	1.15%	0.07%
Min	0.98%	0.05%

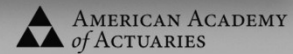
Rate level
Criteria for the distribution of steady state interest rates

35

	20Y Criteria	1Y Criteria	"Buffers" could provide guidance on "too extreme"
Max	> 15.52%	> 16.97%	[300 bps]
99 th Percentile	> 13.55%	> 13.86%	[275 bps]
95 th Percentile	> 9.35%	> 9.02%	[250 bps]
85 th Percentile	> 7.54%	> 6.22%	[225 bps]
70 th Percentile	> 5.77%	> 4.88%	[200 bps]
50 th Percentile	> 3.35% and < 4.88%	> 1.31% and < 3.34%	n/a
30 th Percentile	< 2.83%	< 0.49%	[60 bps]
15 th Percentile	< 2.31%	< 0.16%	[70 bps]
5 th Percentile	< 1.78%	< 0.10%	[80 bps]
1 st Percentile	< 1.15%	< 0.07%	[90 bps]
Min	< 0.98%	< 0.05%	[100 bps]

- Criteria is based on 15-year half-life PEWs.
- Scenarios should be "plausibly more extreme" than the PEWs.
- But scenarios that exceed the PEWs by more than a "buffer" may be "too extreme".
- Test statistics:
 - Percentiles of the [20Y] and [1Y] rate distributions at month [600] (year [50]).
 - Max and Min of the [20Y] and [1Y] rate distributions are from projection months [480] through [720] (years [40] through [60]).
- Note, the range for the 50th percentile (Median) is based on the 40th and 60th PEW.

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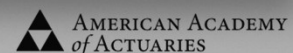
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Rate level
Illustrative application of criteria to field test scenario set #1a

36

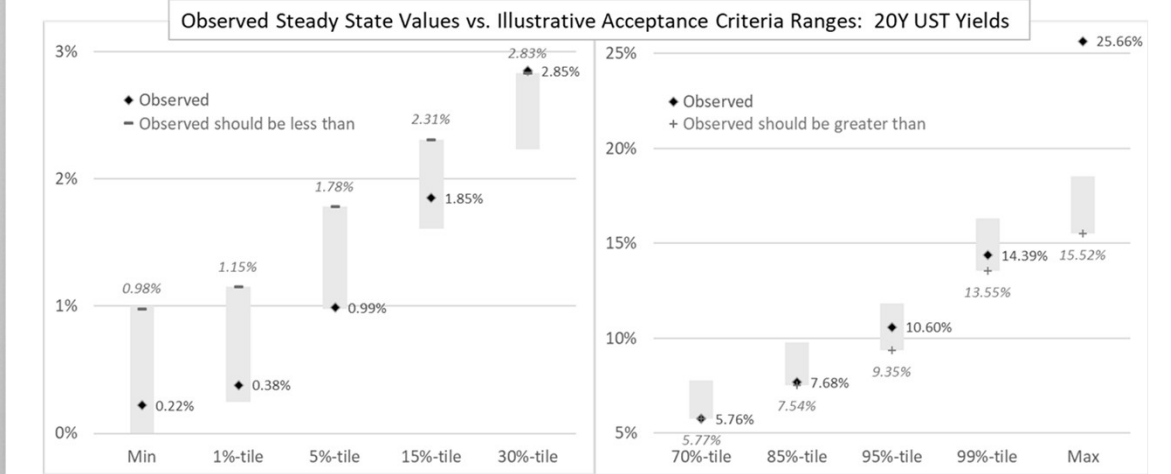
	20Y Criteria	1Y Criteria	Buffers	20Y Stat	20Y Result	1Y Stat	1Y Result
Max	> 15.52%	> 16.97%	[300 bps]	25.66%	> Buffer (714 bps)	29.60%	> Buffer (963 bps)
99 th Percentile	> 13.55%	> 13.86%	[275 bps]	14.39%	In range	15.40%	In range
95 th Percentile	> 9.35%	> 9.02%	[250 bps]	10.60%	In range	11.09%	In range
85 th Percentile	> 7.54%	> 6.22%	[225 bps]	7.68%	In range	7.41%	In range
70 th Percentile	> 5.77%	> 4.88%	[200 bps]	5.76%	< PEW (1 bp)	4.71%	< PEW (17 bps)
50 th Percentile	> 3.35% and < 4.88%	> 1.31% and < 3.34%	n/a	4.20%	In range	2.35%	In range
30 th Percentile	< 2.83%	< 0.49%	[60 bps]	2.85%	> PEW (2 bps)	0.40%	In range
15 th Percentile	< 2.31%	< 0.16%	[70 bps]	1.85%	In range	0.07%	In range
5 th Percentile	< 1.78%	< 0.10%	[80 bps]	0.99%	In range	-0.26%	In range
1 st Percentile	< 1.15%	< 0.07%	[90 bps]	0.38%	In range	-0.53%	In range
Min	< 0.98%	< 0.05%	[100 bps]	0.22%	In range	-0.79%	In range

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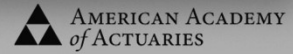


36

Rate level
Illustrative application of criteria to field test scenario set #1a (continued) 37

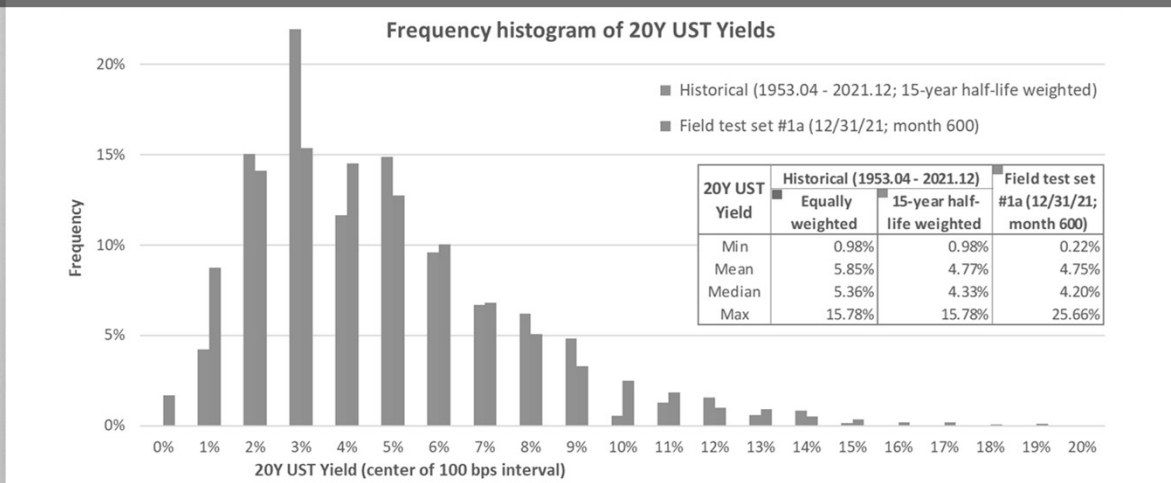


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37

Rate level
Supplemental chart for evaluating rate levels on consistent basis with PEWs 38

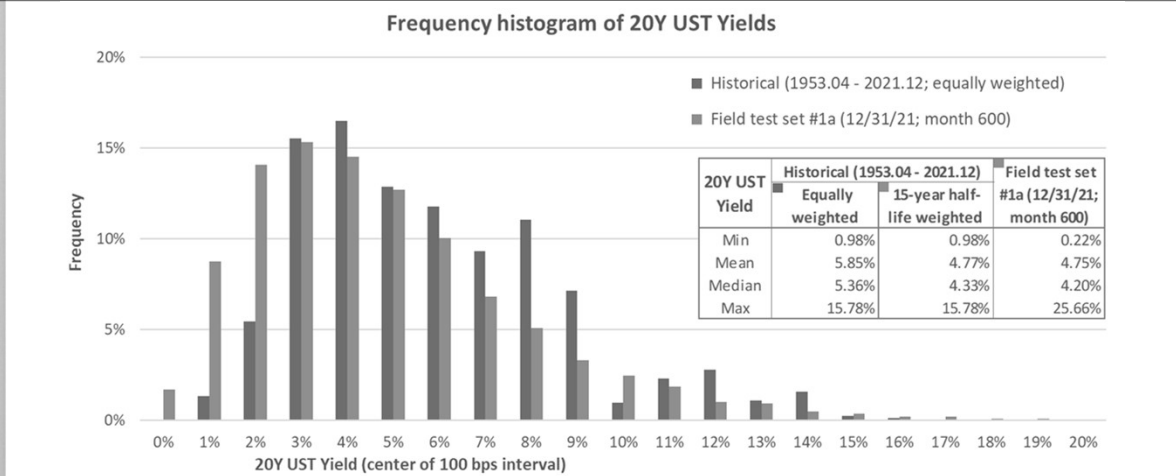


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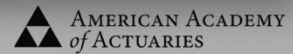


38

Rate level
Supplemental chart for evaluating rate levels on consistent basis with PEWs 39



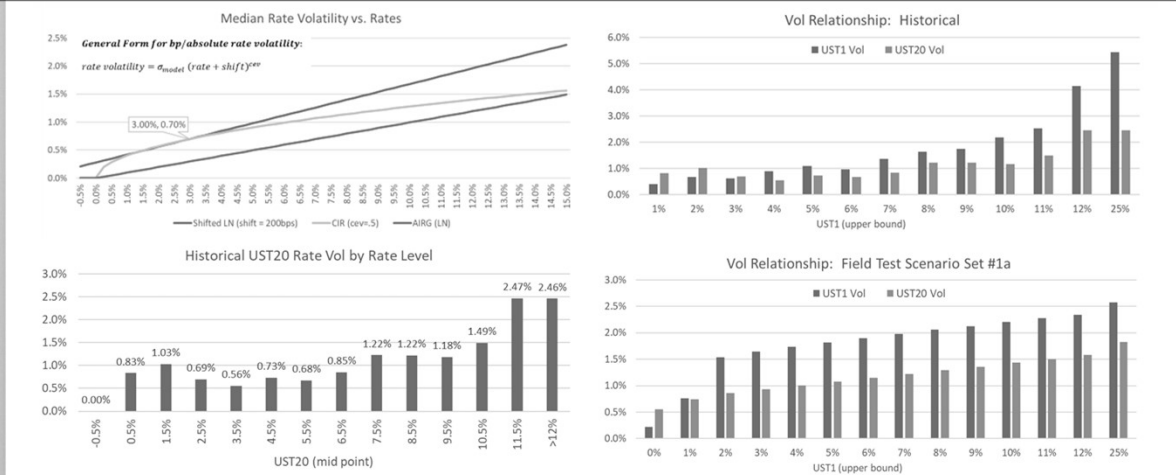
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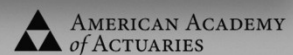
39

Rate volatility
Background

40



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40

Rate volatility
Historical statistics and Criteria

41

Historical volatility statistics

Annualized standard deviation of monthly yield changes from 1953.04 to 2021.12, bucketed by yield level at beginning of month (BOM):

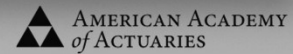
Bucket	Yield Level (BOM)	1Y	20Y
Low	[≤ 3%]	0.59%	0.61%
Medium	[> 3%, ≤ 8%]	1.16%	0.74%
High	[> 8%]	3.32%	1.54%

Note that short (1Y) rate volatility tends to exceed long (20Y) rate volatility, except when rates are low.

Volatility criteria

- » For the relevant test statistics on the candidate scenario set, calculate the annualized standard deviation of monthly yield changes across all scenarios, bucketed by the rate level at the BOM.
 - Calculate the above test statistics for both the first [10] years and steady state, e.g., years [40] to [60].
- » The above test statistics should be “reasonably close” to the historical volatility statistics in the table to the left.
 - For example, the above test statistics should be within [X]% of historical volatility statistics.

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Rate volatility
Illustrative application of rate volatility criteria to field test scenario set #1a

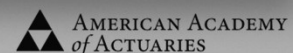
42

Tabular comparison of annualized standard deviation of 1Y and 20Y UST rates to history

	Bucket	Yield Level (BOM)	History	First [10] years		Steady state*	
				Simulated	Difference	Simulated	Difference
1Y UST	Low	[≤ 3%]	0.59%	1.06%	47 bps above	1.05%	46 bps above
	Medium	[> 3%, ≤ 8%]	1.16%	1.88%	72 bps above	1.85%	69 bps above
	High	[> 8%]	3.32%	2.31%	101 bps below	2.31%	101 bps below
20Y UST	Low	[≤ 3%]	0.61%	0.66%	5 bps above	0.68%	7 bps above
	Medium	[> 3%, ≤ 8%]	0.74%	1.00%	26 bps above	1.11%	37 bps above
	High	[> 8%]	1.54%	1.61%	7 bps above	1.69%	15 bps above

* Years [40] to [60]

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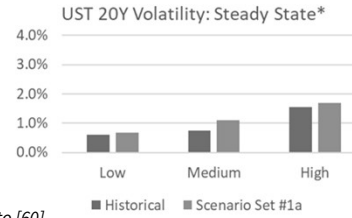
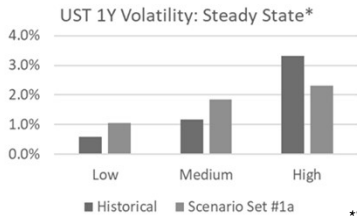
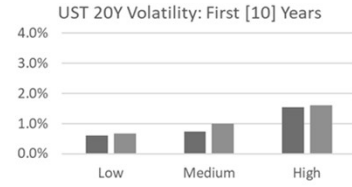
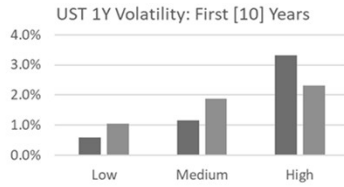
Rate volatility
Illustrative application of rate volatility criteria to field test scenario set #1a

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Graphical comparison of annualized standard deviation of 1Y and 20Y UST rates to history

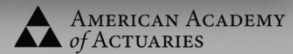
Observations on Set #1a:

- Initial and steady state volatility are similar
- Volatility is generally higher than history
- In the Low bucket:
 - 1Y volatility roughly double history
 - 20Y volatility roughly equal to history



*Years [40] to [60]

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Yield curve slope
Historical statistics

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Historical yield curve slope statistics

Selected percentiles on the distribution of slope (month-end [20Y] less month-end [1Y] yields) from 1953.04 to 2021.12, bucketed by [20Y] rate:

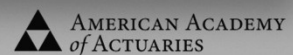
Bucket	Yield Level (BOM)	% Inverted	Min	5%	15%	30%	Median	70%	85%	95%	Max
Low	[≤ 3%]	0%	0.0%	0.3%	0.5%	1.1%	1.6%	2.0%	2.3%	2.6%	2.9%
Medium	[> 3%, ≤ 8%]	17%	-1.4%	-0.5%	-0.1%	0.4%	0.9%	1.8%	3.3%	3.8%	4.3%
High	[> 8%]	25%	-3.4%	-1.5%	-0.8%	0.3%	1.2%	1.8%	2.1%	2.7%	3.9%

Criteria

- For the test statistics on the candidate scenario set, calculate selected percentiles on the distribution of slope ([20Y] less [1Y] yield) across all scenarios, bucketed by the level of the [20Y] yield level.
 - Calculate above for both the first [10] years and steady state, e.g., years [40] to [60].
- The [15th] and [85th] percentiles should be “plausibly more extreme” than history.

Historical data indicates the distribution of curve shapes (particularly inversions) varies by rate level.

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Yield curve slope

Illustrative application of criteria to field test scenario set #1a

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Historical

Bucket	Inv %	Min	5%	15%	30%	Median	70%	85%	95%	Max
Low	0%	0.0%	0.3%	0.5%	1.1%	1.6%	2.0%	2.3%	2.6%	2.9%
Medium	17%	-1.4%	-0.5%	-0.1%	0.4%	0.9%	1.8%	3.3%	3.8%	4.3%
High	25%	-3.4%	-1.5%	-0.8%	0.3%	1.2%	1.8%	2.1%	2.7%	3.9%

Field test #1a (first [10] years)

Bucket	Inv %	Min	5%	15%	30%	Median	70%	85%	95%	Max
Low	6%	-4.5%	-0.2%	0.6%	1.0%	1.3%	1.6%	1.9%	2.2%	3.1%
Medium	35%	-9.2%	-2.6%	-1.3%	-0.3%	0.7%	1.5%	2.3%	3.0%	4.5%
High	62%	-10.0%	-5.2%	-3.4%	-2.0%	-0.7%	0.5%	1.3%	2.2%	3.7%

Difference (field test #1a less historical)

Bucket	Inv %	Min	5%	15%	30%	Median	70%	85%	95%	Max
Low	6%	-4.6%	-0.5%	0.1%	-0.2%	-0.3%	-0.5%	-0.4%	-0.4%	0.2%
Medium	18%	-7.9%	-2.1%	-1.2%	-0.6%	-0.3%	-0.3%	-1.0%	-0.8%	0.3%
High	37%	-6.7%	-3.7%	-2.5%	-2.3%	-1.9%	-1.3%	-0.8%	-0.5%	-0.2%

Notes:

- Slope = [20Y] less [1Y] yield
- Bucketed by [20Y] yield
- Buckets:
 - Low [≤ 3%]
 - Medium [> 3%, ≤ 8%]
 - High [> 8%]
- The [15th] percentile is more extreme than history if the difference is negative.
- The [85th] percentile is more extreme than history if the difference is positive.

