DECEMBER 2020

DISCUSSION PAPER

# ASSET ADEQUACY TESTING CONSIDERATIONS FOR YEAR-END 2020

American Academy of Actuaries
Asset Adequacy Testing Task Force (AATTF)

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# Asset Adequacy Testing Considerations for Year-End 2020

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**This discussion paper was prepared by the Asset Adequacy Testing Task Force (AATTF) of the American Academy of Actuaries' Life Practice Council. Its charge was to raise awareness and summarize actuarial practices for life financial reporting actuaries involved with asset adequacy testing (AAT) and related activities in 2020's extreme economic environment. The AATTF expects this discussion paper to generate discussion among actuaries about the unusual events of 2020 and how those events shape AAT, and to provide a reminder of the relevant actuarial standards of practice (ASOPs) and regulatory standards.**

## Purpose and Highlights

This paper was developed to encourage discussion among actuaries about the unusual events of 2020 and how those events influence the assumption-setting, scenarios analysis, modeling, and analysis performed in conjunction with year-end AAT. Some aspects of 2020 experience could affect mortality and capital market assumptions. Some experience could be considered temporary, while other experience may be considered a more permanent change. While the impact of COVID-19 continues to evolve, some effects of the virus and the fallout resulting from changes in business practices and the capital markets could become permanent.

The AATTF conducted a survey of appointed actuaries in an effort to understand how appointed actuaries intend to approach various aspects of AAT in light of current conditions. This paper highlights responses that the AATTF considered to be of particular interest. However, it is important to note that the survey covered various aspects of AAT that are not highlighted in the text of this discussion paper. Readers of this paper may have other insights from the survey that we did not emphasize. So, the AATTF would encourage readers to review the results of the survey for additional information. Complete survey results are available below.

The intended audience of this paper, and the survey upon which it is based, are appointed actuaries and those actuaries involved with developing the analytical tools to support appointed actuaries' opinions. The issues raised in this paper assume that the reader is familiar with actuarial practices and professional standards. This paper is not a promulgation of the Actuarial Standards Board, is not an actuarial standard of practice (ASOP), is not binding upon any actuary and is not a definitive statement as to what constitutes generally accepted practice in the area under discussion. In writing this paper, there is no intention to prescribe practices and/or to suggest that existing practices are not appropriate. Rather, the purpose of the paper is to stimulate discussion and consideration of those aspects of asset adequacy analysis that warrant additional focus in this unusual environment.

In the spirit of getting the actuarial conversation started, the AATTF identified a few major themes and noteworthy topics from the survey results. The following sections of this paper provide comments along with references to relevant professional guidance on those highlighted items. The following topics were identified for this purpose:

- The Appointed Actuary's Criteria for Adequacy
- The Level Interest Rate Scenario and Moderately Adverse Conditions
- Liability Assumptions Changes Anticipated for Year-End 2020 Analysis
- Other Findings

In addition to these highlights, complete survey results can be found below.

Finally, it is hoped that this paper will encourage actuaries practicing in this area to review the existing literature and engage in thoughtful discourse and reflection as they consider the challenges of asset adequacy testing in 2020.

# Introduction

An appointed actuary within a life or health insurance company is responsible for providing a public statement of actuarial opinion that the reserves and related actuarial items, when considered in light of the assets held by the company, "make adequate provision, according to presently accepted ASOPs, for the anticipated cash flows required by the contractual obligations and related expenses of the company."[1] The actuary's opinion is commonly based on an AAT—primarily cash flow testing (CFT)—where the performance of the inforce assets and liabilities are projected forward under various economic scenarios. In this analysis, the CFT could utilize stochastically generated economic scenarios as well as deterministic scenarios designed to stress certain assumptions.

In forming an opinion, generally, the actuary looks to better understand the conditions that may lead to a situation where future cash flows are unable to fund the current obligations of the company. For situations where shortfalls occur, the actuary uses judgment to determine whether the reserve amount, and thus the asset amounts, should be increased to address these shortfalls. The Standard Valuation Law (SVL)[2] requires that reserves be established at a level of conservatism that reflects conditions that include unfavorable events that have a reasonable probability of occurring. (Section 11.D.4.b). The actuary's opinion is further guided by the ASOPs, including ASOP No. 22, *Statements of Opinion Based on Asset Adequacy Analysis by Actuaries for Life or Health Insurers* ("ASOP No. 22").