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Yield curve slope

Illustrative application of criteria to field test scenario set #1a

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Historical

Bucket	Inv %	Min	5%	15%	30%	Median	70%	85%	95%	Max
Low	0%	0.0%	0.3%	0.5%	1.1%	1.6%	2.0%	2.3%	2.6%	2.9%
Medium	17%	-1.4%	-0.5%	-0.1%	0.4%	0.9%	1.8%	3.3%	3.8%	4.3%
High	25%	-3.4%	-1.5%	-0.8%	0.3%	1.2%	1.8%	2.1%	2.7%	3.9%

Field test #1a (steady state, e.g., years [40] to [60])

Bucket	Inv %	Min	5%	15%	30%	Median	70%	85%	95%	Max
Low	4%	-4.5%	0.3%	0.9%	1.2%	1.6%	2.0%	2.3%	2.6%	3.1%
Medium	19%	-10.5%	-2.0%	-0.4%	0.7%	1.7%	2.5%	3.1%	3.5%	4.6%
High	39%	-11.3%	-3.6%	-1.8%	-0.5%	0.6%	1.5%	2.2%	2.8%	4.2%

Difference (field test #1a less historical)

Bucket	Inv %	Min	5%	15%	30%	Median	70%	85%	95%	Max
Low	4%	-4.5%	0.0%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.2%
Medium	2%	-9.2%	-1.5%	-0.3%	0.4%	0.8%	0.8%	-0.2%	-0.3%	0.4%
High	14%	-8.0%	-2.0%	-1.0%	-0.8%	-0.6%	-0.3%	0.1%	0.1%	0.3%

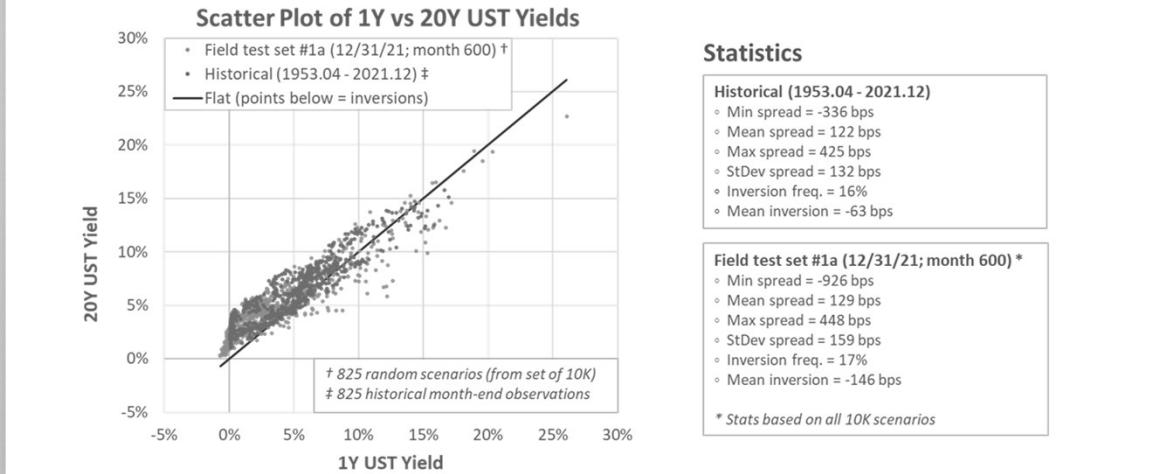
Notes:

- Slope = [20Y] less [1Y] yield
- Bucketed by [20Y] yield
- Buckets:
 - Low [≤ 3%]
 - Medium [> 3%, ≤ 8%]
 - High [> 8%]
- The [15th] percentile is more extreme than history if the difference is negative.
- The [85th] percentile is more extreme than history if the difference is positive.

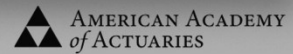
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Yield curve slope
Supplemental chart for evaluating rate yield curve slope

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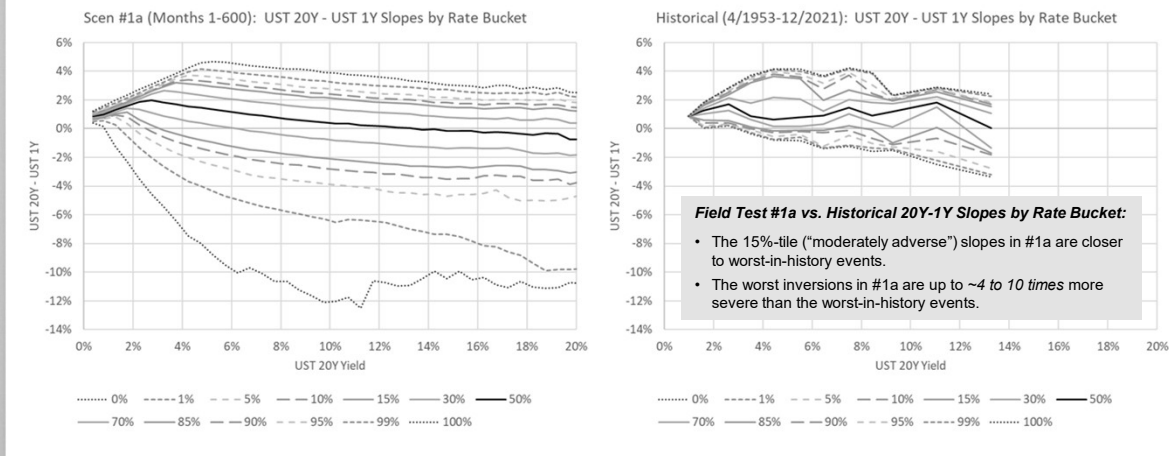
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Yield curve slope
Supplemental chart for evaluating rate yield curve slope

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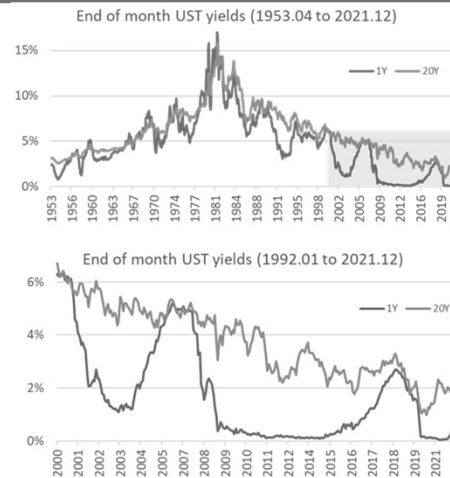
4. Low-for-long Qualitative understanding

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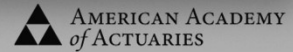
Although the ESGWG has not finalized its proposal for this key property of interest rates, we present our qualitative understanding of low-for-long for discussion and feedback.

Historical observations on low-for-long interest rate behavior:

1. (a) The long rate [20Y] stays below a threshold [3%] for an extended period of time [5+ years]. (b) During this time, the long rate continues to fluctuate as usual.
2. (a) The short rate [1Y] is “stuck” in a very narrow range [50bps] above zero. (b) During this time, short rate volatility (which normally exceeds long rate volatility) drops to near zero.
3. Low-for-long is a relatively recent phenomenon (post-2000 in the US; limited historical data).



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4.

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Discussion and Q&A

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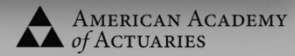
Thank You

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Contact:

- Amanda Barry-Moilanen, Life Policy Analyst, barrymoilanen@actuary.org

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Appendix

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PEWs

Additional information on Percentiles Exponentially Weighted (PEWs)

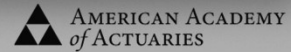
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The development of historical statistics for economic variables such as interest rates and equity rates involves subjective decisions such as how much history to include. One way to make use of all available data, but to focus more heavily on more recent data, is to develop exponentially weighted averages and percentiles.

An AWE is an Average Weighted Exponentially, with parameter Alpha. The most recent historical period, typically a month, gets an initial weight of 100%. Each prior historical period gets $(1-\alpha)$ times the weight of the next most recent period. Based on the number of historical periods of available data, the weights are then normalized so that their sum is 100%. The AWE is simply the weighted average of all the available or selected data. The “half-life” is then the period of time for which the cumulative weight reaches 50%.

PEWs apply the same concept to develop exponentially weighted percentiles. The historical values are unchanged, but their relative weight is dependent on when they occurred. Values are rank-ordered, with percentiles based on the sum of the relative weights up to the particular value. It may be desirable to assign percentiles at the center of each value’s weight range, especially if extreme values are important or statistical distributions will be fitted to the percentiles.

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PEWs

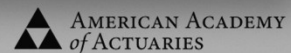
Historical UST 20Y PEWs at different half-lives (12/31/2021)

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	Equally Weighted	20Yr Half-Life	15Yr Half-Life	10Yr Half-Life	5Yr Half-Life
Maximum	15.52 %	15.52 %	15.52 %	15.52 %	15.52 %
99th PEW	13.92 %	13.63 %	13.55 %	12.49 %	8.11 %
95th PEW	11.70 %	10.44 %	9.35 %	8.59 %	5.78 %
85th PEW	8.48 %	7.94 %	7.54 %	6.47 %	4.47 %
70th PEW	7.09 %	6.20 %	5.77 %	4.87 %	3.08 %
50th PEW	5.36 %	4.64 %	4.33 %	3.31 %	2.66 %
30th PEW	4.06 %	3.05 %	2.83 %	2.63 %	2.20 %
15th PEW	2.95 %	2.47 %	2.31 %	2.08 %	1.85 %
5th PEW	2.31 %	1.85 %	1.78 %	1.45 %	1.23 %
1st PEW	1.43 %	1.18 %	1.15 %	1.05 %	1.05 %
Minimum	0.98 %	0.98 %	0.98 %	0.98 %	0.98 %
Max minus Min	14.54 %	14.54 %	14.54 %	14.54 %	14.54 %
99th minus 1st	12.48 %	12.45 %	12.40 %	11.44 %	7.06 %
95th minus 5th	9.39 %	8.59 %	7.57 %	7.14 %	4.55 %
85th minus 15th	5.53 %	5.47 %	5.23 %	4.39 %	2.62 %
70th minus 30th	3.03 %	3.15 %	2.94 %	2.24 %	0.88 %

* Historical 20 year Treasury rates are from: 1) 1953.04 - 1977.01 - monthly average rates from Fed H15 monthly history report;
 2) 1977.02 - 1993.09 - estimated month-end 20 year rates by averaging 10 year and 30 year; 3) 1993.10 - current: actual month end rates.

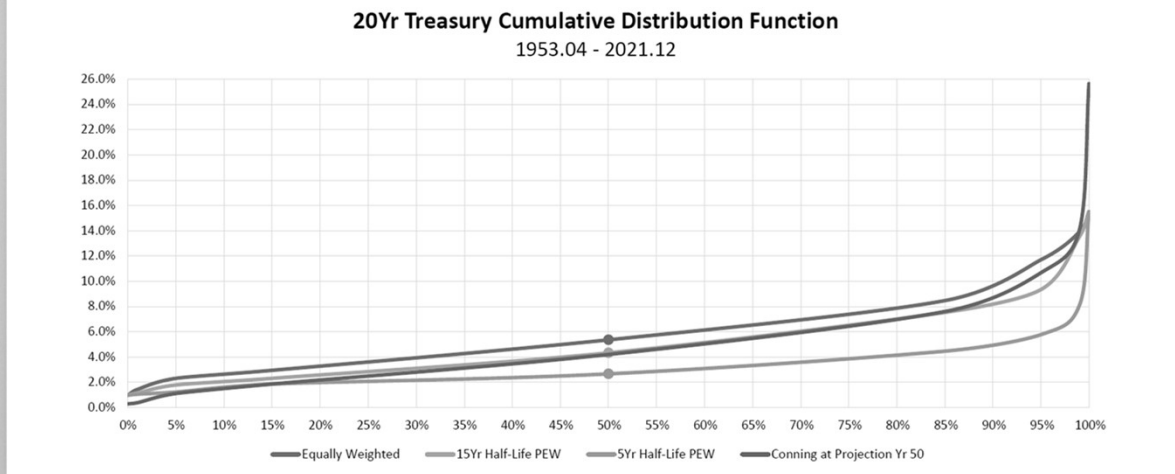
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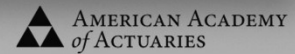
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PEWs
Chart of UST 20Y PEWs at different half-lives (12/31/2021)

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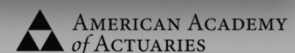
PEWs
Historical movement in 15-year half-life PEWs

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	PEWs from April 1953 through:						
	1971.12 (50 years ago)	1991.12 (30 years ago)	2001.12 (20 years ago)	2011.12 (10 years ago)	2016.12 (5 years ago)	2020.12 (1 year ago)	2021.12 Current
Maximum	7.34 %	15.52 %	15.52 %	15.52 %	15.52 %	15.52 %	15.52 %
99th PEW	7.24 %	14.32 %	14.03 %	13.88 %	13.63 %	13.55 %	13.55 %
95th PEW	6.85 %	13.28 %	12.48 %	11.45 %	10.64 %	10.04 %	9.35 %
85th PEW	6.18 %	11.19 %	9.18 %	8.34 %	8.01 %	7.60 %	7.54 %
Mean (AWE)	4.60 %	8.03 %	7.38 %	6.24 %	5.46 %	4.91 %	4.77 %
50th PEW	4.20 %	8.11 %	7.05 %	5.68 %	4.91 %	4.47 %	4.33 %
15th PEW	3.30 %	4.25 %	5.46 %	4.19 %	2.77 %	2.49 %	2.31 %
5th PEW	2.86 %	3.49 %	3.96 %	3.61 %	2.31 %	1.78 %	1.78 %
1st PEW	2.60 %	2.80 %	2.93 %	2.66 %	1.90 %	1.15 %	1.15 %
Minimum	2.57 %	2.57 %	2.57 %	2.57 %	1.78 %	0.98 %	0.98 %
99th minus 1st	4.64 %	11.52 %	11.10 %	11.22 %	11.73 %	12.40 %	12.40 %
95th minus 5th	3.99 %	9.79 %	8.52 %	7.84 %	8.33 %	8.26 %	7.57 %
85th minus 15th	2.88 %	6.94 %	3.72 %	4.15 %	5.24 %	5.11 %	5.23 %

* Percentiles Exponentially Weighted (PEW) are determined by the specified alpha
 * Historical 20 year Treasury rates are from: 1) 1953.04 - 1977.01 - monthly average rates from Fed H15 monthly history report;
 2) 1977.02 - 1993.09 - estimated month-end 20 year rates by averaging 10 year and 30 year; 3) 1993.10 - current: actual month end rates.

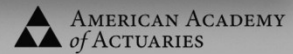
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PEWs
Chart of historical movement in 15-year half-life PEWs

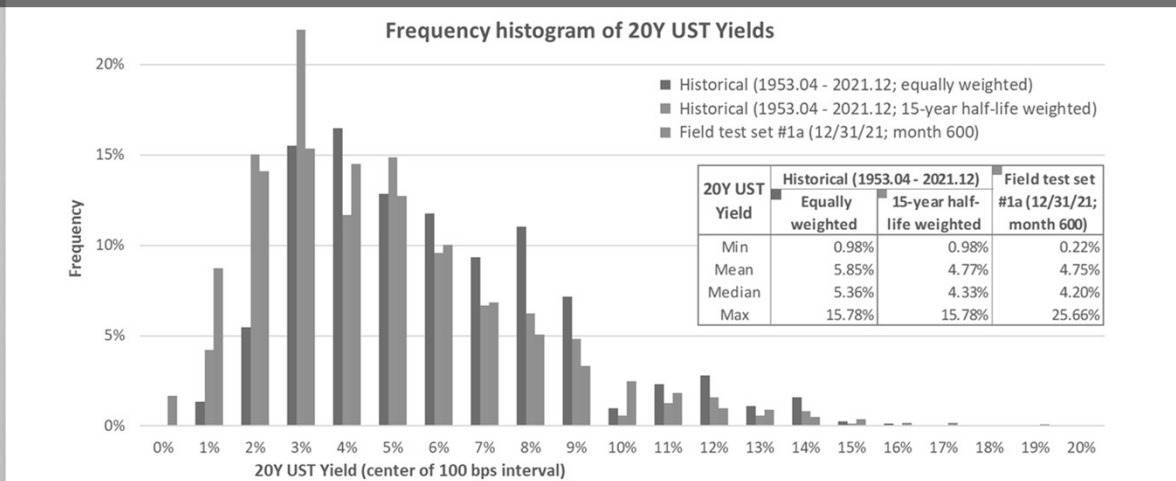
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Rate level
Supplemental chart for evaluating rate levels on consistent basis with PEWs

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Yield curve slope (bucketed by 20Y rate) Historical Slope Data (4/1953 - 12/2020)

Observations:

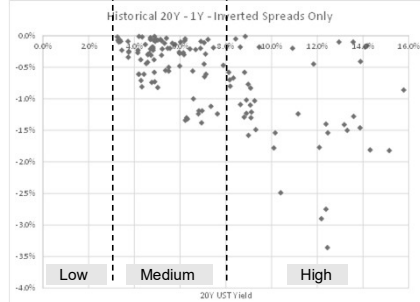
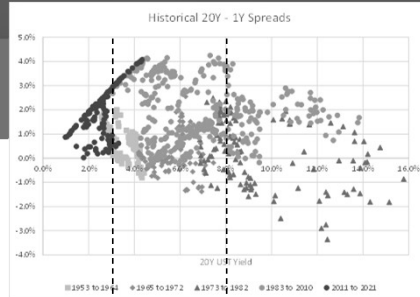
- No inversions for UST 20-year yields below 3%
- Severity of inversions generally increases with rate levels
- Other variations in curve steepness by rate level
- Recommend slope criteria based on simplified Low / Medium / High 20Y yield buckets to capture historical dynamics while not being overly constraining
- Also considers alignment with volatility buckets

ALL Spreads

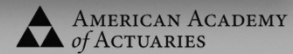
Rate Bucket (20Y)	Inverted Months	Total Months	% Inverted	Min Spread	15%	50%	85%	Max Spread	Avg Spread
[0%, 1%)	0	1	0%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%
[1%, 2%)	0	23	0%	0.0%	0.6%	1.3%	1.6%	1.6%	1.2%
[2%, 3%)	0	107	0%	0.2%	0.5%	1.7%	2.4%	2.9%	1.6%
[3%, 4%)	11	102	11%	-0.3%	0.1%	0.9%	3.2%	3.7%	1.4%
[4%, 5%)	32	146	22%	-0.8%	-0.2%	0.6%	3.6%	4.1%	1.2%
[5%, 6%)	18	89	20%	-0.8%	-0.1%	0.8%	3.5%	4.2%	1.3%
[6%, 7%)	18	93	19%	-1.4%	-0.1%	0.9%	2.0%	3.7%	0.9%
[7%, 8%)	10	82	12%	-1.2%	0.2%	1.5%	2.7%	4.3%	1.5%
[8%, 9%)	14	79	18%	-1.6%	-0.1%	0.9%	2.3%	3.9%	1.1%
[9%, 10%)	7	29	24%	-1.5%	-1.0%	1.2%	1.9%	2.3%	0.8%
> 10%	24	74	32%	-3.4%	-1.5%	1.4%	2.2%	2.9%	0.7%
All	134	825	16%	-3.4%	-0.1%	1.1%	2.7%	4.3%	1.2%