# Background

To gather information for this issue brief, the AATTF created a survey to be completed by appointed actuaries. Given the confluence of a sustained low-interest-rate environment, the novel coronavirus pandemic, and the recent upheaval in U.S. equity markets, the AATTF queried through the survey specific questions in the following broad topic areas: 1. Liabilities; 2. Assets and Economic Assumptions; 3. Modeling of Reinsurance; 4. Use of a Gross Premium Valuation (GPV); 5. Adequacy Criteria; 6. Management Actions; 7. Modeling Methodology; and 8. Data Sources.

1 Actuarial Opinion and Memorandum Regulation (#822) of the National Association of Insurance Commissioners (NAIC) enacted by legislation, including substantially similar terms and provisions, by state jurisdictions. https://content.naic.org/sites/default/files/inline-files/MDL-822.pdf and 2020 Valuation Manual of the NAIC, enacted by reference by state jurisdictions. https://content.naic.org/sites/default/files/pbr_data_valuation_manual_current_edition.pdf

2 Standard Valuation Law, Model Law (#820) of the National Association of Insurance Commissioners (NAIC) enacted by legislation, including substantially similar terms and provisions, by state jurisdictions.

The survey was conducted through SurveyMonkey, and was available for responses from Aug. 5 through Aug. 24, 2020 (the survey instrument can be found below). A letter introducing the survey and ensuring confidentiality for any responses was distributed to appointed actuaries on Aug. 5.

There were 787 life insurance entities identified from the National Association of Insurance Commissioners' (NAIC's) database of actuarial opinions that submitted opinions for 2019; 706 of those entities had named appointed actuaries. Because some appointed actuaries file actuarial opinions for more than one entity, there were 329 distinct appointed actuaries identified. The AATTF, through the Academy's research staff, was able to associate email addresses with 309 of those actuaries, responsible for opinions for 672 of the entities; the task force was then able to reach 303 of those actuaries with our SurveyMonkey invitation, reaching appointed actuaries responsible for reporting on 660 entities. Of those 303 actuaries, 156 responded to the survey, a response rate of 51%. Those responding actuaries report on 387 entities, 59% of the 660 possible.

For more details on the responding actuaries, their companies and their responses, and for tables summarizing the responses to all 95 questions, see the report below.

## The Appointed Actuary's Criteria for Adequacy

When forming a statement of actuarial opinion regarding asset adequacy, ASOP No. 22 states the actuary should use professional judgment in determining whether certain considerations apply. Considerations specifically listed in ASOP No. 22, section 3.4 include reasonableness of results, adequacy of reserves and other liabilities, analysis of scenario results, aggregation, trends, management action, and subsequent events. Actuaries typically understand that many factors weigh into the asset adequacy criteria determination.

The survey keyed in on three specific items with respect to determining adequacy:

- Regarding the approach to the primary scenario set used in stating appointed actuaries' opinions, are they contemplating changes for year-end 2020?
- For actuaries who base the adequacy criteria on stochastic scenario testing, how will the pass rate for 2020 testing compare to that used for 2019?
- What guidance do actuaries use in shaping their criteria for adequacy?

There were 27 participants indicating use of a stochastic set of scenarios as their primary set for the 2019 analysis, and 104 participants used sets of deterministic scenarios as their primary set for the 2019 analysis. This is roughly an 80% deterministic/20% stochastic split.

All participants indicated the approach used for 2020 will remain the same—i.e., no company is planning to move from the primary set being deterministic to a stochastic approach, or vice versa.

For those using a deterministic set of scenarios, a majority (57 of 104) uses the basic seven (NY7) scenarios *plus* auxiliary scenarios and do not plan to change this approach. This may imply the primary set is robust enough to accommodate the low-interest-rate environment we find ourselves in today. Twenty-seven of the 104 respondents indicated changes to their deterministic scenario set, ranging from adding several scenarios to making material changes to the scenario set. While there could be valid reasons for limiting the analysis to the basic seven scenarios, the results of the survey indicate that most actuaries are basing the criteria for adequacy on more than these basic seven scenarios, and for 2020, are contemplating adding scenarios to the primary set.