INVERTED Spreads Only

Rate Bucket (20Y)	Inverted Months	Total Months	% Inverted	Most Negative Spread	15%	50%	85%	Least Negative Spread	Avg Spread
[0%, 1%)	0	1	0%	n/a	n/a	n/a	n/a	n/a	n/a
[1%, 2%)	0	23	0%	n/a	n/a	n/a	n/a	n/a	n/a
[2%, 3%)	0	107	0%	n/a	n/a	n/a	n/a	n/a	n/a
[3%, 4%)	11	102	11%	-0.3%	-0.3%	-0.1%	-0.1%	0.0%	-0.1%
[4%, 5%)	32	146	22%	-0.8%	-0.8%	-0.3%	-0.1%	0.0%	-0.3%
[5%, 6%)	18	89	20%	-0.8%	-0.5%	-0.2%	-0.1%	0.0%	-0.3%
[6%, 7%)	18	93	19%	-1.4%	-1.3%	-0.4%	-0.1%	0.0%	-0.7%
[7%, 8%)	10	82	12%	-1.2%	-1.0%	-0.5%	-0.1%	-0.1%	-0.5%
[8%, 9%)	14	79	18%	-1.6%	-1.2%	-0.7%	-0.2%	0.0%	-0.8%
[9%, 10%)	7	29	24%	-1.5%	-1.3%	-1.1%	-0.8%	-0.2%	-1.0%
> 10%	24	74	32%	-3.4%	-2.2%	-1.4%	-0.2%	-0.1%	-1.4%
All	134	825	16%	-3.4%	-1.3%	-0.4%	-0.1%	0.0%	-0.6%



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Yield curve slope (bucketed by 1Y rate) Historical Slope Data (4/1953 - 12/2020)

Observations:

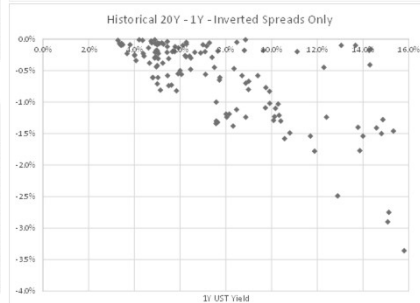
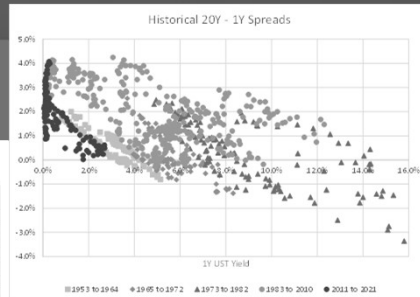
- No inversions for UST 1-year yields below 3%
- Severity of inversions generally increases with rate levels
- Other variations in curve steepness by rate level
- Recommend slope criteria based on simplified Low / Medium / High yield buckets to capture historical dynamics while not being overly constraining
- May bucket by 20Y instead of 1Y yields based on preference

ALL Spreads

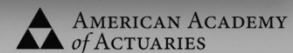
Rate Bucket (1Y)	Inverted Months	Total Months	% Inverted	Min Spread	15%	50%	85%	Max Spread	Avg Spread
[0%, 1%)	0	128	0%	0.5%	1.6%	2.5%	3.6%	4.1%	2.5%
[1%, 2%)	0	69	0%	0.0%	1.0%	1.6%	3.6%	4.2%	2.1%
[2%, 3%)	0	71	0%	0.1%	0.4%	0.9%	3.0%	3.6%	1.9%
[3%, 4%)	8	103	8%	-0.2%	0.2%	0.8%	2.8%	4.3%	1.2%
[4%, 5%)	22	89	25%	-0.8%	-0.2%	0.5%	1.7%	3.9%	0.8%
[5%, 6%)	26	116	22%	-0.8%	-0.1%	0.9%	1.8%	3.0%	0.8%
[6%, 7%)	12	76	16%	-0.6%	0.0%	1.2%	1.9%	2.5%	1.1%
[7%, 8%)	14	56	25%	-1.3%	-0.3%	0.7%	1.9%	2.9%	0.8%
[8%, 9%)	13	38	34%	-1.4%	-0.9%	0.5%	1.8%	2.8%	0.5%
[9%, 10%)	7	26	27%	-1.1%	-0.7%	1.5%	2.1%	2.5%	0.9%
> 10%	32	53	60%	-3.4%	-1.6%	-0.4%	1.5%	2.0%	-0.9%
All	134	825	16%	-3.4%	-0.1%	1.1%	2.7%	4.3%	1.2%


INVERTED Spreads Only

Rate Bucket (1Y)	Inverted Months	Total Months	% Inverted	Most Negative Spread	15%	50%	85%	Least Negative Spread	Avg Spread
[0%, 1%)	0	128	0%	n/a	n/a	n/a	n/a	n/a	n/a
[1%, 2%)	0	69	0%	n/a	n/a	n/a	n/a	n/a	n/a
[2%, 3%)	0	71	0%	n/a	n/a	n/a	n/a	n/a	n/a
[3%, 4%)	8	103	8%	-0.2%	-0.1%	-0.1%	-0.1%	0.0%	-0.1%
[4%, 5%)	22	89	25%	-0.6%	-0.4%	-0.2%	0.0%	0.0%	-0.2%
[5%, 6%)	26	116	22%	-0.8%	-0.7%	-0.2%	-0.1%	0.0%	-0.3%
[6%, 7%)	12	76	16%	-0.6%	-0.5%	-0.3%	-0.1%	0.0%	-0.3%
[7%, 8%)	14	56	25%	-1.3%	-1.3%	-0.5%	-0.1%	-0.1%	-0.6%
[8%, 9%)	13	38	34%	-1.4%	-1.2%	-0.8%	-0.2%	0.0%	-0.8%
[9%, 10%)	7	26	27%	-1.1%	-1.0%	-0.8%	-0.5%	-0.2%	-0.7%
> 10%	32	53	60%	-3.4%	-1.8%	-1.4%	-0.2%	-0.1%	-1.3%
All	134	825	16%	-3.4%	-1.3%	-0.4%	-0.1%	0.0%	-0.6%



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SEATTLE

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**NAIC Economic Scenario
Generator Field Test:
C3 Phase I Quantitative
Results**

Scott O'Neal, FSA, MAAA

August 11, 2023

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Agenda

1. Background and Purpose
2. Limitations
3. Field Test Participation
4. High-Level Observations
5. Quantitative Results
 - A. Baseline Comparisons
 - B. Valuation Date Comparisons
 - C. Additional Metrics
6. Next Steps

Appendix: Field Test Run Descriptions

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Background and Purpose

- The purpose of this presentation is to summarize quantitative information from the C3 Phase I field test participants to:
 - Understand the impact on capital,
 - Review the range of results across field test participants,
 - Compare the stability of results over time,
 - Evaluate the use of alternative metrics, and
 - Inform regulator decision-making on model and calibration choices.

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C3 Phase I Background

Calculation Details

- Cash flow models that are used for asset adequacy analysis (or other consistent models) are used. The greatest present value of a deficiency at any point in the projection is calculated for each scenario.
- 50 or 12 interest rate scenarios generated from an older version of the Academy Interest Rate Generator (AIRG) are used in the calculations. The 50 or 12 scenarios are selected from a larger 200 set and are meant to contain the most adverse scenarios so that a tail measure metric can be calculated with a smaller number of scenarios.
- This version of the AIRG has a 6.55% interest rate mean reversion parameter (MRP) which does not change, compared with the current version of the AIRG which has a dynamic MRP that resets annually based on a weighted average of past interest rate levels.
- From the 50-scenario set, a weighted average centered around the 95th percentile scenario is determined, and that is the C3 RBC amount.
- In the C3 Phase I RBC worksheet, the scenario level and final results are also shown as a "C3 Factor" percentage, which is the capital amount divided by the statutory reserve at the start of the projection.

Product Scope

Deferred and Immediate Annuities

Guaranteed Separate Accounts*

Guaranteed Investment Contracts

Single Premium Life

Excludes Indexed and Variable Products

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* excluding guaranteed indexed separate accounts following a Class II investment strategy 4

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Limitations

- The NAIC took steps to review the quantitative results for reasonableness, including reviewing qualitative survey responses, sending questions to participants, and asking participants to confirm that the NAIC compilations matched their intended result submission. However, the accuracy and reliability of the results are ultimately dependent on the quality of participant submissions.
- The field test analytics (average C3 Factors, range of impacts, etc.) can be strongly dependent on a subset of the participants. Results shown today for the different field test runs will include varying numbers of participants corresponding to the levels of participation for that run. The lack of participation in some of the runs will limit their applicability to the overall industry.
- There are two basic types of comparisons of the field test results in this presentation; 1) comparisons of field test runs to their respective baseline run, and 2) comparisons of field test runs across the two tested valuation dates. These comparisons are limited to the participation of whichever run had the least participation. For example, as Baseline 2 (as of 12/31/19 + 200 BP) had significantly lower participation than run 2A, many of the 2A results will not be included in the baseline comparison.
- Some participants mentioned that they would assess the need for changes to their assumptions prior to implementation of the new Generator of Economic Scenarios (GOES) but had not done so for the field test.
- The C3 Phase I portion of the qualitative survey did not ask companies to specifically comment on the drivers of their results as was done for VM-21/C3 Phase II. Most participants did not comment on the drivers of their results.
- Detailed information on the products included in the C3 Phase I results was not asked for in the qualitative survey data. Therefore, it is not fully understood exactly what products were included in each participant’s C3 Phase I submission.

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Field Test Participation

- Looking at overall numbers for the industry, at the end of 2021 there were 752 legal entities that reported using the Life RBC blank. Of those 752, 613 legal entities reported industry C3 Phase I capital (line 33, LR027) less than or equal to \$1. That group of 613 companies includes both legal entities that are in scope for C3 Phase I (and determined their C3 Phase I capital to be zero) as well as companies that do not have products that are in scope for C3 Phase I.
- The total amount of industry C3 Phase I capital was approximately \$3 billion at the end of 2021. The largest ten legal entities (by C3 Phase I capital amount) accounted for over \$2 billion of this total. Of those ten legal entities, two of them participated in the field test.
- The chart below shows the number of legal entities that submitted C3 Phase I GOES Field Test results. It also shows the share of the 12/31/21 total industry C3 Phase I capital (line 33, LR027) that is reflective of the participation in each field test.
- C3 Phase I results will be shown for 24 legal entities that represent approximately 19% of the industry when looking at their share of the 2021 industry C3 Phase I capital.

C3 Phase I RBC Statistics (2021)

Total # of Life RBC Blank Filers	752
Life RBC Filers with Line 33 of LR027 <= \$1	613
Total Industry Amount of C3 Phase I Capital	~\$3 billion
Total C3 Phase I Capital: Top Ten Filers	~\$2 billion
# of Top Ten Filers that Participated in GOES Field Test	2/10

Category	Baseline 1*	Baseline 2	1A*	1B*	2A*	2B*	7
Number of Participants (Legal Entities)	24	10	24	22	22	22	16
Share of Industry C3 Phase I Capital	19%	13%	19%	19%	19%	19%	14%

NATIONAL ASSOCIATION OF INSURANCE COMMISSIONERS **Valuation Dates:** 12/31/21 12/31/19 + 200 BP ***Required Run** 6

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High-Level Observations

- The field test results for the scenario sets produced from the Conning economic scenario generator (1A, 2A, 1B, 2B) showed significant increases on average compared to the respective 12/31/21 or 12/31/19 + 200 BP baseline. However, many of the field test participants held little to no C3 Phase I capital in their baseline runs.
- The participant results for field test 7 (200 scenarios from the latest version of the AIRG prescribed in VM-20 and VM-21) were mixed, with increases for some companies mostly offset by decreases for others.
- When producing capital results using a limited number of scenarios, outlier scenarios that are included in the scenario sets can have an outsized impact on the results - particularly with scenario sets that have increased volatility/broader distributions (e.g. 1A, 2A).

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12/31/21 Baseline Comparisons

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Field Test 1A: US Treasury Overview

- Field Test 1A (as of 12/31/21) included a recalibration of the Conning GEMS® US Treasury model that was designed to meet the acceptance criteria related to low for long, the prevalence of high interest rates, upper and lower bounds, initial yield curve fit, and yield curve shape. The frequency and severity of negative interest rates were controlled using a generalized fractional floor.
- The 1A UST scenario set as of 12/31/21 had a much higher prevalence of low UST rates, including negative interest rates, compared to the scenarios produced by the C3 Phase I Generator.
- The 1A UST scenario set included a frequency and severity of high 1-yr UST rates that was comparable at certain percentiles and projection periods but deviated in others. The limited number of scenarios typically used among field test participants for B1 and 1A may not be fully reflective of the distribution produced by either scenario generator with a greater number of scenarios.

Baseline 1 (B1): 50 C3 Phase I AIRG 1-yr UST Scenarios: Percentiles by Projection Month

Percentile	12	60	120	240	360
Min	0.42%	0.39%	0.40%	0.62%	0.65%
1%	0.43%	0.40%	0.43%	0.64%	0.71%
10%	0.47%	0.48%	0.59%	1.65%	1.37%
25%	0.52%	1.00%	0.89%	2.90%	3.17%
50%	0.81%	2.19%	2.86%	4.61%	5.05%
75%	1.49%	4.27%	5.69%	6.98%	7.92%
95%	3.04%	6.88%	7.94%	10.06%	12.61%
99%	3.30%	7.60%	8.67%	12.58%	14.26%
Max	3.44%	7.98%	9.04%	13.98%	14.35%

1A: 200 Conning w/ GFF 1-yr UST Scenarios: Percentiles by Projection Month

Percentile	12	60	120	240	360
Min	-0.20%	-0.58%	-0.72%	-0.69%	-0.75%
1%	-0.19%	-0.54%	-0.58%	-0.36%	-0.40%
10%	0.07%	-0.16%	-0.21%	-0.10%	-0.04%
25%	0.24%	0.11%	0.09%	0.20%	0.32%
50%	0.62%	0.75%	1.14%	1.62%	1.83%
75%	1.70%	2.95%	3.42%	4.34%	4.44%
95%	3.09%	5.59%	9.28%	9.10%	8.98%
99%	3.72%	7.50%	11.93%	10.35%	13.72%
Max	4.29%	14.36%	14.57%	15.71%	14.39%

1A – B1

Percentile	12	60	120	240	360
Min	-0.62%	-0.97%	-1.12%	-1.31%	-1.40%
1%	-0.62%	-0.94%	-1.01%	-1.00%	-1.11%
10%	-0.40%	-0.65%	-0.80%	-1.75%	-1.41%
25%	-0.28%	-0.89%	-0.81%	-2.70%	-2.85%
50%	-0.19%	-1.45%	-1.72%	-2.99%	-3.22%
75%	0.22%	-1.32%	-2.27%	-2.64%	-3.47%
95%	0.05%	-1.29%	1.34%	-0.96%	-3.64%
99%	0.42%	-0.09%	3.26%	-2.23%	-0.54%
Max	0.85%	6.38%	5.53%	1.73%	0.04%

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Field Test 1B: US Treasury Overview

- Field Test 1B (as of 12/31/21) included a calibration of the Conning GEMS® US Treasury model that was designed to meet regulator acceptance criteria but placed additional emphasis on maintaining realistic term premiums throughout the projection. Towards that end, there was a significantly lower frequency of inversions (e.g. ~5% of 1B scenarios had 10 year/2year UST inversions at the end of year 30 compared to ~12% seen in 1A). The average level of inversion was also significantly lower (e.g. in 1B 10 year/2 year UST inversions average ~30 BP at the end of year 30, compared to ~90 BP average inversion level for 1A).
- The 1B UST scenario set as of 12/31/21 had a much higher prevalence of low UST rates, including negative interest rates, compared to the scenarios produced by the C3 Phase I Generator.
- The 1B UST scenario set included a frequency and severity of high 1-yr UST rates that was typically lower than that produced by the C3 Phase I scenario generator.

Baseline 1 (B1): 50 C3 Phase I AIRG 1-yr UST Scenarios: Percentiles by Projection Month

Percentile	12	60	120	240	360
Min	0.42%	0.39%	0.40%	0.62%	0.65%
1%	0.43%	0.40%	0.43%	0.64%	0.71%
10%	0.47%	0.48%	0.59%	1.65%	1.37%
25%	0.52%	1.00%	0.89%	2.90%	3.17%
50%	0.81%	2.19%	2.86%	4.61%	5.05%
75%	1.49%	4.27%	5.69%	6.98%	7.92%
95%	3.04%	6.88%	7.94%	10.06%	12.61%
99%	3.30%	7.60%	8.67%	12.58%	14.26%
Max	3.44%	7.98%	9.04%	13.98%	14.35%

1B: 200 Alternative w/ Shadow Floor 1-yr UST Scenarios: Percentiles by Projection

Percentile	12	60	120	240	360
Min	-0.33%	-0.80%	-0.69%	-0.85%	-0.95%
1%	-0.08%	-0.48%	-0.54%	-0.58%	-0.78%
10%	0.22%	-0.01%	-0.08%	-0.03%	0.08%
25%	0.41%	0.30%	0.30%	0.34%	0.57%
50%	0.63%	0.67%	0.74%	0.84%	1.37%
75%	0.82%	0.98%	1.87%	2.38%	3.55%
95%	1.61%	3.16%	4.20%	6.24%	7.25%
99%	2.02%	4.15%	5.39%	7.93%	10.13%
Max	2.34%	5.62%	9.36%	10.24%	14.31%

1B – B1

Percentile	12	60	120	240	360
Min	-0.75%	-1.19%	-1.09%	-1.47%	-1.60%
1%	-0.52%	-0.88%	-0.97%	-1.22%	-1.49%
10%	-0.25%	-0.50%	-0.67%	-1.68%	-1.29%
25%	-0.11%	-0.70%	-0.60%	-2.57%	-2.60%
50%	-0.18%	-1.53%	-2.12%	-3.78%	-3.68%
75%	-0.67%	-3.29%	-3.82%	-4.60%	-4.36%
95%	-1.43%	-3.72%	-3.74%	-3.82%	-5.37%
99%	-1.28%	-3.44%	-3.28%	-4.65%	-4.13%
Max	-1.10%	-2.36%	0.32%	-3.74%	-0.04%

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Field Test 7: US Treasury Overview

- Field Test 7 (as of 12/31/21) was a C3 Phase I specific test designed to use the current version of the AIRG (prescribed in VM-20 and VM-21) to understand what the impact would be of moving to the latest version of the AIRG with a mean reversion parameter that is dynamic based upon historical data. For 12/31/21, the latest version of the AIRG had a mean reversion parameter of 3.25% compared to 6.55% for the C3 Phase I ESG.
- The field test 7 UST scenario set as of 12/31/21 had a much higher prevalence of low UST rates, but the current version of the AIRG has a soft floor of 1 BP, effectively eliminating negative interest rates.
- The field test 7 UST scenario set included a frequency and severity of high 1-yr UST rates that was much lower than those produced by the C3 Phase I generator, particularly at the later projection periods.

Baseline 1 (B1): 50 C3 Phase I AIRG 1-yr UST Scenarios: Percentiles by Projection Month

Percentile	12	60	120	240	360
Min	0.42%	0.39%	0.40%	0.62%	0.65%
1%	0.43%	0.40%	0.43%	0.64%	0.71%
10%	0.47%	0.48%	0.59%	1.65%	1.37%
25%	0.52%	1.00%	0.89%	2.90%	3.17%
50%	0.81%	2.19%	2.86%	4.61%	5.05%
75%	1.49%	4.27%	5.69%	6.98%	7.92%
95%	3.04%	6.88%	7.94%	10.06%	12.61%
99%	3.30%	7.60%	8.67%	12.58%	14.26%
Max	3.44%	7.98%	9.04%	13.98%	14.35%

7: 200 VM-20 AIRG 1-yr UST Scenarios: Percentiles by Projection Month

Percentile	12	60	120	240	360
Min	0.01%	0.17%	0.01%	0.01%	0.17%
1%	0.01%	0.40%	0.28%	0.57%	0.32%
10%	0.25%	0.71%	0.77%	1.02%	1.06%
25%	0.43%	0.89%	1.22%	1.55%	1.41%
50%	0.69%	1.23%	1.65%	2.04%	2.07%
75%	0.90%	1.72%	2.31%	2.79%	2.95%
95%	1.24%	2.27%	3.35%	3.98%	4.69%
99%	1.54%	2.97%	4.27%	5.39%	5.99%
Max	1.57%	4.01%	5.28%	7.45%	6.95%

7 - B1

Percentile	12	60	120	240	360
Min	-0.41%	-0.22%	-0.39%	-0.61%	-0.49%
1%	-0.42%	0.00%	-0.16%	-0.07%	-0.39%
10%	-0.22%	0.23%	0.19%	-0.63%	-0.31%
25%	-0.09%	-0.11%	0.32%	-1.35%	-1.76%
50%	-0.12%	-0.96%	-1.21%	-2.57%	-2.98%
75%	-0.59%	-2.55%	-3.37%	-4.19%	-4.96%
95%	-1.81%	-4.61%	-4.59%	-6.08%	-7.92%
99%	-1.75%	-4.62%	-4.40%	-7.19%	-8.27%
Max	-1.87%	-3.97%	-3.76%	-6.53%	-7.40%

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Change in Capital Amount by Legal Entity - 12/31/21

Field Test	B1	1A	1B	7
Wtd. Average C3 Phase I Factor	0.14%	1.29%	0.92%	0.17%
Average % Change*		817%	512%	15%
# of Participants	24	24	22	16

C3 Phase I Factor: Range and Percentile Statistics

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- For the 12/31/21 Baseline 1 (B1) field test run, approximately half of the participants had C3P1 RBC amounts (C3 factor * statutory reserve) close to zero. The 75th percentile for the Baseline 1 C3 factor was 0.23%, and the average C3 factor (weighted by statutory reserve) was 0.14%.
- For each of the 12/31/21 field test runs shown, there was an increase to the average C3 Factor, with 1A (Conning calibration with GFF) coming in at the highest followed by the 1B (Alternative with Shadow Floor).
- Both 1A and 1B saw a larger proportion of the field test participants with non-zero C3 Factors.
- Field test run 7 (200 Scenario VM-20 AIRG) had a small average C3 factor increase, with some participants seeing higher, lower, or no changes at all to their capital.

*Note, each of the Average % Change value is specific to the cohort that completed both the baseline and the respective field test run. 12

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12/31/19 + 200 BP Baseline Comparisons

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Field Test 2A: US Treasury Overview

- Field Test 2A (as of 12/31/19 + 200 BP) used the same calibration as 1A (Conning Calibration with a Generalized Fractional Floor) but with a 12/31/19 starting yield curve modified using a 200 BP increase across all maturities.
- Compared to the C3 Phase I generator with a 12/31/19 + 200 BP starting interest environment, the 2A scenario set has a much greater frequency and severity of low (and negative) UST rates. The 2A scenario set has a comparable severity of high 1-yr UST rates at the 95th percentile, but somewhat higher 1-yr UST rates at the 99th percentile.

Baseline 2 (B2): 50 C3 Phase I AIRG 1-yr UST Scenarios: Percentiles by Projection Month						2A: 200 Conning w/ GFF 1-yr UST Scenarios: Percentiles by Projection Month						2A – B2					
Percentile	12	60	120	240	360	Percentile	12	60	120	240	360	Percentile	12	60	120	240	360
Min	0.81%	0.67%	0.73%	0.59%	0.64%	Min	-0.01%	-0.72%	-0.50%	-0.74%	-0.70%	Min	-0.82%	-1.39%	-1.23%	-1.33%	-1.34%
1%	0.85%	0.69%	0.78%	0.60%	0.70%	1%	0.30%	-0.10%	-0.30%	-0.56%	-0.57%	1%	-0.55%	-0.79%	-1.08%	-1.16%	-1.27%
10%	1.90%	1.38%	1.61%	1.75%	2.35%	10%	1.48%	0.26%	-0.01%	0.02%	-0.02%	10%	-0.42%	-1.12%	-1.63%	-1.73%	-2.37%
25%	3.23%	2.69%	2.76%	3.06%	3.85%	25%	2.47%	0.76%	0.42%	0.49%	0.37%	25%	-0.76%	-1.93%	-2.34%	-2.56%	-3.48%
50%	3.82%	3.81%	3.94%	4.42%	5.49%	50%	3.53%	2.89%	2.68%	2.48%	2.51%	50%	-0.29%	-0.93%	-1.26%	-1.95%	-2.98%
75%	4.64%	4.80%	6.30%	5.81%	7.77%	75%	4.65%	5.30%	5.45%	5.59%	5.29%	75%	0.01%	0.50%	-0.86%	-0.22%	-2.48%
95%	5.81%	7.46%	9.29%	8.88%	10.14%	95%	6.55%	8.68%	10.02%	11.22%	10.88%	95%	0.74%	1.22%	0.73%	2.35%	0.74%
99%	6.03%	11.09%	11.53%	9.85%	11.39%	99%	7.68%	10.55%	12.97%	14.28%	13.77%	99%	1.66%	-0.54%	1.44%	4.43%	2.38%
Max	6.18%	12.29%	13.42%	9.91%	11.88%	Max	9.12%	12.16%	14.50%	15.29%	23.43%	Max	2.94%	-0.13%	1.08%	5.38%	11.55%

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2023 SUMMER NATIONAL MEETING **NAIC**

Field Test 2B: US Treasury Overview

- Field Test 2B (as of 12/31/19 + 200 BP) used the same calibration as 1A (Conning Calibration with a Generalized Fractional Floor) but with a 12/31/19 starting yield curve modified using a 200 BP increase across all maturities
- Compared to the C3 Phase I generator with a 12/31/19 + 200 BP starting interest environment, the 2B scenario set has a much greater frequency and severity of low (and negative) UST rates. The 2B scenario set has a comparable severity of high 1-yr UST rates at the 95th percentile but has higher or lower severity depending on the projection period at the 99th percentile level.

Baseline 2 (B2): 50 C3 Phase I AIRG 1-yr UST Scenarios: Percentiles by Projection Month						2B: 200 Conning w/ GFF 1-yr UST Scenarios: Percentiles by Projection Month						2B – B2					
Percentile	12	60	120	240	360	Percentile	12	60	120	240	360	Percentile	12	60	120	240	360
Min	0.81%	0.67%	0.73%	0.59%	0.64%	Min	0.34%	-0.10%	-0.25%	-0.30%	-0.49%	Min	-0.47%	-0.77%	-0.98%	-0.89%	-1.13%
1%	0.85%	0.69%	0.78%	0.60%	0.70%	1%	0.70%	0.23%	-0.07%	-0.27%	-0.40%	1%	-0.15%	-0.47%	-0.85%	-0.87%	-1.10%
10%	1.90%	1.38%	1.61%	1.75%	2.35%	10%	1.44%	0.71%	0.47%	0.32%	0.34%	10%	-0.46%	-0.67%	-1.15%	-1.44%	-2.01%
25%	3.23%	2.69%	2.76%	3.06%	3.85%	25%	2.22%	1.32%	0.92%	0.90%	0.93%	25%	-1.01%	-1.37%	-1.84%	-2.16%	-2.92%
50%	3.82%	3.81%	3.94%	4.42%	5.49%	50%	3.25%	2.76%	2.78%	2.57%	2.54%	50%	-0.57%	-1.05%	-1.16%	-1.85%	-2.96%
75%	4.64%	4.80%	6.30%	5.81%	7.77%	75%	4.04%	4.36%	4.60%	5.28%	5.41%	75%	-0.60%	-0.45%	-1.70%	-0.53%	-2.36%
95%	5.81%	7.46%	9.29%	8.88%	10.14%	95%	5.53%	6.58%	9.26%	9.50%	9.61%	95%	-0.28%	-0.88%	-0.03%	0.63%	-0.53%
99%	6.03%	11.09%	11.53%	9.85%	11.39%	99%	6.28%	7.74%	11.19%	10.58%	13.54%	99%	0.25%	-3.35%	-0.34%	0.73%	2.15%
Max	6.18%	12.29%	13.42%	9.91%	11.88%	Max	6.93%	10.41%	12.18%	18.69%	19.49%	Max	0.75%	-1.88%	-1.24%	8.78%	7.61%

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2023 SUMMER NATIONAL MEETING **NAIC**

Change in Capital Amount by Legal Entity - 12/31/19 + 200 BP

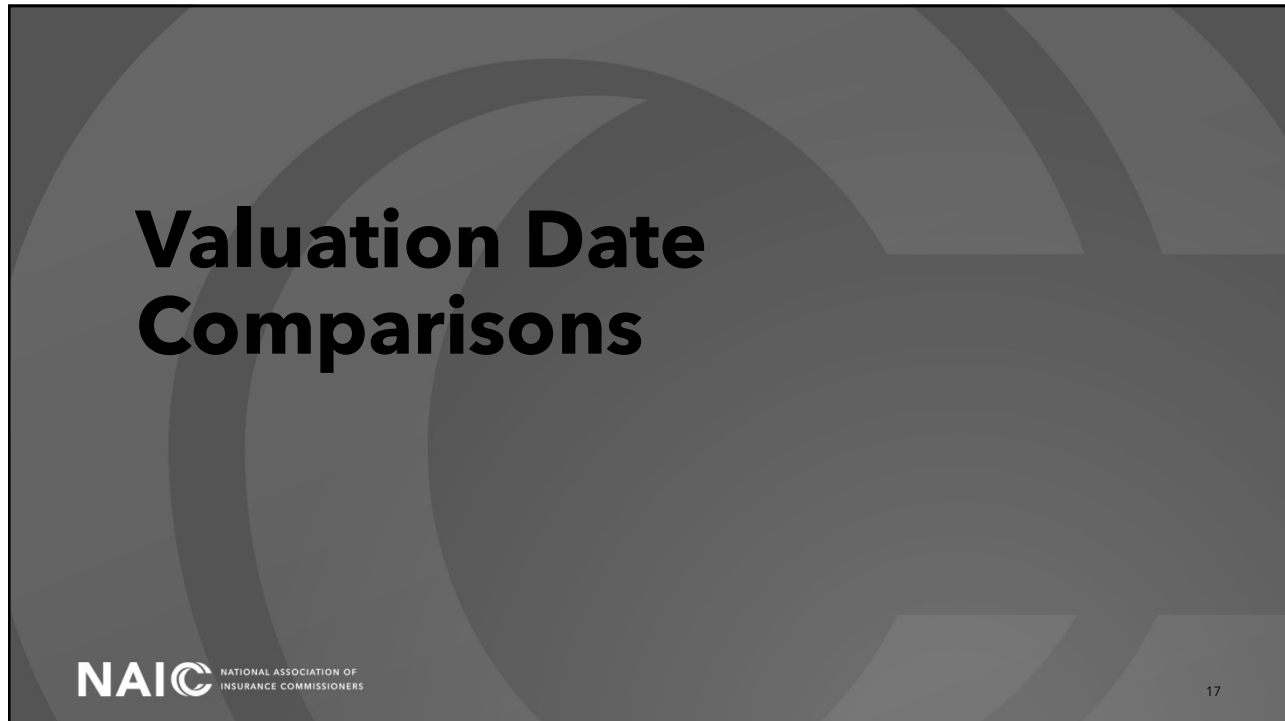
Field Test	B2	2A	2B
Wtd. Average C3 Phase I Factor	0.46%	1.50%	0.93%
Average % Change		226%	103%
# of Participants	10	10	10

- There was more limited participation for the optional Baseline 2 run.
- For the 12/31/19 + 200 BP Baseline 2 (B2) field test run, approximately half of the participants had C3P1 RBC amounts (C3 factor * statutory reserve) close to zero. The 75th percentile for the Baseline 2 C3 factor was 0.87%, and the average C3 factor (weighted by statutory reserve) was 0.46%.
- A similar pattern to the 12/31/21 field test runs holds for the 12/31/19 + 200 BP field test baseline comparisons, where the Conning Calibration w/ GFF (2A) has the largest increase to capital from the baseline with the Alternative Calibration with a Shadow Floor (2B) representing a significant but smaller increase.
- Both 2A and 2B saw a larger proportion of the field test participants with non-zero C3 Factors.

C3 Phase I Factor: Range and Percentile Statistics

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2023 SUMMER NATIONAL MEETING
NAIC

Change in Capital Amount by Legal Entity - 12/31/19 + 200 BP compared to 12/31/21

Field Test	B1	B2	1A	2A	1B	2B
Wtd. Average C3 Phase I Factor	0.14%	0.46%	1.35%	1.72%	1.01%	1.15%
Average % Change		229%		28%		15%
# of Participants	10	10	22	22	20	20

C3 Phase I Factor: Range and Percentile Statistics

- For each of the valuation date comparisons, the average C3 Factor increased from 12/31/21 (low interest environment) to 12/31/19 + 200 BP (higher interest environment).
- There was more limited participation for the optional Baseline 2 run, limiting the comparison between valuation dates. The average % change in the C3 Factor between valuation dates was the greatest for the baseline runs.
- Of the field test runs, the Conning calibration w/ GFF showed a higher average % change between valuation dates (28%), compared to the smaller (15%) change for the alternative calibration with shadow floor.
- Because of the large difference in legal entity cohorts between the baseline and field test runs, it is hard to conclude that the field test scenario sets produce more stable results than the C3 Phase I generator used in the baseline runs.

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2023 SUMMER NATIONAL MEETING
NAIC

Additional C3 Phase I Metrics

- The table below shows the range statistics and weighted average of the legal entity results for C3 Phase I factors (C3 Phase I Capital Amount/Statutory Reserve) computed using different metrics.
- The results for the "C3 Phase I Weighted Average" are for 24 legal entities, whereas the results shown for the other metrics are only for 23 legal entities. One of the legal entities was removed due to one scenario out of their C3 Phase I calculation producing a very large C3 Phase I factor (e.g. 3,000%) that distorted the metrics. This scenario result was not included in the C3 Phase I weighted average or the range statistics.
- Once the outlier was removed, the CTE 90 metric had very similar results to the C3 Phase I metric. However, the 25% * (CTE 98 - CTE 70) metric produced smaller C3 Factors overall.

Range Statistic/Average	C3 Phase I Metric		CTE90		Mean Factor		Max Factor		25% * (CTE98 - CTE70)	
	B1	1A	B1	1A	B1	1A	B1	1A	B1	1A
Minimum	-0.49%	0.00%	-0.34%	0.00%	-0.62%	-0.62%	0.00%	0.00%	0.00%	0.00%
25 th Percentile	0.00%	0.11%	0.00%	0.02%	0.00%	0.00%	0.00%	0.33%	0.00%	0.02%
Median	0.00%	0.87%	0.00%	1.14%	0.00%	0.13%	0.13%	3.56%	0.04%	0.67%
75 th Percentile	0.23%	3.18%	0.36%	3.09%	0.15%	0.85%	1.27%	4.60%	0.15%	0.68%
Maximum	10.78%	17.32%	10.80%	17.82%	10.52%	15.85%	11.09%	29.91%	0.70%	0.80%
Wtd. Average Factor	0.14%	1.29%	0.20%	1.39%	0.08%	0.63%	0.62%	8.35%	0.03%	0.40%

(a) For the 50 scenario set, the C-3 scores are multiplied by the following series of weights:

C3 Phase I Metric →

Weighting Table

Scenario Rank:	17	16	15	14	13	12	11	10	9	8	7	6	5	
Weight:	0.02	0.04	0.06	0.08	0.10	0.12	0.16	0.12	0.10	0.08	0.06	0.04	0.02	20

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2023 SUMMER NATIONAL MEETING NAIC

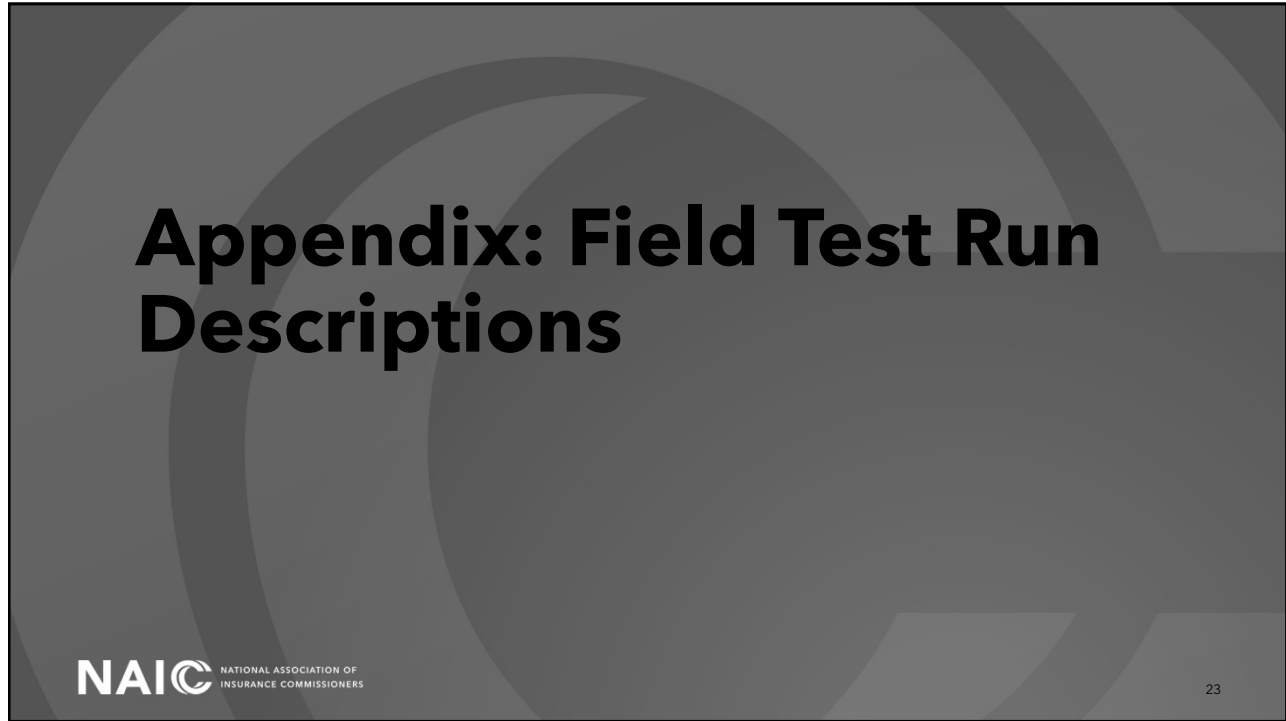
Next Steps

- The Generator of Economic Scenarios (GOES) (A) Subgroup will develop recommendations to LATF for reserve and capital framework-specific implementation issues and a GOES model governance framework.
- A more comprehensive set of GOES acceptance criteria will be reviewed by regulators and exposed in September. Once regulators decide on a new set of acceptance criteria, additional candidate scenario sets will be produced that are designed to meet the acceptance criteria.
- Regulators and the NAIC are considering how model office testing can supplement and/or replace components of industry field testing to efficiently evaluate the new scenario sets. A second-round industry field test of the new scenarios would occur no sooner than Spring of 2024.