While the numbers indicate that 80% of participants report using deterministic scenarios in their analysis, 20% use stochastic scenarios. In stochastic scenarios, the reasonableness of the scenarios depends on the economic scenario generator's underlying algorithm and the parameterization of the generator, such as the mean reversion parameter and the speed of reversion. For an actuary using stochastic scenarios as the primary set, adequacy criteria may be stated as passing X% of the scenarios; or using the stochastic set to determine the additional reserve that results in passing X% of the scenarios. The majority of participants responding in this category anticipate no changes to the passing rate for 2020 adequacy analysis. While the criteria, or passing rate, is not expected to change, certainly each scenario result (present value of ending surplus, for example) will indeed be different for the 2020 analysis as compared to 2019. Nearly half of the responding actuaries indicate that they plan to reduce the stochastic mean reversion target interest rate for their 2020 testing. This reduction may provide additional insights to the actuary regarding the impacts of adverse interest rate risk on the company's asset liability management practices.

The Appointed Actuary's criteria for adequacy involves many factors and is based on actuarial judgement. Participants indicated they look to ASOPs in general (ASOP No. 22 in particular), and the Academy's practice note, *Asset Adequacy Analysis*.[3] The New York Special Considerations letter[4] was also noted as a reference that many use. While not an official requirement for non-New York companies, the Special Considerations letter has become somewhat of a benchmark most appointed actuaries are aware of, even if not using the standards in testing.

Clearly, appointed actuaries review available guidance to support their professional judgment in selecting adequacy criteria parameters for 2020 and may find it beneficial to reach out to the domestic regulator to discuss expectations for year-end 2020 testing and the topic of adequacy criteria. Likewise, state regulators might be proactive in outreaches to domestic companies to discuss year-end 2020 testing.

## The Level Interest Scenario and Moderately Adverse Conditions

Is the level interest rate scenario beyond a moderately adverse condition (MAC)? This question is clearly a matter of professional judgment, and a wide range of judgments was evident in the survey responses; this range of judgments will be discussed below. The survey questions (questions numbered 21-24) on the level interest scenario in the context of MAC are variations on a theme. Where do appointed actuaries think the MAC line should be drawn in the context of low interest rates?

Before getting too far into the discussion of the level interest rate in the context of an MAC, it is important to define what is meant by an MAC. ASOP No. 22 defines an MAC as "Conditions that include one or more unfavorable, but not extreme, events that have a reasonable probability of occurring during the testing period." In this section, as we discuss the level interest scenario in the current economic environment, the phrase "beyond a moderately adverse condition" reflects an interest rate event(s) that practitioners consider to be extreme or to have an unlikely probability of occurring.

One of the more interesting results is that an overwhelming majority (close to 85%) of the survey respondents view the current interest rate environment held level for the entire projection period as being beyond an MAC. Beyond that clear consensus, views about alternatives to a purely level scenario that would be within an MAC were quite varied.

3 *Asset Adequacy Analysis*, American Academy of Actuaries, September 2017.
4 https://www.dfs.ny.gov/system/files/documents/2020/11/spec_con_2020.pdf

However, a similar question asked from the perspective of what appointed actuaries think are within an MAC produced different results. Specifically, about a quarter of respondents think an MAC is defined by some reduction in interest rates, and another quarter think the level scenario is within the range of an MAC. Almost half believe some manner of increase should be incorporated to stay within an MAC scenario. Three out of four of those respondents believe an increase should occur after the current levels are held for a period of time, with the remainder preferring a gradual increase.

While only approximately 15% consider the current interest-rate environment held level for the entire projection period as being an MAC, about half of respondents consider the level scenario to be a required "pass" for their criteria, regardless of how low interest rates are at the valuation date. This indicates that some who view the scenario to be beyond an MAC still consider it to be a required "pass". Potential reasons for this discrepancy include a situation where a company's liabilities are not materially impacted by yields (i.e., term or group products) or their products' formulaic reserves are conservatively set and thus will pass. There could also be some recognition that a regulator's judgment might be more conservative than their own.

Opinions seem to be almost evenly split, with 47% of the respondents having not changed their opinion this year about whether the level scenario is beyond moderately adverse relative to the interest-rate environment that existed for their 2019 testing.

In considering alternatives to the level scenario, one might refer to the deterministic scenario (scenario number 12) used in VM-20[5] for the deterministic reserve. The basis of the VM-20 deterministic scenario is persistent downward shocks to interest rates over the first 20 years.[6] In terms of the random shocks, it is a "creep down" scenario. The shocks, however, are applied in the context of a stochastic process that involves mean reversion. The current calibration of the generator makes the force of mean reversion under current conditions stronger than the downward shocks. As a result, in the current very-low-interest-rate environment, the path of interest rates in that scenario is slowly upward. That scenario could be considered a reasonable standard adopted by regulators to represent what is an MAC.