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2023 SUMMER NATIONAL MEETING		NAIC
Field Test Run Descriptions		Note: Bold = Required Run
Run #	Description	Purpose of Run
Baseline #1	Scenario set(s) the company used for 12/31/21 statutory reporting	Baseline used as comparative basis for 12/31/21 runs
Baseline #2	ESG the company used for 12/31/21 statutory reporting of reserves and RBC, but modified to produce scenario sets with a 12/31/19 yield curve modified using a 200 BP increase across all maturities	Baseline used as comparative basis for 12/31/19 + 200 BP runs
Test #1a	GEMS Baseline Equity and Corporate model scenarios as of 12/31/21, and Conning Treasury model calibration with generalized fractional floor as of 12/31/21	Tests Conning Treasury model w/ GFF and Baseline Equity at YE 2021
Test #1b	Same as Test #1a, but with Alternative Treasury model calibration with shadow floor as of 12/31/21	Tests Alternative Treasury model with shadow floor and Baseline Equity at YE 2021
Test #2a	Same as Test #1a, but with Equity, Corporate, and Treasury models with a 12/31/19 starting yield curve modified using a 200 BP increase across all maturities. All other initial market conditions are unchanged. The Equity model parameters would be adjusted from #1a so that the year 30 median Large Cap Equity gross wealth factors remain consistent with #1a.	Stresses the starting Treasury rates using the same calibration as 1a to evaluate whether the model produces appropriate results in different economic environments
Test #2b	Same as Test #2a, but with the Alternative Treasury model calibration with shadow floor instead of the Conning Treasury model calibration with generalized fractional floor	Same as 2a, but designed to stress the 1b calibration
Test #7	12/31/21 scenarios from the ESG prescribed in VM-20 with a Mean Reversion Parameter (MRP) set to 3.25%	Attribution analysis to understand the impact of moving from the current C3 Phase I MRP of 6.55% to a lower MRP that incorporates recent UST history.

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**SOCIETY OF ACTUARIES
RESEARCH UPDATE TO
LATF**

August 12, 2023

Cindy MacDonald, FSA, MAAA
Senior Director, Experience Studies



Presentation Disclaimer

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SOA Experience Studies Regulator Input on Prioritization

3

Experience Studies Pro

In 2021, LIMRA and the SOA Research Institute entered into a partnership to support the industry with a **comprehensive program of industry experience studies**.

This program will provide timely, consistent, and comprehensive releases of industry experience data — providing you with the necessary tools for addressing **product development, pricing, and regulatory** strategies.



Together, We have Unmatched Breadth & Depth of Experience

Expertise

We are both associations dedicated to this industry, with a long history of conducting large data-intensive efforts

Trust

Strong reputation for unbiased research, analysis, and industry relationships

Value

Together we provide unparalleled value while delivering cost-effective insights



Benefits to the Industry



Credible, robust, benchmarking, and strong industry representation:
70% market participation is typical



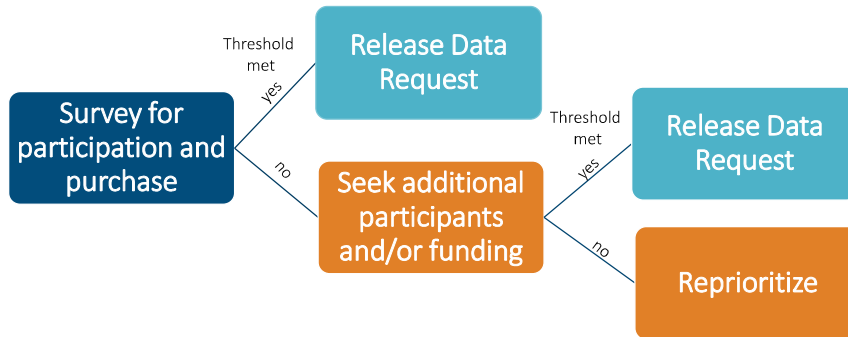
Comprehensive and timely: updates of industry data on a regularly published schedule



Detailed and deeper analytics: to support product development, inform management, reserving, and growth strategies



Feasibility Survey ... before a study starts



Studies at Risk for Participation and Funding

Product	Contingency Studied	Funding Concerns
Long-term care	claim incidence, claim termination, claim utilization, active life lapse and mortality	Blocks in run-off; complicated study/higher cost
Individual disability	claim incidence, claim termination	Few carriers; complicated study/higher cost
Group annuity	mortality	Few carriers; niche line of business
Structured settlements	mortality	Few carriers; niche line of business





Results Regulator Interest Survey - LATF	Experience Study	
	Individual Payout Annuity – mortality	★
	Individual Fixed Indexed Annuity – premium deposits, withdrawals, surrenders	★
	Individual Variable Annuity – premium deposits, withdrawals, surrenders	★
	Individual Life – mortality	★
	Individual Fixed Deferred Annuity – surrenders	★
	Individual Universal Life – premium persistency	★
	Individual Universal Life – lapse, surrender	★
	Individual Term Life – post level term lapse and mortality	
	Individual Term Life – term conversion, lapse, mortality	
	Individual Fixed Deferred Annuity – mortality	★
	Group Life – mortality	★
	Group Annuity – mortality	
	Structured Settlement Annuity – mortality	

SOA Research INSTITUTE

Results Regulator Interest Survey - LATF

Tables/Projects

Individual Payout Annuity – mortality

Individual Life – mortality

Individual Fixed Deferred Annuity – mortality

Group Annuity – mortality

Structured Settlement Annuity – mortality



Comments

- LATF
 - Surrender information following a rise in rates will be available for the first time in decades.
 - A "return to normal" (or not) will be indicated by mortality data.
 - Guaranteed Issue Life Mortality - not a high priority but in the middle.



What can regulators do to help?

For studies, tables, project desired by regulators

- Help us clarify the prioritization
- Support/encourage voluntary participation in Experience Study Pro studies
- Support/encourage potential funding through NAIC, where funding through direct sales is not feasible



Discussion





Additional Life Research

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Experience Studies

Project Name	Objective	Link/Expected Completion Date
COVID-19 Individual Life Mortality Study - Experience Study Report - 2022 Q2	Complete a mortality study assessing the impact of COVID-19 on Individual Life Insurance.	https://www.soa.org/resources/research-reports/2023/ind-life-covid-mort-landing/
COVID-19 Reported Claims Study - 4Q 2022 Update	Draft a research study reviewing Covid-19 reported deaths by quarter.	https://www.soa.org/49c0c12/globalassets/files/resources/research-report/2023/covid-reported-claims-analysis-o4.pdf
Economic Scenario Generator - 2023 Update	Update the AAA Economic Scenario Generator Annually.	https://www.soa.org/resources/tables-calcs-tools/research-scenarios/
Group Life COVID-19 Mortality Survey Update - through December 2022	Complete an update on a mortality study assessing the impact of COVID-19 on Group Life Insurance.	https://www.soa.org/resources/experience-studies/2022/group-life-covid-19-mortality-12-2022/
COVID-19 Individual Life Mortality Study - Experience Study Report - 2022 Q3	Complete a mortality study assessing the impact of COVID-19 on Individual Life Insurance.	7/27/2023
2019-20 Fixed Indexed Annuity Study - Report	Examine lapse and the utilization of guaranteed living withdrawal benefit options on fixed index annuity policies under a Joint SOA/LIMRA project and release Tableau visualizations with the observations from the study.	8/8/2023
COVID-19 Cause of Death Study - 2022 Q1 Update	Publish a semi-annual cause of death study for individual life insurance.	8/15/2023
COVID-19 Individual Life Mortality Study - Experience Study Report - 2022 Q4	Complete a mortality study assessing the impact of COVID-19 on Individual Life Insurance.	8/15/2023
COVID-19 Reported Claims Study - 1Q 2023 Update	Reviews Covid-19 reported deaths by quarter.	8/15/2023
2009-2015 Individual Life Experience Committee Lapse and Mortality Study	Study mortality and lapse experience in the database of 2009-2015 individual life experience data and release a report with the findings.	8/30/2023
GRET for 2024	Develop the Generally Recognized Expense Table (GRET) for 2024.	9/15/2023
2019 Quintile Analysis	Ranks individual company experience into quintiles.	9/28/2023
2023 Life Mortality Improvement	Develop AG38 mortality improvement assumptions for YE 2023.	9/29/2023
2019-21 Variable Annuity Guaranteed Living Benefit Utilization Study - Report	Examine the utilization of guaranteed living benefit options on variable annuity policies under a Joint SOA/LIMRA project.	9/30/2023



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Practice Research & Data Driven In-house Research

Project Name	Objective	Link/Expected Completion Date
Reimagining Pharmacy	18/11 Style Gathering to discuss pharmacy.	https://www.soa.org/resources/research-reports/2023/reimagining-pharmacy-finance/
International Comparison of Regulatory Requirements Study Note; 2021.08	Capital Adequacy Regulatory Requirements in Life Insurance across 4 key models in the US, Canada, EU and Bermuda.	6/30/2023
Expert Opinion on Impact of COVID-19 on Future Mortality - Survey 2	Survey panel of experts on short and mid term thoughts on future population and insured mortality.	8/15/2023
Maternal Mortality	Study maternal mortality in US and compare to other countries.	8/15/2023
Mortality and Race	Summarize available literature on mortality and race and discuss actuarial aspects.	8/15/2023
Unhealthy Longevity	Examine differences in mortality/longevity between impaired vs healthy lives.	8/15/2023
Accelerated Underwriting Survey and Impact of COVID in Underwriting	Update prior survey and explore the way insurers have adapted their underwriting practices.	8/31/2023
Challenges with Defining Fairness for Life Insurance	Summarize the challenges and complexities with defining and measuring fairness for life insurance products and processes.	8/31/2023
2023 Living to 100	Produce body of research to help with old age mortality modeling and projection and research to support the needs of an increasing aging population.	9/15/2023





The Evolution of the FSA Pathway

NAIC presentations

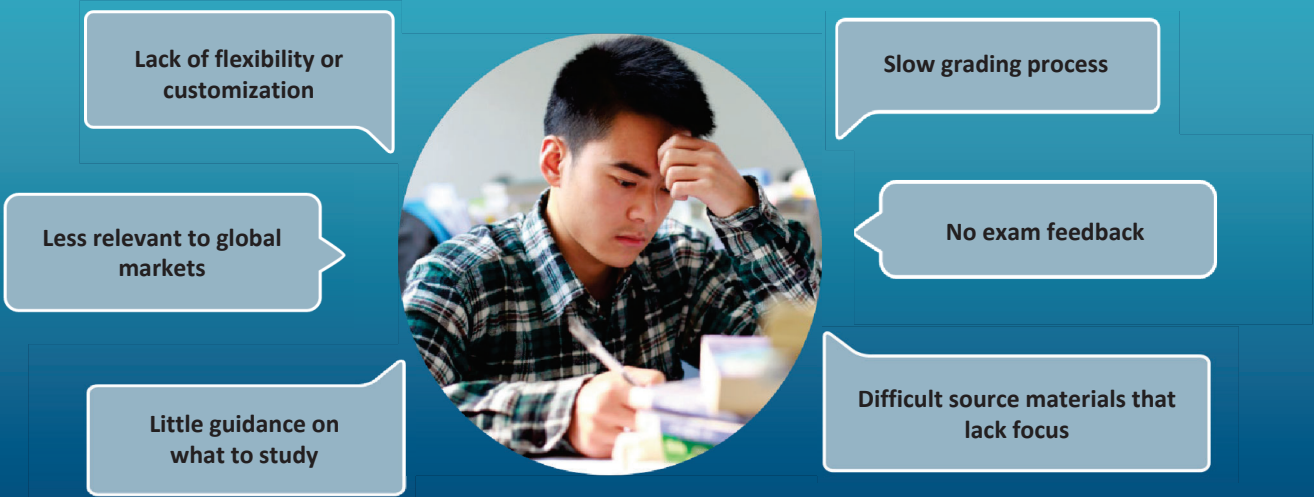
Stuart Klugman, FSA, CERA, PhD
SOA Senior Staff Fellow

August 2023



We've heard your feedback

FSA candidates encounter significant challenges along the pathway



Introducing a range of improvements for a better candidate experience



3

Regulatory Material Shift

Current Challenge

- In-depth U.S. and Canadian regulatory material lacks relevance to global markets



SOA Shift

- Detailed local regulatory material moved outside of the current FSA requirements
- Fundamental regulatory principles and frameworks will still be covered in the FSA pathway
- FSA will qualify actuaries to sign General Statements of Actuarial Opinion

CERTIFICATES:

- Stand-alone, optional regulatory certificates will be offered. Certificates can be taken when needed.
- The SOA is collaborating with regulatory bodies to develop the certificates



4



Flexible Pathway

Current Challenge

- Forced track structure lacks flexibility and customization
- Highly specialized tracks are less relevant for developing markets



SOA Shift

- Shifting from “tracks” to a flexible pathway
- Flexibility to focus on a single practice area or create a combination of courses relevant to you
- 5 courses required:
 - 4 Technical courses (one must build on another)
 - 1 Decision Making and Communications (DMAC) Course
 - + Fellowship Admissions Course (FAC)



5

Choose from About 20 Courses

Life/Annuities

Retirement Benefits

Health

General Insurance

Finance/Investments/
ERM



Focus on a single practice area



Choose a combination relevant to you



6

Life Practice Council Update

Ben Slutsker, MAAA, FSA
Vice President, Life Practice Council
Amanda Barry-Moilanen
Policy Analyst, Life

Life Actuarial Task Force (LATF) Meeting
August 12, 2023

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Academy Webinars and Events

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- Recent
 - [PBR Bootcamp: Liability Assumption Development](#)—June 21
 - PBR Bootcamp: Liability—July 26
- Upcoming
 - [Holy Moly, Let's Talk COLI](#)—August 29
 - Non-Variable Annuity PBR Framework Updates—September 6
 - PBR Bootcamp: Hedge Modeling—September 20
 - PBR Bootcamp: Reinsurance—October 18
 - Additional PBR webinars in 2023

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Recent Activity

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- Created a new group, the Investment Analysis Subcommittee
 - Will engage in NAIC issues related to investment disclosures, financial statement classifications, and credit ratings.
- Released a [Resource and Discussion Guide](#) on an actuarial review of investments in actuarial modeling.
- Delivered [comments](#) to the Life Actuarial (A) Task Force on the Interest Maintenance Reserve (IMR) Template.
 - Delivered [comments](#) to the Statutory Accounting Principles Working Group on 2023 Net Negative (Disallowed) Interest Maintenance Reserve (INT 23-01T).

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Recent Activity

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- Delivered [comments](#) to the Risk-Based Capital Investment Risk and Evaluation (E) Working Group on Exposure 2023-09-IRE— Interim Residual Tranche Factor.
- Delivered [comments](#) to the ILVA Subgroup of the Product Standard Committee Interstate Insurance Product Regulation Commission on 2023 Compact Requirements for ILVA Products.

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Ongoing Activity

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- Developed education on economic scenario generators and acceptance criteria for the Life Actuarial (A) Task Force
- Engaging in the discussions on a fixed annuity principle-based reserving framework in the VM-22 (A) Subgroup
- Revisiting the covariance methodology in life risk-based capital
- Updating the asset adequacy analysis practice note
- Developing practice note on non-guaranteed elements

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Thank you

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Questions?

- For more information, please contact the Academy's life policy analyst, Amanda Barry-Moilanen, at barrymoilanen@actuary.org.

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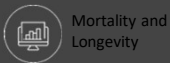


6



2024 GRET Recommendation

Tony Phipps, FSA, MAAA
Chair SOA Research Institute Committee on Life Insurance Expenses
August 12, 2023



Mortality and
Longevity

1

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Agenda

- Methodology
- Recommendation
- Comparison to Prior Years
- Information on Companies in Study



2

2

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3

3

Methodology

1. Calculate Actual to Expected Expenses
 - Gather data points from company Annual Statement submissions provided by NAIC
 - Seed factors used to calculate expected expenses.
2. Determine Distribution Channel
 - Survey sent by SOA Research Institute to companies to determine primary distribution channel.
 - This channel is used or the historical distribution channel for those companies that did not respond.
3. Remove outlier companies
4. Analyze data to derive unit expense factors by those Distribution Channels



4

4

Seed Values

Expenses allocated to acquisition and maintenance categories using the same seeds as has been previously used:

- Acquisition/Policy: \$200.00
- Acquisition/Face Amount: \$1.10
- Acquisition/Premium: 50%
- Maintenance/Policy: \$60.00



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5

Recommendation for 2024 GRET Factors

Proposed 2024 GRET Factors Based on Average of 2021/2022 Data					
Description	Acquisition per Policy	Acquisition per Unit	Acquisition per Premium	Maintenance per Policy	Company Count
Independent	\$198	\$1.10	50%	\$59	140
Career	206	1.10	52%	62	90
Direct Marketing	217	1.20	54%	65	23
Niche Marketing	132	0.70	33%	40	31
Other*	162	0.90	41%	49	95
					379

* Includes companies that did not respond to this or prior year surveys

Current 2023 GRET Factors Based on Average of 2020/2021 Data					
Description	Acquisition per Policy	Acquisition per Unit	Acquisition per Premium	Maintenance per Policy	Company Count
Independent	\$180	\$1.00	45%	\$54	141
Career	203	1.10	51%	61	84
Direct Marketing	197	1.10	49%	59	21
Niche Marketing	147	0.80	37%	44	30
Other*	153	0.90	39%	46	106
					382

* Includes companies that did not respond to this or prior year surveys



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Comparison to Prior Years

Acquisition per Policy					
Description	2023	Percentage Change	2022	Percentage Change	2021
Independent	\$198	10%	\$180	-2%	\$183
Career	206	1%	203	-4%	212
Direct Marketing	217	10%	197	-2%	200
Niche Marketing	132	-10%	147	-3%	151
Other*	162	6%	153	10%	139

* Includes companies that did not respond to this or prior year surveys

Acquisition per Unit					
Description	2023	Percentage Change	2022	Percentage Change	2021
Independent	\$1.10	10%	\$1.00	0%	\$1.00
Career	1.10	0%	1.10	-8%	1.20
Direct Marketing	1.20	9%	1.10	0%	1.10
Niche Marketing	0.70	-13%	0.80	-11%	0.90
Other*	0.90	0%	0.90	13%	0.80

* Includes companies that did not respond to this or prior year surveys



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Comparison to Prior Years

Acquisition per Premium					
Description	2023	Percentage Change	2022	Percentage Change	2021
Independent	50%	11%	45%	-2%	46%
Career	52%	2%	51%	-4%	53%
Direct Marketing	54%	10%	49%	-2%	50%
Niche Marketing	33%	-11%	37%	0%	37%
Other*	41%	5%	39%	11%	35%

* Includes companies that did not respond to this or prior year surveys

Maintenance per Policy					
Description	2023	Percentage Change	2022	Percentage Change	2021
Independent	\$59	9%	\$54	-2%	\$55
Career	62	2%	61	-5%	64
Direct Marketing	65	10%	59	-2%	60
Niche Marketing	40	-9%	44	-2%	45
Other*	49	7%	46	10%	42

* Includes companies that did not respond to this or prior year surveys



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Survey Results

- Percent of survey respondents that that responded that GRET factors are used for individual life sales illustration purposes:

Percentage of Companies that use GRET Factors	
Survey Year	Percentage
2022	44%
2022	35%
2021	31%
2020	29%
2019	26%
2018	28%
2017	30%
2016	26%

- We believe variation is a result of the mix of respondents and the limited number of responses



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Information on Companies in Study

- NAIC Data extracts included:
 - 2022: 749 companies
 - 2021: 766 companies
- Total ordinary policies issued saw a decrease of 8.45% (850k) in 2022 after seeing an increase of 3.1% (312k) in the previous year.
- The final companies used in the GRET calculation was 379 in 2022, a decrease of 3 from the previous year after seeing an increase of 7 in the previous year.
- This year's survey, a record of 44% of respondents indicated they use GRET factors for individual life sales illustration purposes, continuing the increasing trend.



10

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Questions?



11

11



12



475 N. Martingale Road, Suite 600

+1-847-706-3500
+1-847-706-3599

TO: Rachel Hemphil, FFA, FCAS, MAAA, PHD, Chair, Life Actuarial (A) Task Force
FROM: Pete Miller, ASA, MAAA, Experience Study Actuary, Society of Actuaries (SOA) Research Institute
Tony Phipps, Chair, SOA Research Institute Committee on Life Insurance Company Expenses
DATE: August 4, 2023
RE: 2024 Generally Recognized Expense Table (GRET) – SOA Research Institute Analysis

Dear Ms. Hemphill:

As in previous years, the Society of Actuaries Research Institute expresses its thanks to NAIC staff for their assistance and responsiveness in providing Annual Statement expense and unit data for the 2024 GRET analysis for use with individual life insurance sales illustrations. The analysis is based on expense and expense-related information reported on each company's 2021 and 2022 Annual Statements. This project has been completed to assist the Life Actuarial Task Force (LATF) in considering potential revisions to the GRET that could become effective for the calendar year 2024. This memo describes the analysis and resultant findings.

NAIC staff provided Annual Statement data for life insurance companies for calendar years 2021 and 2022. This included data from 766 companies in 2021 and 749 companies in 2022. This decrease resumes the trend of small decreases from year to year. Of the total companies, 379 were in both years and passed the outlier exclusion tests and were included as a base for the GRET factors (382 companies passed similar tests last year).

APPROACH USED

The methodology for calculating the recommended GRET factors based on this data is similar to that in the last several years. The methodology was last altered in 2015. The changes made then can be found in the recommendation letter sent to LATF on July 30, 2015.

To calculate updated GRET factors, the average of the factors from the two most recent years (2021 and 2022 for those companies with data available for both years) of Annual Statement data was used. For each company, an actual-to-expected ratio was calculated. Companies with ratios that fell outside predetermined parameters were excluded. This process was completed three times to stabilize the average rates. The boundaries of the exclusions have been modified from time to time; however, there were no adjustments made this year. Unit expense seed factors (the seeds for all distribution channel categories are the same), as shown in Appendix B, were used to compute total expected expenses. Thus, these seed factors were used to implicitly allocate expenses between acquisition and maintenance expenses, as well as among the three acquisition expense factors (on a direct of ceded reinsurance basis).

Companies were categorized by their reported distribution channel (four categories were used as described in Appendix A included below). There remain a significant number of companies for which no distribution channel was provided, as no responses to the annual surveys have been received from those companies. The characteristics of these companies vary significantly, including companies not currently writing new business or whose major line of business is not individual life insurance. Any advice or assistance from LATF in future years to increase the response rate to the surveys of companies that submit Annual Statements to reduce the number of companies in the "Other" category would be most welcomed.

The intention is to continue surveying the companies in future years to enable the enhancement of this multiple distribution channel information.

Companies were excluded from the analysis if in either 2021 or 2022, (1) their actual to expected ratios were considered outliers, often due to low business volume, (2) the average first year and single premium per policy were more than \$40,000, (3) they are known reinsurance companies or (4) their data were not included in the data supplied by the NAIC. To derive the overall GRET factors, the unweighted average of the remaining companies' actual-to-expected ratios for each respective category was calculated. The resulting factors were rounded, as shown in Table 1.

THE RECOMMENDATION

The above methodology results in the proposed 2024 GRET values shown in Table 1. To facilitate comparisons, the current 2023 GRET factors are shown in Table 2. Further characteristics of the type of companies represented in each category are included in the last two columns in Table 1, including the average premium per policy issued and the average face amount (\$000s) per policy issued.

To facilitate comparisons, the current 2023 GRET factors are shown in Table 2. Further characteristics of the type of companies represented in each category are included in the last two columns in Table 2, including the average premium per policy issued and the average face amount (\$000s) per policy issued.

TABLE 1
PROPOSED 2024 GRET FACTORS, BASED ON AVERAGE OF 2021/2022 DATA

DESCRIPTION	Acquisition per Policy	Acquisition per Unit	Acquisition per Premium	Maintenance per Policy	Companies Included	Average Premium Per Policy Issued During Year	Average Face Amt (000) Per Policy Issued During Year
Independent	\$198	\$1.10	50%	\$59	140	3,433	222
Career	206	1.10	52%	62	90	2,325	196
Direct Marketing	217	1.20	54%	65	23	767	122
Niche Marketing	132	0.70	33%	40	31	347	10
Other*	162	0.90	41%	49	95	917	80
* Includes companies that did not respond to this or prior year surveys					379		

TABLE 2
CURRENT 2023 GRET FACTORS, BASED ON AVERAGE OF 2020/2021 DATA

Description	Acquisition per Policy	Acquisition per Unit	Acquisition per Premium	Maintenance per Policy	Companies Included	Average Premium Per Policy Issued During Year	Average Face Amt (000) Per Policy Issued During Year
Independent	\$180	\$1.00	45%	\$54	141	3,073	204
Career	203	1.10	51%	61	84	2,296	197
Direct Marketing	197	1.10	49%	59	21	899	57
Niche Marketing	147	0.80	37%	44	30	507	14
Other*	153	0.90	39%	46	106	853	72
* Includes companies that did not respond to this or prior year surveys					382		

In previous recommendations, an effort was made to reduce volatility in the GRET factors from year to year by limiting the yearly change in GRET factors to about ten percent of the prior value. The changes from the 2023 GRET were reviewed to ensure that a significant change was not made in this year's GRET recommendation.

All GRET factors for the Independent and the Direct Marketing distribution channel experienced changes greater than ten percent, so the factors for these lines were capped at the ten percent level (or slightly above/below 10% due to rounding of the factor) from the corresponding 2023 GRET values. The volatility occurred due to an increasing median actual-to-expected ratio for each distribution channel, which allowed for additional companies with higher actual-to-expected ratios to be included in the calculation that were previously dropped. The driving force behind the notable increase in median actual-to-expected ratios for Independent and Direct Marketing were several significant outlier companies. Niche Marketing experienced the opposite, with lower median actual-to-expected ratios allowing several additional companies with lower actual-to-expected ratios, and the factors need to be capped at a ten percent drop.

USAGE OF THE GRET

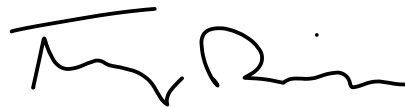
This year's survey, responded to by each company's Annual Statement correspondent, included a question regarding whether the 2023 GRET table was used in its illustrations by the company. Last year, 35% of the responders indicated their company used the GRET for sales illustration purposes, with similar percentage results by company size; this contrasted with about 31% in 2021. This year, 44% of responding companies indicated they used the GRET in 2023 for sales illustration purposes. The range covered all distribution methods, including 48% for Independent, 32% for Career, 40% for Niche Marketers, and 60% for Direct Marketing. Based on the information received over the last several years, the variation in GRET usage appears to be in large part due to the relatively small sample size and different responders to the surveys.

We hope LATF finds this information helpful and sufficient for consideration of a potential update to the GRET. If you require further analysis or have questions, please contact Pete Miller at 847-706-3566.

Kindest personal regards,



Pete Miller, ASA, MAAA
Experience Studies Actuary
Society of Actuaries Research Institute



Tony Phipps, FSA, MAAA
Chair, SOA Research Institute Committee on
Life Insurance Company Expenses

APPENDIX A -- DISTRIBUTION CHANNELS

The following is a description of distribution channels used in the development of recommended 2023 GRET values:

1. Independent – Business written by a company that markets its insurance policies through an independent insurance agent or insurance broker not primarily affiliated with any one insurance company. These agencies or agents are not employed by the company and operate without an exclusive distribution contract with the company. These include most PPGA arrangements.
2. Career – Business written by a company that markets insurance and investment products through a sales force primarily affiliated with one insurance company. These companies recruit, finance, train, and often house financial professionals who are typically referred to as career agents or multi-line exclusive agents.
3. Direct Marketing – Business written by a company that markets its own insurance policies direct to the consumer through methods such as direct mail, print media, broadcast media, telemarketing, retail centers and kiosks, internet, or other media. No direct field compensation is involved.
4. Niche Marketers – Business written by home service, pre-need, or final expense insurance companies as well as niche-market companies selling small face amount life products through a variety of distribution channels.
5. Other – Companies surveyed were only provided with the four options described above. Nonetheless since there were many companies for which we did not receive a response (or whose response in past years' surveys confirmed an "other" categorization (see below), values for the "other" category are given in the tables in this memo. It was also included to indicate how many life insurance companies with no response (to this survey and prior surveys) and to indicate whether their exclusion has introduced a bias into the resulting values.

APPENDIX B – UNIT EXPENSE SEEDS

The expense seeds used in the 2014 and prior GRETs were differentiated between branch office and all other categories, due to the results of a relatively old study that had indicated that branch office acquisition cost expressed on a per Face Amount basis was about double that of other distribution channels. Due to the elimination of the branch office category in the 2015 GRET, non-differentiated unit expense seeds have been used in the current and immediately prior studies.

The unit expense seeds used in the 2024 GRET and the 2023 GRET recommendations were based on the average of the 2006 through 2010 Annual SOA expense studies. These studies differentiated unit expenses by type of individual life insurance policy (term and permanent coverages). As neither the GRET nor the Annual Statement data provided differentiates between these two types of coverage, the unit expense seed was derived by judgment based this information. The following shows the averages derived from the Annual SOA studies and the seeds used in this study. Beginning with the 2020 Annual Statement submission this information will become more readily available.

2006-2010 (AVERAGE) CLICE STUDIES:

	Acquisition/ Policy	Acquisition/ Face Amount (000)	Acquisition/ Premium	Maintenance/ Policy
Term				
Weighted Average	\$149	\$0.62	38%	\$58
Unweighted Average	\$237	\$0.80	57%	\$76
Median	\$196	\$0.59	38%	\$64
Permanent				
Weighted Average	\$167	\$1.43	42%	\$56
Unweighted Average	\$303	\$1.57	49%	\$70
Median	\$158	\$1.30	41%	\$67

CURRENT UNIT EXPENSE SEEDS:

	Acquisition/ Policy	Acquisition/ Face Amount (000)	Acquisition/ Premium	Maintenance/ Policy
All distribution channels	\$200	\$1.10	50%	\$60

August XX, 2023

To: Members of the Life Actuarial (A) Task Force

From: NAIC Staff

RE: Guidance on Allocating Negative IMR (PIMR) In VM-20, VM-21, and VM-30

Executive Summary

While the potential admittance of some portion of negative Interest Maintenance Reserve (IMR) is being considered by the Statutory Accounting Practices (E) Working Group (SAPWG), continued guidance on the proper practice for allocating IMR for principles-based reserving (PBR) and asset adequacy testing purposes may be helpful for companies in the near term.

Background

LATF issued guidance on November 17, 2022 (Attachment A) on allocating negative IMR (PIMR) in VM-20, VM-30, VM-31. Since then, SAPWG has continued to discuss the potential admittance of some portion of negative IMR. In light of these ongoing discussions, continued guidance is needed to ensure consistent treatment for negative IMR in PBR and asset adequacy testing. Due to the timing of Valuation Manual updates, the earliest that such guidance can practically be added to the Valuation Manual is for year-end 2025. Therefore, LATF is issuing additional guidance for 2023 and 2024.

Recommendation

In order to assist state regulators and companies in achieving uniform outcomes for year-end 2023 and 2024, we have the following recommendation: the allocation of IMR in VM-20, VM-21, and VM-30 should be principle-based, “appropriate”, and “reasonable”. Companies are not required to allocate any non-admitted portion of IMR (or PIMR, as applicable) for purposes of VM-20, VM-21, and VM-30, as being consistent with the asset handling for the non-admitted portion of IMR would be part of a principle-based, reasonable and appropriate allocation. However, any portion of negative IMR that is an admitted asset, should be allocated for purposes of VM-20, VM-21, and VM-30, as again a principle-based, reasonable and appropriate IMR allocation would be consistent with the handling of the IMR asset.

This recommended guidance is for year-end 2023 and 2024, to address the current uncertainty and concerns with the “double-counting” of losses. This recommended guidance will help ensure consistency between states and between life insurers in this volatile rate environment. This guidance is expected to be incorporated in the 2025 Valuation Manual.

Attachment A

November 17, 2022

To: Members of the Life Actuarial (A) Task Force

From: NAIC Staff

RE: Guidance on Allocating Negative IMR (PIMR) In VM-20, VM-21, and VM-30

Executive Summary

With the rapidly rising interest rate environment, companies selling fixed income assets for a loss are seeing their Interest Maintenance Reserve (IMR) balances decrease or even become negative. Current statutory accounting treatment makes negative IMR a non-admitted asset. While a longer-term evaluation of IMR is being considered by the Statutory Accounting Practices (E) Working Group (SAPWG), additional guidance on the proper practice for allocating IMR for Asset Adequacy Testing and Principle-based Reserving purposes may be helpful for companies in the near term.

Background

The letter to SAPWG from the American Council of Life Insurers (ACLI) (Attachment 1) notes that "...with the inclusion of a negative IMR balance in asset adequacy testing, the disallowance of a negative IMR can result in double counting of losses (i.e., through the disallowance on the balance sheet and the potential AAT-related reserve deficiency)." There are several sections of the Valuation Manual and RBC instructions where IMR is referenced in the letter. Some of these references contemplate allocating negative IMR (or pre-tax IMR (PIMR), as applicable) at the level of business that is being analyzed/reserved for. However, these references do not detail what to do when the total company IMR balance is negative – and therefore a non-admitted asset under current statutory guidance.

Other references do provide additional insight as to the allocation of IMR when the total company balance is negative/disallowable. VM-20 Section 7.D.7.b notes that "...the company shall use a reasonable approach to allocate any portion of the total company balance that is disallowable under statutory accounting procedures (i.e., when the total company balance is an asset rather than a liability)." Question 22 of the AAA's Asset Adequacy Practice Note (Attachment 2) states that "... a negative IMR is not an admitted asset in the annual statement. So, some actuaries do not reflect a negative value of IMR in the liabilities used for asset adequacy analysis." However, Question 22 also notes a 2012 survey data that showed varying practices across companies, including some companies that allocated negative IMR.

Recommendation

In order to assist state regulators and companies in achieving uniform outcomes for year-end 2022, we have the following recommendation: the allocation of IMR in VM-20, VM-21, and VM-30 should be principle-based, "appropriate", and "reasonable". Companies are not required to allocate any non-admitted portion of IMR (or PIMR, as applicable) for purposes of VM-20, VM-21, and VM-30, as being consistent with the asset handling for the non-admitted portion of IMR would be part of a principle-based, reasonable and appropriate allocation. However, if a company was granted a permitted practice to admit negative IMR as an asset, the company should allocate the formerly non-admitted portion of negative IMR, as again a principle-based, reasonable and appropriate IMR allocation would be consistent with the handling of the IMR asset. This recommended guidance is for year-end 2022, to address the current uncertainty and concerns with the "double-counting" of losses. This recommended guidance will help ensure consistency between states and between life insurers in this volatile rate environment. Refinement of this guidance may be considered beyond year-end 2022.

Attachment 1



Mike Monahan
Senior Director, Accounting Policy
202-624-2324 t
mikemonahan@acli.com

Paul Graham
Senior Vice President, Chief Actuary
202-624-2164 t
paulgraham@acli.com

October 31, 2022

Mr. Dale Bruggeman, Chairman
Statutory Accounting Principles Working Group
National Association of Insurance Commissioners
1100 Walnut Street, Suite 1500
Kansas City, MO 64106-2197

Dear Mr. Bruggeman:

Re: Proposal for the NAIC to Fulfill the Original Intent of the Interest Maintenance Reserve

The American Council of Life Insurers (ACLI) would like to request urgent action on an issue that was never fully resolved by the NAIC and has become a pressing matter for the industry due to the rapid rise in interest rates—the allowance of a net negative Interest Maintenance Reserve (IMR) balance.