5 See here for the current edition.
6 VM-20 Appendix 1, Paragraph E.

Current economic conditions bring the current calibration of the generator into question, however. When asked whether they plan to use the Academy's Economic Scenario Generator with VM-20 parameterization, 69.5% of survey respondents said "no," suggesting that the VM-20 deterministic scenario that is based on that parameterization may not be a widely accepted standard for an MAC.

The nature of current economic conditions emphasizes the importance of professional judgment on this issue. The survey responses indicate a diversity of opinion under such unprecedented conditions.

Another item of interest is the discussion in New York State (NYS) around MAC and an alternate approach to the level scenario. In light of the unprecedented economic situation of 2020, the NYS Department of Financial Services (NYSDFS) is allowing a modification to the level interest scenario that will assume the 10-year Treasury grades up to 1.5%, starting at the very low current levels and grading up over the first 10 years of the projection, with other yield curve tenors adjusted in parallel shift.. The implication is that the level scenario held constant for the entirety of a projection is considered beyond an MAC. However, spreads to Treasury may decrease over the first 10 years depending on the relationship of the NAIC current to long-term spreads. Also interesting is the NYSDFS waiver of the requirement to pass deterministic scenario 6, the down/up scenario. In recent years, both scenarios 5 and 7—the falling and the pop-down—have been waived, so with the addition of a waiver to scenario 6, passing of decreasing scenarios is not required in demonstrating asset adequacy.

## Liability Assumption Changes Anticipated for Year-End 2020 Analysis

For each liability assumption addressed in the survey, respondents were asked about anticipated changes for 2020 compared to the 2019 analysis. Most respondents do not anticipate making changes in 2020 as a result of current conditions. The impact of current economic conditions on key liability assumptions may be assessed at least to some extent via expanded sensitivity testing.

Survey questions 13-16 asked appointed actuaries what changes they anticipate making to the following base liability assumptions in 2020 as a result of current market conditions: mortality for life insurance policies; mortality for contracts with longevity risk (e.g., payout annuities, long-term care [LTC]); morbidity assumptions for LTC and accident and health insurance policies; and policyholder behavior assumptions. In addition, survey questions 17-18 asked appointed actuaries whether they anticipate making changes to dynamic policyholder behavior parameters and premium persistency behavior parameters. Detailed survey responses are included in the report found below.

For most liability assumptions, more than two-thirds of the respondents indicated that either no changes were anticipated to the assumption or that they would make changes to the assumption, but not due to COVID-19. For example, for the base mortality assumptions for life insurance policies, survey responses were as follows:

| **Answer Choices** | **Responses** | |
|---|---|---|
| No changes anticipated | 44% | 63 |
| Increase long-term mortality | 4% | 5 |
| Decrease long-term mortality | 0% | 0 |
| Temporary additional mortality, constant by age | 6% | 9 |
| Temporary additional mortality, varying by age | 18% | 26 |
| Will make changes, but not due to COVID-19 | 23% | 33 |
| N/A | 5% | 7 |
| Total | 100% | 143 |

For the base morbidity assumptions for LTC and accident and health insurance policies, only 40% of the respondents indicated that either no changes were anticipated (33%) or that they would make changes but not due to COVID-19 (7%). However, 45% of the respondents indicated that the question was not applicable, as compared to a much smaller percentage of respondents indicating that the question was not applicable for other assumptions. Therefore, 73% (40/55) of those for whom the question was applicable anticipated no changes or changes for reasons other than COVID-19.

Some respondents did indicate that they anticipate making adjustments to certain liability assumptions as a result of current conditions. For example, 28%of respondents indicated that some change would be made to the base mortality assumptions for life insurance policies as a result of current conditions (4%—increase long-term mortality; 6%—temporary additional mortality, constant by age; 18%—temporary additional mortality, varying by age). However, for each liability assumption addressed in the survey, those who anticipated making such changes represented a clear minority of respondents.

With respect to applicable guidance, some actuaries indicated that there was no guidance that they would look to or need as they reviewed the assumptions related to liabilities. However, many actuaries indicated that they are reviewing current trends and information related to COVID-19 and/or that that they would be reviewing applicable actuarial standards of practice or regulatory guidance. Other general comments indicate that some of the appointed actuaries will be looking to actuarial literature and/or their peers or reinsurers for guidance. Others will be reviewing emerging experience and antidotal information to assess whether or not the impacts will be short term or long term.