The ACLI proposes the allowance of a negative IMR balance in statutory accounting. Negative IMR balances are expected to become more prevalent in a higher interest rate environment and their continued disallowance will only serve to project misleading optics on insurers' financial strength (e.g. inappropriate perception of decreased financial strength through lower surplus and risk-based capital even though higher rates are favorable to an insurer's financial health) while creating uneconomic incentives for asset-liability management (e.g. discourage prudent investment transactions that are necessary to avoid mismatches between assets and liabilities just to avoid negative IMR).

ACLI believes the necessary changes can be implemented quickly and with minimal changes to the annual statement reporting instructions.

American Council of Life Insurers | 101 Constitution Ave, NW, Suite 700 | Washington, DC 20001-2133

The American Council of Life Insurers (ACLI) is the leading trade association driving public policy and advocacy on behalf of the life insurance industry. 90 million American families rely on the life insurance industry for financial protection and retirement security. ACLI's member companies are dedicated to protecting consumers' financial wellbeing through life insurance, annuities, retirement plans, long-term care insurance, disability income insurance, reinsurance, and dental, vision and other supplemental benefits. ACLI's 280 member companies represent 94 percent of industry assets in the United States.

acli.com

The remainder of this letter expands upon these points.

Historical Context and Background

The IMR, first effective in statutory accounting in 1992, requires that a realized fixed income gain or loss, attributable to changes in interest rates (but not gains or losses that are credit related), be amortized into income over the remaining term to maturity of the fixed income investments (and related hedging programs) sold rather than being reflected in income immediately.

Since statutory accounting practices for life insurance companies are the primary determinant of obtaining an accurate picture for assessing solvency, it was imperative that the accounting practices be consistent for assets, liabilities, and income and that they be reported on a financially consistent basis. If assets and liabilities were not reported on a financially consistent basis, then the financial statements would not be useful in determining an accurate assessment of solvency or whether there were sufficient assets to pay contractual obligations when they become due.

Amortized cost valuation of fixed income investments reflects the outlook at the time of purchase and amortization reflects the yields available at time of purchase. Policy reserve liabilities are established at the same time, and the interest rate assumptions are consistent with the yields at that time. But if fixed income investments are sold, with the proceeds reinvested in new fixed income investments, a new amortization schedule is established which may be based on an entirely different yield environment, which may be inconsistent with the reserve liabilities when they were established.

IMR was created to prevent the timing of the realization of gains or losses on fixed income investments, related to interest rates changes, to affect the immediate financial performance of the insurance company. This recognized that the gains and losses were transitory without any true economic substance since the proceeds would be reinvested at offsetting lower or higher interest rates.

For example, without the IMR, if a company sold all bonds in a declining interest environment (e.g., from 4% to 2%), and reinvested in new bonds, surplus would increase through significant realized gains. The increased surplus would inappropriately reflect increased financial strength that is illusory, due to a now lower yielding portfolio, as there would be no change to the income needed to support the liabilities.

Likewise, if a company sold all bonds in an increasing interest rate environment (e.g., from 2% to 4%), and reinvested in new bonds, surplus would decrease through significant realized losses. The decreased surplus would inappropriately reflect decreased financial strength that is similarly illusory due to the reinvestment at higher yields relative to when the bonds were originally purchased.

A net negative IMR is currently disallowed in statutory accounting. This handling is contrary to its original intent which recognized that interest related gains and losses are both transitory without any true economic substance since the proceeds would be reinvested at offsetting lower or higher interest rates, respectively. See attachment I to this letter that illustrates the financially consistent

treatment of assets, liabilities, and income and how IMR is needed to achieve that objective for both realized gains and losses.

That IMR should conceptually apply to both realized gains and losses was recognized by the NAIC during and after IMR development. The below is a quote from a 2002 report by the NAIC AVR/IMR Working Group to the E-Committee:

*“The basic rationale for the IMR would conclude that neither a maximum nor a minimum is appropriate. If the liability values are based on the assumption that the assets were purchased at about the same time as the liabilities were established, then there should be no bounds to the reserve which corrects for departures from that assumption; **if a company has to set up a large reserve because of trading gains, it is in no worse position than if it had held the original assets. As for negative values of the IMR, the same rationale applies. However, the concept of a negative reserve in the aggregate has not been adopted.**”*

While realized losses can offset realized gains in IMR, the IMR instructions require the disallowance of a net negative IMR balance (e.g., as noted in the last sentence of the aforementioned quote). See attachment II to this letter, which includes the pertinent IMR instructions where negative IMR balances are currently disallowed and in need of amendment.

When IMR was originally developed, it was intended to achieve its purpose in both a declining and rising interest rate environment. The originally adopted disallowed status of a negative IMR was expected to be addressed in subsequent years. However, over time with the persistent declining interest rates, the issue lost urgency since a negative IMR would not have been a significant issue for any company. The NAIC AVR/IMR Working Group ultimately disbanded without ever addressing this longstanding item on their agenda.

With a rising interest rate environment, it is important that the allowance of a negative IMR be addressed to fulfill its original purpose. In general, rising interest rates are favorable to the financial health of the insurance industry as well as for policyowners.

Without a change, the rising interest rate environment will give the inappropriate perception of decreased financial strength through lower surplus and risk-based capital and worse, create incentives for insurance companies to take action, or not take actions, to prevent uneconomic surplus impacts where the actions (or lack thereof) themselves may be economically detrimental.

Symmetrical treatment of a negative IMR (i.e., the allowance of a negative IMR balance) would appropriately not change surplus as a sale and reinvestment would not affect the underlying insurance company liquidity, solvency, or claims paying ability, just like with a positive IMR. See attachment III to this letter that illustrates that the sale of a fixed income investment, and reinvestment in a new fixed income investment, has no bearing on a life insurance company's liquidity, solvency, or claims paying ability.

As it was initially recognized by the NAIC that IMR should apply to both gains and losses, adequate safeguards were already built into the IMR instructions for asset adequacy, risk-based capital, and troubled companies.

Negative IMR – Reserve Adequacy and Risk-Based Capital

When IMR was developed, it was anticipated that a negative IMR balance would be reflected in asset adequacy analysis. This inclusion ensures that the assets, with the appropriate allocation from the IMR (whether negative or positive), would be adequate to fund future benefit obligations and related expenses of the company.

From the standpoint of reserve adequacy, the inclusion of a negative IMR balance appropriately reduces the investment income in asset adequacy testing. Without the inclusion of negative IMR, reserve inadequacies would potentially not be recognized.

Further, with the inclusion of a negative IMR balance in asset adequacy testing, the disallowance of a negative IMR can result in double counting of losses (i.e., through the disallowance on the balance sheet and the potential AAT-related reserve deficiency). The Actuarial Opinion that covers asset adequacy analysis requires the appropriate assessment of negative IMR in its analysis.

If a negative IMR balance is used in the asset adequacy analysis, its allowance is appropriate. Likewise, if only a portion of a company’s negative IMR balance is reflected in the asset adequacy analysis, only the allowance for that portion of the negative IMR balance reflected is appropriate. If a negative IMR balance is disallowed, it would be inappropriate to include in asset adequacy analysis. It is imperative there is symmetry between both reserving and accounting considerations, and there is already precedent in the asset adequacy analyses for inclusion of IMR.

Below are the current references to IMR in the valuation manual and risk-based capital calculations.

Regulation	Use	IMR references
Actuarial Opinion and Memorandum Regulation (VM-30)	Asset adequacy analysis for annual reserve opinion	An appropriate allocation of assets in the amount of the IMR, whether positive or negative, shall be used in any asset adequacy analysis.
Life principle-based reserves (VM-20)	Calculation of deterministic reserve	Calculate the deterministic reserve equal to the actuarial present value of benefits, expenses, and related amounts less the actuarial present value of premiums and related amounts, less the positive or negative pre-tax IMR balance at the valuation date allocated to the group of one or more policies being modeled
Life principle-based reserves (VM-20)	Calculation of stochastic reserve	Add the CTE amount (D) plus any additional amount (E) less the positive or negative pre-tax IMR balance allocated to the group of one or more policies being modeled
Variable annuities principle-based reserves (VM-21)	Reserving for variable annuities	The IMR shall be handled consistently with the treatment in the company’s cash-flow testing, and the amounts should be adjusted to a pre-tax basis.
C3 Phase 1 (Interest rate risk capital)	RBC for fixed annuities and single premium life	IMR assets should be used for C3 modeling.

Additional IMR Safeguards

The IMR instructions do provide additional safeguards in situations where it would be appropriate to recognize interest-rate related gains and losses immediately rather than be included in the IMR.

They were established to prevent situations where the liability the IMR supports, no longer exists. Examples noted in the annual statement instructions include:

- Major book-value withdrawals or increases in policy loans occurring at a time of elevated interest rates.
- Major book value withdrawals resulting from a “run on the bank” due to adverse publicity.

As a result, the IMR instructions include an IMR Exclusion whereby all gains or losses which arise from the sale of investments related to “Excess Withdrawal Activity” are to be excluded from IMR and reflected in net income. In short, Excess Withdrawal Activity is defined as 150% of the product of the lower of the withdrawal rate in the preceding or in the next preceding year calendar year times the withdrawal reserves at the beginning of the year.

Summary

With a rising interest rate environment, it is important that the allowance of a negative IMR be addressed to fulfill its original purpose. In general, rising interest rates are favorable to the financial health of the insurance industry as well as for policyowners. Without a change, the rising interest rate environment will give the inappropriate perception of decreased financial strength through lower surplus and risk-based capital.

The inability to recognize negative IMR could also impact the rating agency view of the industry, or worse, incentivize companies to avoid prudent investment transactions that are necessary to avoid mismatches between assets and liabilities. Furthermore, there are adequate safeguards in place to ensure that allowing a negative IMR does not cause any unrecognized reserve or capital inadequacies or any overstatement of claims paying ability.

Current statutory accounting guidance creates two equally objectionable alternatives for insurers and their policyowners. Following the current statutory guidance will improperly reflect financial strength through understating surplus, so additional surplus may need to be retained. Alternatively, one could take steps to manage the current situation by limiting trading of fixed income investments and related hedging programs, which would diminish significant economic value for policyowners, as well as create a mismatch between assets and liabilities.

Both scenarios encourage short-term non-economic activity not in the best long-term interest of the insurance company’s financial health or its policyowners. For insurers with diminishing IMR balances due to the rapid increase in interest rates, this dilemma is either here or fast approaching and can only be resolved now with certainty of the appropriate treatment of IMR by the NAIC.

The ACLI looks forward to urgently working with the NAIC toward fulfilling the original intent of IMR. It is imperative that insurers receive relief for year-end 2022.

If you have any questions regarding this letter, please do not hesitate to contact us.

Sincerely,



Mike Monahan
Senior Director, Accounting Policy



Paul Graham
Senior Vice President, Chief Actuary

Attachment I

Simplified Example – Need for Reporting Assets, Liabilities, and Income on a Consistent Basis:

- This example shows the appropriate interrelationship of IMR on assets, reserve liabilities, and income.
- Assume a bond is held with the following characteristics:
 - Par Value: \$1,000
 - Coupon: 3%
 - Term-to-maturity: 10 years
- Assume the bond is then sold at “time zero” and the proceeds are immediately reinvested in a bond with the same characteristics (e.g., term-to maturity, credit quality, coupon equivalent to market rate, etc.).
- Assume a simplified example with no existing IMR balance, where the bond supports a fixed insurance liability with the same duration as the original bond, as well as a present value of \$1,000.

Table 1: Market Interest Rate Scenario			
	Same	Lower	Higher
Market interest rate	3%	2%	4%
Bond’s market value	\$1,000	\$1,090	\$919
Realized gain/(loss) if sold	\$0	\$90	(\$81)*

Realized gain/(loss) deferred to balance sheet IMR and amortized into income over remaining life of bond sold (i.e., 10 years).

Table 2: Statutory Investment Income			
IMR amortization	\$0	\$9	(\$8)
Interest income on new bond	\$30	\$21	\$38
Total annual stat income	\$30	\$30	\$30

On average, future income is approximately the same in each interest rate scenario as the IMR gets reduced through amortization to income.

Table 3: Statutory Balance Sheet			
Balance Sheet Bonds	\$1,000	\$1,090	\$919
IMR	\$0	(\$90)	\$0*
Stat assets net of IMR	\$1,000	\$1,000	\$919*
Reserves	\$1,000	\$1,000	\$1,000
Surplus	\$0	\$0	(\$81)*

Even though the sale of the bond (and subsequent reinvestment) is non-economic, and the same income is being produced to support the liability, a negative surplus position makes it appear there is now a deficiency. Allowing the negative IMR appropriately would show no surplus impact, as is shown when a gain occurs, as there is no change in reported reserve liabilities. Appropriately consistent financial results require the allowance of negative IMR

***The negative IMR balance is currently disallowed and directly reduces surplus. This treatment is not supported by theoretical rationale and gives a distorted view of solvency.**

Attachment II

Pertinent Annual Statement Instructions

Line 6 – Reserve as of December 31, Current Year

Record any positive or allowable negative balance in the liability line captioned “Interest Maintenance Reserve” on Page 3, Line 9.4 of the General Account Statement and Line 3 of the Separate Accounts Statement. A negative IMR balance may be recorded as a negative liability in either the General Account or the Separate Accounts Statement of a company only to the extent that it is covered or offset by a positive IMR liability in the other statement.

If there is any disallowed negative IMR balance in the General Account Statement, include the change in the disallowed portion in Page 4, Line 41 so that the change will be appropriately charged or credited to the Capital and Surplus Account on Page 4. If there is any disallowed negative IMR balance in the Separate Accounts Statement, determine the change in the disallowed portion (prior year less current year disallowed portions), and make a direct charge or credit to the surplus account for the “Change in Disallowed Interest Maintenance Reserve” in the write -in line, in the Surplus Account on Page 4 of the Separate Accounts Statement.

The following information is presented to assist in determining the proper accounting:

General Account IMR Balance	Separate Account IMR Balance	Net IMR Balance
Positive	Positive	Positive (see rule a)
Negative	Negative	Negative (see rule b)
Positive	Negative	Positive (see rule c)
Positive	Negative	Negative (see rule d)
Negative	Positive	Positive (see rule e)
Negative	Positive	Negative (see rule f)

Rules:

- a. If both balances are positive, then report each as a liability in its respective statement.
- b. If both balances are negative, then no portion of the negative balances is allowable as a negative liability in either statement. Report a zero for the IMR liability in each statement and follow the above instructions for handling disallowed negative IMR balances in each statement.
- c. If the general account balance is positive, the separate accounts balance is negative and the combined net balance is positive, then all of the negative IMR balance is allowable as a negative liability in the Separate Accounts Statement.
- d. If the general account balance is positive, the separate account balance is negative, and the combined net balance is negative, then the negative amount not covered by the positive amount is not allowable. Report only the allowable portion as a negative liability in the Separate Accounts Statement and follow the above instructions for handling the disallowed portion of negative IMR balances in the Separate Accounts Statement.
- e. If the general account balance is negative, the separate account balance is positive, and the combined net balance is positive, then all of the negative IMR balance is allowable as a negative liability in the General Account Statement.
- f. If the general account balance is negative, the separate account balance is positive, and the combined net balance is negative, then the negative amount not covered by the positive amount is not allowable. Report only the allowable portion as a negative liability in the General Account Statement and follow the above instructions for handling the disallowed portion of negative IMR balances in the General Account Statement.

Attachment III

IMR Illustration – Liquidity, Solvency and Claims Paying Ability

Essentially, a negative IMR balance from an individual trade represents the present value of the future positive interest rate differential, from the new investment compared to the old investment, that puts one in the same economic position, when compared to before the trade, including total liquid assets available to pay claims.

This phenomenon can be illustrated in the following table where a 10-year bond is sold, one year after purchase, and immediately reinvested in another 10-year bond with equivalent credit quality in an interest rate environment where market interest rates increased from 2% to 4% in the intervening year.

	Coupon Rate of Bond	Market Interest Rate @ Purchase	Par Value of Bond	Fair Value @ Purchase	Fair Value @ Time of Sale	Loss on Sale	Claims Paying Liquidity
Old Bond	2%	2%	100	100	85.13	14.87	85.13
New Bond	4%	4%	85.13	85.13	85.13	N/A	85.13

The short-term acceleration of negative IMR to surplus (e.g., its disallowance) is strictly a timing issue and not a true loss of financial strength or claims paying liquidity, but it does present a temporary and inappropriate optics issue in surplus/financial strength until the IMR is fully amortized.

This phenomenon can further be illustrated by comparing two separate hypothetical companies. Assume Company A and B both have the exact same balance sheets. Then assume Company A keeps the old bond and Company B affects the trade mentioned above.

With the disallowance of a negative IMR balance, Company B now has a balance sheet that shows a relative decline of financial strength of \$14.87. This weakened balance sheet contrasts with both the principle behind the development of IMR, the relative actual economic financial strength, and claims paying ability of the two entities.

There is no difference in balance sheet economics of the two entities. The negative IMR balance for Company B essentially represents the difference between cost and fair value of the investment sold, that is already embedded on Company A's balance sheet based on the existing interest rate environment. The negative IMR balance should be recognized as there is no change in economics pre and post trade (or in this instance between Company A and Company B) which is consistent with the overall principle behind IMR.

Attachment 2

Some actuaries test the option risk in assets (e.g., calls) by assuming an immediate drop in the discount rate used in the GPV. The drop test is often set as severe as needed to represent a drop in earned rate that would occur if all options were exercised.

Q22. The AOMR states that the interest maintenance reserve (IMR) should be used in asset adequacy analysis. Why?

The IMR is part of the total reported statutory reserves. The IMR typically defers recognition of the portion of realized capital gains and losses resulting from changes in the general level of interest rates. These gains and losses are amortized into investment income over the expected remaining life of the investments sold, rather than being recognized immediately. This amortization is after tax.

The purpose of the IMR usually is to maintain the original matching between assets and liabilities that might be weakened by the sale of an asset. Originally, it was anticipated that the IMR would be allowed to become negative, as long as the asset adequacy analysis showed that the total statutory reserves, including the negative IMR, were sufficient to cover the liabilities. However, a negative IMR is not an admitted asset in the annual statement. So, some actuaries do not reflect a negative value of IMR in the liabilities used for asset adequacy analysis.

In the 2012 survey of appointed actuaries, more than 80 percent of the respondents indicated they include the IMR in their testing. Some actuaries use a starting IMR of zero if IMR is negative. Other actuaries use negative IMR to adjust starting assets and therefore model future lower asset yields than if zero IMR were assumed. Half of the respondents who indicated they used IMR in testing also indicated they lower assets by the absolute value of a negative IMR balance; the other half indicated they use a value of zero for the starting IMR if it is negative at the beginning of the projection period. There is no prohibition regarding the use of negative IMR within asset adequacy analysis. So, a number of actuaries allow the IMR to fall below zero within the testing period. About 60 percent of actuaries responding to the survey indicated they do not have to deal with a negative IMR.

Q23. How does the actuary determine which portion of the IMR can be used to support certain products? How is the portion of the IMR used?

If the actuary allocates the assets and IMR by line, then one possible approach is line of business-level inclusion of starting assets in the amount of the unamortized portion of the IMR relating to those assets that were owned by the line prior to being sold. Another possible approach is the allocation of company-level IMR proportionately to starting assets. An advantage of this second approach is that it is generally simpler, while a disadvantage is that longer liabilities probably have longer assets, which usually produce higher capital gains when sold, after a given drop in interest rates, than shorter assets do,

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form*

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Identification:

Rachel Hemphill, FSA, FCAS, MAAA, Ph.D.

Title of the Issue:

Clarifying guidance for allocation of negative IMR.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

VM- 20 Section 7.D.7, VM-30 Section 3.B.5

January 1, 2023 NAIC Valuation Manual

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

Clarify allocation of negative IMR for VM-20 and VM-30; in particular, non-admitted IMR is excluded. Note that VM-21 Section 4.A.7 currently requires a treatment consistent with VM-30, and so additional guidance is not needed for VM-21.

* This form is not intended for minor corrections, such as formatting, grammar, cross-references or spelling. Those types of changes do not require action by the entire group and may be submitted via letter or email to the NAIC staff support person for the NAIC group where the document originated.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
<u>05/22/23</u>	<u>SO</u>		
Notes: <u>APF 2023-08</u>			

VM-20 7.D.7

7. Under Section 7.D.1, any PIMR balance allocated to the group of one or more policies being modeled at the projection start date is included when determining the amount of starting assets and is then subtracted out, under Section 4 and Section 5, as the final step in calculating the modeled reserves. The determination of the PIMR allocation is subject to the following:

- a. The amount of PIMR allocable to each model segment is the approximate statutory interest maintenance reserve liability that would have developed for the model segment, assuming applicable capital gains taxes are excluded. The allocable PIMR may be either positive or negative.
- b. In performing the allocation to each model segment, ~~the company shall use a reasonable approach to allocate~~ any portion of the total company IMR balance that is ~~disallowable not admitted~~ under statutory accounting procedures ~~(i.e., when the total company balance is an asset rather than a liability)~~ shall first be removed. The company shall use a reasonable approach to allocate the total company balance, after removing any non-admitted portion thereof, between PBR and non-PBR business and then allocate the PBR portion among model segments in an equitable fashion.
- c. The company may use a simplified approach to allocate the PIMR, if the impact of the PIMR on the minimum reserve is minimal.

VM-30 Section 3.B.5

5. An appropriate allocation of assets in the amount of the IMR, whether positive or negative, shall be used in any asset adequacy analysis. In performing the allocation, any portion of the total company IMR balance that is not admitted under statutory accounting procedures shall first be removed. Analysis of risks regarding asset default may include an appropriate allocation of assets supporting the asset valuation reserve; these AVR assets may not be applied for any other risks with respect to reserve adequacy. Analysis of these and other risks may include assets supporting other mandatory or voluntary reserves available to the extent not used for risk analysis and reserve support.

In addition to providing general feedback on the IMR Template and Instructions, commenters are requested to address the following questions:

1. Does there need to be any disclosure about C3 Phase 1 and C3 Phase 2? If responding affirmatively, please suggest specific disclosures.
2. Are there any summary tables that may be useful standard documentation for the free-form responses on excess withdrawals or bond sales?

The template contained in this spreadsheet is part of the company's PBR Actuarial Report and/or Actuarial Memorandum. The PBR Actuarial Report and Actuarial Memorandum are considered to be confidential information under Section 14A of the Standard Valuation Law (Model #820), and may only be disclosed by a commissioner pursuant to Section 14B of Model #820.

General Instructions for Completing Optional IMR Template

- 1) Instructions for specific fields are provided on tab "Instructions Template IMR". Please review all instructions. Then complete the template in this workbook.
- 2) Fields that must be completed are shaded in blue.
- 3) Do not add, remove, or move rows or columns.
- 4) Use the Comments column if further explanation is needed.
- 5) This template is part of the PBR Actuarial Report and/or Actuarial Memorandum. Although this workbook is formatted for printing, templates must be provided in [Excel](#) format.

Instructions for Completing Optional AOM and PBR Actuarial Report Template IMR Supplemental IMR Reporting	
IMR and Relevant Annual Statement Reporting	
Column	Instructions
1	General Account IMR "Interest Maintenance Reserve" on Annual Statement Page 3, Line 9.4 of the General Account Statement.
2	Separate Account IMR "Interest Maintenance Reserve" on Annual Statement Page 3, Line 3 of the Separate Accounts Statement.
3	RBC RBC ratio, where the denominator is the authorized control level. Reporting entities with a 300% or lower RBC are not permitted to admit net negative (disallowed) IMR.
4	General Account Capital and Surplus General account capital and surplus, as required to be shown on the statutory balance sheet of the reporting entity for its most recently filed statement with the domiciliary state commissioner adjusted to exclude any net positive goodwill, EDP equipment and operating system software, net deferred tax assets and admitted net negative IMR. This amount should reconcile to the note disclosure for IMR included with the annual statement.
5	Admitted negative (disallowed) IMR Reported as a write-in to miscellaneous other-than-invested asset, named as "Disallowed IMR" and included in special surplus. Should be entered as a positive amount. This amount should reconcile to the note disclosure for IMR included with the annual statement.
6	Comments Any additional commentary needed to explain the entries in Columns 1-5.
Automatic Verifications	
RBC Flag If the RBC is under 300%, it is expected that the Admitted negative (disallowed) IMR will be 0. Provide an explanation if this is not the case.	
Capital and Surplus Flag The Admitted negative (disallowed) IMR is limited to 5% of General Account Capital and Surplus. Provide an explanation if this is not the case.	
IMR and Relevant 9/30 Statement Reporting (to be completed if 9/30 data is used for AAT)	
Repeats Columns 1-6 above, but as of 9/30. Automatic verifications are repeated for the 9/30 table. This table only needs to be completed if 9/30 data is used for AAT.	
Reflection of IMR in Asset Adequacy Testing and Principle-Based Reserving	
Column	Instructions
1	Reporting Basis All potential reporting bases for the template are listed. Columns 2-7 should be completed for all rows for which the company has business.
2	As of Quarter Enter Q3 for 9/30 data or Q4 for 12/31 data.
3	Amount of IMR Allocated Enter the total amount of IMR that is allocated and included in starting assets (after being adjusted to a pre-tax basis for PBR) for the given reporting basis. Report IMR, not PIMR.
4	Amount of negative (disallowed) IMR Allocated Enter the amount of net negative (disallowed) IMR that is allocated and included in starting assets (after being adjusted to a pre-tax basis for PBR) for the given reporting basis. Should be entered as a positive amount. Report IMR, not PIMR.
5	IMR Allocation Basis Enter the allocation basis used to allocate IMR for AAT or PBR. For example, this may be proportional based on starting assets or may be specific to the assets included in the reserving or testing.
6	Included in Starting Assets? (Y/N) Verify whether the allocated admitted net negative (disallowed) IMR was reflected in the starting assets, thereby reducing the amount of starting assets.
7	Allocated IMR generates future income? (Y/N) Verify that the allocated admitted net negative (disallowed) IMR included in the starting assets does not generate future income.
8	Comments Any additional commentary needed to explain the entries in Columns 1-7. In particular, if reserves are not modeled, and so allocated IMR is not reflected via starting assets, explain how IMR is reflected in the calculation. For the AAT line, if a book value projection was used to evaluate reserve adequacy, disclose whether ending surplus was adjusted for any remaining negative IMR (i.e., reduced surplus).
Automatic Verification	
AAT IMR Flag If the amount of negative (disallowed) IMR reflected in AAT is less than the amount of admitted negative (disallowed) IMR, provide an explanation why the admitted IMR is not fully reflected in AAT.	
Excess Withdrawals SAPWG's referral to LATF included a request with assistance "Ensuring that excessive withdrawal considerations are consistent with actual data." Input is appreciated on how LATF could best respond to this portion of the referral. To date, feedback has suggested that A/E analysis on withdrawals would be an appropriate actuarial item responsive to this request.	
Bond Sales SAPWG has proposed a restriction on the types of sales that may generate admitted net negative (disallowed) IMR. At this point, it is unclear what responsive information could be requested to verify this restriction. ACU has suggested that this item is more suited for a CFO attestation and should not be included with the other actuarial items. Input is requested on whether this item should be included in this template and whether there is information that could be provided by actuaries to support this item or if an alternate verification should be suggested to SAPWG.	

Optional AOM and PBR Actuarial Report Template IMR
Supplemental IMR Reporting
 (All dollar amounts in thousands.)

Company Name: _____
 NAIC Company Code: _____
 Valuation Year: _____

IMR and Relevant Annual Statement Reporting

1	2	3	4	5	6
General Account IMR	Separate Account IMR	RBC	General Account Capital and Surplus	Admitted negative (disallowed) IMR	Comments

RBC Flag:
 Capital and Surplus Flag:

IMR and Relevant 9/30 Statement Reporting (to be completed if 9/30 data is used for AAT)

1	2	3	4	5	6
General Account IMR	Separate Account IMR	RBC	General Account Capital and Surplus	Admitted negative (disallowed) IMR	Comments

RBC Flag:
 Capital and Surplus Flag:

Reflection of IMR in Asset Adequacy Testing and Principle-Based Reserving

1	2	3	4	5	6	7	8
Reporting Basis	As of Quarter	Amount of IMR Allocated	Amount of negative (disallowed) IMR Allocated	IMR Allocation Basis	Included in Starting Assets? (Y/N)	Allocated IMR generates future income? (Y/N)	Comments
VVA-30 (AAT)							
VVA-21							
VVA-20: Term Reserving Category							
VVA-20: UL5G Reserving Category							
VVA-20: All Other Reserving Category							

Automatic Verification

AAT IMR Flag:

Admitted negative (disallowed) IMR should not reflect asset sales due to excess withdrawals, either historical excess withdrawals or anticipated future excess withdrawals (where the company anticipates future withdrawals that are "excess" as defined by IMR instructions - above 150% of the prior two years). First, discuss and support with Actual to Expected analysis the level of historical excess withdrawals and anticipated future excess withdrawals. This discussion may be supplemented by other analysis and AEPs, such as for lapse data. Second, please confirm and support that any admitted net negative IMR is not due to asset sales related to excess withdrawals. Note that if the company cannot provide strong support, then the Admitted Negative (disallowed) IMR shall be 0.

[Enter summary here, and attach additional documentation as necessary.]

[Enter summary here, and attach additional documentation as necessary.]

Admitted negative (disallowed) IMR is limited to IMR generated from losses incurred from the sale of bonds, or other qualifying fixed income investments, that were reported at amortized cost prior to the sale, and for which the proceeds of the sale were immediately used to acquire bonds, or other qualifying fixed income investments, that will be reported at amortized cost. Please confirm and support that any admitted net negative IMR is generated by losses that satisfy that requirement. Note that if the company cannot provide strong support, then the Admitted Negative (disallowed) IMR shall be 0.

[Enter summary here, and attach additional documentation as necessary.]

[Enter summary here, and attach additional documentation as necessary.]

Brian Bayerle

Chief Life Actuary

202-624-2169

BrianBayerle@accli.com

Mike Monahan

Sr. Director, Accounting Policy

202-624-2324

MikeMonahan@accli.com

Colin Masterson

Policy Analyst

202-624-2463

ColinMasterson@accli.com

July 28, 2023

Rachel Hemphill

Chair, NAIC Life Actuarial (A) Task Force (LATF)

Craig Chupp

Vice-Chair, NAIC Life Actuarial (A) Task Force (LATF)

Re: LATF Interest Maintenance Reserve (IMR) Template

Dear Chair Hemphill,

The American Council of Life Insurers (ACLI) appreciates the opportunity to comment on the IMR Template which was exposed by LATF during their meeting on June 15, 2023, and we are especially appreciative of the changes to the template made by regulators to date. ACLI members have a few questions and suggested edits for consideration that would go a long way towards making the Template as meaningful and effective as possible for both industry and regulators alike.

The template will need to be updated to be consistent with the work Statutory Accounting Principles (E) Working Group (SAPWG) is doing on this topic. The July 5th SAPWG exposure had significant updates. Notably, the 5% limit has increased to 10% (with adjustments), which will need to be reflected on the "Instructions Template IMR" and "Template IMR" tabs. Additionally, "Bond Sales" (rows 69-70) on the "Instructions Template IMR" and "Template IMR" tabs may no longer be necessary given the most recent SAPWG exposure. We would also request that LATF adjust the template (particularly the free response questions) to remove any data and questions that are already being captured by SAPWG (e.g., the attestation requirements).

American Council of Life Insurers | 101 Constitution Ave, NW, Suite 700 | Washington, DC 20001-2133

The American Council of Life Insurers (ACLI) is the leading trade association driving public policy and advocacy on behalf of the life insurance industry. 90 million American families rely on the life insurance industry for financial protection and retirement security. ACLI's member companies are dedicated to protecting consumers' financial wellbeing through life insurance, annuities, retirement plans, long-term care insurance, disability income insurance, reinsurance, and dental, vision and other supplemental benefits. ACLI's 280 member companies represent 94 percent of industry assets in the United States.

accli.com

General Comments/Confidentiality Tab:

- The template combines concepts from both PBR and the Actuarial Opinion and Memorandum (AOM).
 - The parts relevant for PBR would be in the purview of the Qualified Actuary, but the PBR Report is not due until 4/1.
 - Further, the information requested in lines 45 and 60 is not currently the responsibility of the Appointed Actuary and should be collected elsewhere. It does not seem appropriate for this piece to be part of the AOM. Further, it does not seem appropriate to include this information before the audited financial statements are completed.
 - If the template were considered part of the AOM, how is it referenced? AG 53 was attached to the memorandum as an appendix and was separately provided to domestic regulators as a request. To work similarly to that process the template could be due at or the same time the Regulatory Asset Adequacy Issue Summary (RAAIS) is due.
- ACLI requests that IMR template submissions not be due on 2/28 and are deferred until after the RAAIS and PBR Report are submitted.
- Is it the intent that the file is on record at the company and is available upon request?

Instructions Template IMR Tab:

- The instructions reference a “note disclosure for IMR.” We request clarification on what this wording entails as some members have expressed confusion. There is no IMR Note or IMR Disclosure but there is a form for calculating IMR; is this last item what regulators intended companies to use?

Template IMR Tab:

- Row 16: For column 3, RBC, consider including reference to the following annual statement items for the RBC ratio (= TAC/Authorized Control Level RBC)
 - TAC: Five-Year Historical Data, Line 30, Column 1
 - Authorized Control Level RBC: Five-Year Historical Data, Line 31, Column 1
- Row 16: For column 4, General Account Capital and Surplus,
 - Consider including references to the location in the annual statement for each item in the adjusted amount:
 - General Account Capital and Surplus: Page 3, Line 38
 - Net Positive Goodwill: <location>
 - EDP Equipment and operating system software: Page 2, Line 20, Column 3
 - Net deferred tax assets: Page 2, Line 18.2, Column 3
 - Admitted net negative IMR: <location>
- For column 5, Admitted negative (disallowed) IMR, how does this item differ, if at all, from “admitted net negative IMR” referenced in column 4, General Account Capital and Surplus?
- For column 7, Allocated IMR generates future income? (Y/N)?, consider re-stating the instructions to read as follows: Does the allocated admitted net negative (disallowed) IMR included in the starting assets generate future income? The current language is open to interpretation.
- The following cells do not allow for a zero entry:

- Cell E16 – Admitted negative (disallowed) IMR in Annual Statement
- Cell E26 – Admitted negative (disallowed) IMR in 9/30 Quarterly Statement
- The following cells do not allow for a free-form text entry:
 - Cell E35 (IMR Allocation Basis – VM-30)
 - Cell E36 (IMR Allocation Basis – VM-21)
 - Cell E37 (IMR Allocation Basis – VM-20 Term)
 - Cell E38 (IMR Allocation Basis – VM-20 ULSG)
 - Cell E39 (IMR Allocation Basis – VM-20 All Other)

Thank you once again for your consideration of our comments and we look forward to discussing the IMR Template at a future session of LATF.

Sincerely,



Colin Masterson

cc: Scott O'Neal, NAIC

Brian Bayerle
Chief Life Actuary
202-624-2169
BrianBayerle@accli.com

Colin Masterson
Policy Analyst
202-624-2463
ColinMasterson@accli.com

July 21, 2023

Rachel Hemphill
Chair, NAIC Life Actuarial (A) Task Force (LATF)

Re: APF 2023-08 and the NAIC Staff Memo on Interest Maintenance Reserve (IMR)

Dear Chair Hemphill:

The American Council of Life Insurers (ACLI) appreciates the opportunity to submit comments on the two LATF exposures from the June 1st meeting related to IMR: APF 2023-08 and the NAIC Staff Memorandum on Allocating Negative IMR (PIMR) In VM-20, VM-21, and VM-30. Overall, ACLI has no objections to the language and proposals presented in the exposures.

ACLI would like to clarify whether the regulators' intention is to require that all admitted negative IMR be fully allocated in PBR and AAT, including admitted negative IMR arising from assets in a segmented surplus portfolio. ACLI notes that positive IMR amounts arising from assets in a segmented surplus portfolio are not allocated in PBR and AAT.

Thank you very much for the consideration of our request for clarification and we look forward to further discussion on these exposures at a future LATF session.

Sincerely,

cc: Scott O'Neal, NAIC

American Council of Life Insurers | 101 Constitution Ave, NW, Suite 700 | Washington, DC 20001-2133

The American Council of Life Insurers (ACLI) is the leading trade association driving public policy and advocacy on behalf of the life insurance industry. 90 million American families rely on the life insurance industry for financial protection and retirement security. ACLI's member companies are dedicated to protecting consumers' financial wellbeing through life insurance, annuities, retirement plans, long-term care insurance, disability income insurance, reinsurance, and dental, vision and other supplemental benefits. ACLI's 280 member companies represent 94 percent of industry assets in the United States.

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