ASOP No. 7, section 3.2 provides that in deciding the level of analysis of insurer cash flows, if any, appropriate for the circumstances, "the actuary should consider the type of asset, policy, or other liability cash flows and the severity of risks associated with those cash flows. As part of that consideration, the actuary should consider those risks and options embedded in the asset, policy, or other liability cash flows that the actuary judges to be material. In addition, the actuary should consider the risks that are being undertaken and determine what types of deviations from expected experience should be taken into account, if any, given the purpose of the analysis."

The liability assumptions included in the survey are generally considered material for purposes of assessing policy cash flow risk and are assumptions that the AATTF believe could be impacted by current market conditions. Policy cash flow risk, as defined in both ASOP No. 7 and ASOP No. 22, is "[t]he risk that the amount or timing of cash flows under a policy or contract will differ from expectations or assumptions for reasons other than a change in investment rates of return or a change in asset cash flows. This risk is commonly referred to as C-2 risk."

While both favorable and unfavorable deviations in future experience are possible, given the "moderately adverse" framework of AAT, many actuaries believe the appointed actuary's primary focus regarding any policy cash flow risk is the potential for adverse deviation. The

potential for adverse deviation is generally assessed via sensitivity testing. In response to Question 79 of the survey, 50% of the respondents indicated that 2020 AAT will include more sensitivity tests than were performed for 2019. The response to Question 80 of the survey indicates that these appointed actuaries intend to expand sensitivity testing as follows:

**I intend to expand my sensitivity testing for...**
(*check all that apply*)

| Item | Percentage | Number |
|---|---|---|
| Premium persistency | 14.71% | 10 |
| Mortality | 50.00% | 34 |
| Morbidity | 16.18% | 11 |
| Lapses | 22.06% | 15 |
| Renewal expenses | 2.94% | 2 |
| Inflation | 8.82% | 6 |
| Spreads | 38.24% | 26 |
| Defaults | 39.71% | 27 |
| Option/rider election rates | 2.94% | 2 |
| Other (please describe) | 20.59% | 4 |
| | **Answered** | **68** |

## Other Findings

There are many interesting observations one can draw from reviewing the survey responses. First, there remains a large amount of diversity in practice in many aspects of AAT. Second, even though we are in the midst of a global pandemic and the lowest level of interest rates in history, many appointed actuaries appear to see AAT in a view that is strikingly similar in terms of methodology and framework to the prior year, pre-pandemic. As such, we take this opportunity to point out areas where there is a wide diversity in the responses.

- **Relevant Literature**—Earlier in this paper, we observed that the survey respondents indicated an overwhelming reliance on both ASOP No. 22 and the AAT practice note. In the context of the former, it is important to highlight that at the time of drafting of this paper, ASOP No. 22 is being (second exposure). Although the exposed revision is not currently effective, we strongly encourage practitioners to review the exposure and provide comments. For the *Asset Adequacy Analysis* practice note, we observe that while it was released in September 2017, it is predicated on a 2012 survey and the work in developing it was largely completed in 2014; hence, the user needs to keep in

mind that since publication, practice has likely changed because it tends to evolve over time. Many actuaries also cited the Valuation Manual (specifically VM-30) as a formal guidance that was heavily relied on when performing their responsibility with respect to AAT.

One takeaway from the diversity of responses to this question is that many actuaries cited multiple sources as their most useful reference for guidance. We believe this should be taken as encouragement for all actuaries as an opportunity to refresh their skills, and as a reminder that actuaries should be rereading these sources periodically.

- **Negative Interest Rates—**Twenty respondents are considering reflecting negative interest rates in their modeling. Many indicated that they were restricted in their use of negative interest rates by modeling limitations, so perhaps there is more concern about the need to model negative interest rates than can be inferred from the survey results.

- **Projection Start Date—**We observed that many actuaries plan on using data earlier than the valuation date—which, again, in the context of the question, appears to imply that approximately 65 actuaries are entirely basing their conclusion on assets, liabilities, and economic conditions that are not updated at December 31. At least one state requires that testing be performed as of December 31. However, ASOP No. 22 provides guidance and an example where testing is based on a date earlier then December 31. Within the appointed actuary's report, actuaries should be prepared to discuss why updated testing with December 31 assets, liabilities, or economic conditions was not necessary.

In summary, reviewers noted a range of responses on the topic of timing of testing and inclusion of subsequent events. This may reflect a distinction between model changes and relevant opinions or other considerations. Relevant references for guidance on this issue include ASOP No. 22, ASOP No. 41, and the AAT practice note, among others.

- **Gaps In Guidance—**In Question 95, 10 actuaries out of the 60 that answered expressed concerns with large gaps in existing guidance. These gaps provide the opportunity for a beneficial interaction between those companies and their regulators to work together to reach full transparency. On the flip side of that question, however, it is noted that 50 actuaries indicated that no gaps in authoritative literature exist. We encourage all practitioners to review the guidance in light of the current environment, and to use their judgment to determine whether there are areas within the guidance that could be considered outdated. Again, as some of the previous answers might indicate, there appears to be more diversity around interpretation of the literature. By itself, diversity in opinion does not imply the literature is lacking.

- **Reliance on Others—**We observed that many actuaries have decided to use judgment, historical experience, or company-specific support related data rather than VM-20 for credit spreads and default costs. We encourage these actuaries to review ASOP No. 22 with respect to reliance on other support professionals for assistance with assumptions when necessary. Specifically, when practicable, the actuary should review the data and any supporting analysis for reasonableness and consistency. For further guidance, the actuary should refer to ASOP No. 23, *Data Quality*, and ASOP No. 41, *Actuarial Communications*. The actuary should disclose the extent of any such reliance (which would be required under both ASOP No. 22 and VM-30).

- **Reflection of 2020 Events on Assumptions—**Reviewers of the survey noticed that while several actuarial assumption topics could be affected by the current environment (e.g., mortality, investments, policyholder behavior), there is no consensus on whether or how those assumptions would be changed in this year's AAT. This lack of consensus reflects a diversity of opinion on the impact of those issues on longer-term experience (i.e., whether those issues will have a temporary or more permanent impact as experience continues to emerge). Relevant references for guidance includes the *Asset Adequacy Analysis* practice note, ASOP No. 22, and New York Regulations 126 and 147.

- **Asset Assumptions—**A large majority of respondents indicated no plans to revise default assumptions or equity returns in 2020. This may imply that the risk of a further downturn (a "w-shaped" recovery) is not seen as a major concern given the current level of interest rates. Other areas that seemed as if participants weren't considering the current environment, or had considered but don't think there is any need for changes, include mortgage experience and counter-party credit risk (particularly with respect to reinsurance recoveries) as well as additional asset sensitivity testing. Again, these actuaries may have determined that their current asset sensitivity testing is robust enough even considering the current conditions.

We have summarized the survey findings and provided some observations in addition to the numerical findings. Our purpose in highlighting these areas is to generate discussion on the wide range of risks that the actuary considers in forming his/her formal opinion. Calendar-year 2020 poses unprecedented challenges in establishing assumptions and forming an opinion on asset adequacy.

## References:


- *Standard Valuation Law*, by the NAIC
- *Actuarial Standards of Practice*, by the Actuarial Standards Board
  - ASOP No. 1, *Introductory Actuarial Standard of Practice*
  - ASOP No. 2, *Nonguaranteed Charges or Benefits For Life and Annuity*
  - ASOP No. 5, *Incurred Health and Disability Claims*
  - ASOP No. 7, *Analysis of Life, Health, or P&C Insurer Cash Flows*
  - ASOP No. 11, *Financial Statement Treatment of Reinsurance Transactions*
  - ASOP No. 15, *Dividends for individual Participating life, Annuities and Disability Insurance*
  - ASOP No. 18, *Long Term Care Insurance*
  - ASOP No. 21, *Responding to or Assisting Auditors or Examiners*
  - ASOP No. 22 (current or revised exposure), *Statements of Opinion Based on Asset Adequacy Analysis by Actuaries for Life or Health Insurers*
  - ASOP No. 23, *Data Quality*
  - ASOP No. 25, *Credibility Procedures*
  - ASOP No. 28, *Statements of Actuarial Opinion Regarding Health Insurance Liabilities and Assets*
  - ASOP No. 40, *Compliance with Valuation of Life Insurance Policies Model Regulation with Respect to Deficiency Reserve Mortality*
  - ASOP No. 42, *Health and Disability Actuarial Assets and Liabilities Other Than Liabilities for Incurred Claims*
  - ASOP No. 52, *Principle-Based Reserves for Life Products under the NAIC Valuation Manual*
  - ASOP No. 56, *Modeling*
- *The Application of Precept 13 of the Code of Professional Conduct*, a discussion paper by the Academy's Council on Professionalism
- *Valuation Manual*, by the National Association of Insurance Commissioners (NAIC)
  - VM-20, *Requirements for Principle-Based Reserves for Life Products*
  - VM-21, *Requirements for Principle-Based Reserves for Variable Annuities*
  - VM-22, *Statutory Maximum Valuation Interest Rates for Income Annuities*
  - VM-25, *Health Insurance Reserves Minimum Reserve Requirements*
  - VM-30, *Actuarial Opinion and Memorandum Requirements*
- *Structural Framework of U.S. Actuarial Professionalism*, a discussion paper by the Academy's Council on Professionalism
- *The Academy and the Web of Professionalism*, by Tom Wildsmith
- "Fundamental Changes," *Contingencies,* November/December 2005, by Paul McCrossan
- *Special Considerations Relating to December 31, 2019 Reserves and Other Solvency Issues*, by the NYSDFS8

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# Asset Adequacy Analysis 2020:
# A Survey of Life Appointed Actuaries

December 4, 2020

A Report to
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Bill Sayre MAAA, FSA
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Co-Chairpersons, 2020 Asset Adequacy Testing Task Force
Life Valuation Committee
American Academy of Actuaries

by
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The Life Valuation Committee of the American Academy of Actuaries created the 2020 Asset Adequacy Testing Task Force ("the Task Force") with the charge of producing a discussion paper on asset adequacy analysis concerns in the unusual circumstances facing appointed actuaries in 2020. The discussion paper is intended to raise awareness and summarize currently contemplated actuarial practices of life financial reporting actuaries involved with asset adequacy analysis. The intention is that the discussion paper will outline the issues and potential risks arising from the current combination of very low interest rates and the pandemic, and summarize how practitioners have indicated they plan to respond to the current environment within the context of regulatory compliance and practice standards.

To gather information for this planned discussion paper, the Task Force created a survey to be completed by appointed actuaries. Given the confluence of a sustained low-interest-rate environment, the novel coronavirus pandemic, and the recent upheaval in U.S. equity markets, the survey asked specific questions in the following broad topic areas: 1. Liabilities; 2. Assets and Economic Assumptions; 3. Modeling of Reinsurance; 4. Use of a Gross Premium Valuation (GPV); 5. Adequacy Criteria; 6. Management Actions; 7. Modeling Methodology; and 8. Data Sources.

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A total of 787 entities were identified from the National Association of Insurance Commissioners' (NAIC's) database of actuarial opinions submitted for life insurance entities for 2019; 706 of those entities had named appointed actuaries. Because some appointed actuaries file actuarial opinions for more than one entity, there were 329 distinct appointed actuaries identified. The Task Force, assisted by the Academy's research staff, was able to associate email addresses with 309 of those actuaries, responsible for opinions for 672 of the entities. We were able to reach 303 of those actuaries with our SurveyMonkey invitation,[1] reaching appointed actuaries responsible for reporting on 660 entities. Of those 303 actuaries, 156 responded to the survey, a response rate of 51%. Those responding actuaries report on 387 entities, 59% of the 660 possible.[2]

One of the questions on the survey asked respondents to identify the size of the company the appointed actuary submitted an opinion for, based on reserves.[3] In Table 1, we compare the distribution of responses to the distribution of net reserves reported to the NAIC, as accessed on the S&P Market Intelligence Platform. We can see clearly that the smallest companies are under-represented and the largest companies are over-represented in the survey, with some over-representation of companies in the $500 million to $5 billion range. Some of the under-representation of the smallest companies is probably the result of the smallest companies being more likely to not have a named appointed actuary on file (recall that more than 80 entities did not have a name on file).

[1] Two email addresses returned emails, and four addresses were blocked from surveymonkey.com.
[2] One respondent submitted two surveys with respect to two unrelated entities. As a result, the number of responses analyzed is one larger than the number of respondents.
[3] The precise wording of the question was: "What is the size group of your company by Reserve, net of 3rd party reinsurance?"

Table 1: Comparing Distribution of Net Reserves
Reported by Survey Respondents to that
Reported by S&P

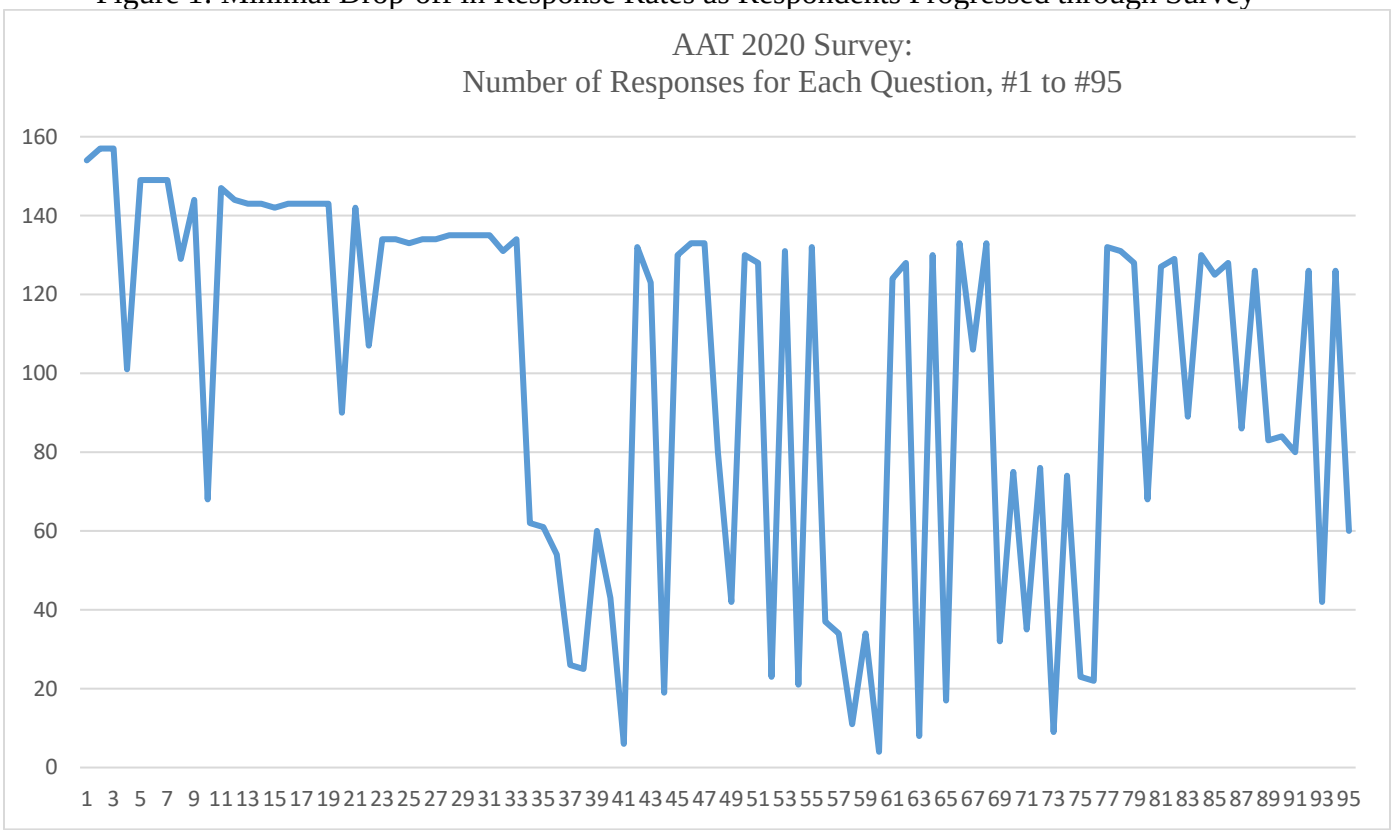
| | AAT 2020 Survey, Q. 6 | Net Reserves by Parent from S&P Market Intelligence | Survey - S&P |
|---|---|---|---|
| $0-20 million | 6.04% | 43.20% | -37.16% |
| $20-100 million | 10.74% | 13.91% | -3.17% |
| $100-500 million | 14.77% | 14.50% | 0.27% |
| $500-5,000 million | 27.52% | 18.05% | 9.47% |
| $5,000-20,000 million | 8.05% | 4.73% | 3.32% |
| $20,000-50,000 million | 9.40% | 3.25% | 6.15% |
| $50,000 million + | 23.49% | 2.37% | 21.12% |

The survey consisted of 95 questions and is estimated to have taken participating actuaries approximately 45 minutes to complete. Many questions were only asked if a prior question indicated it as appropriate; a responding actuary might have completed the survey with as few as 63 responses. Almost all questions were multiple-choice questions, although most allowed for "Other (please describe)" as a response. Some of the questions allowed multiple responses; as a result, as many as 399 responses were possible from each respondent. The distribution of responses to each of the questions is reported in the tables and graphs attached to this report. A few questions invited comments, and whenever possible those comments are summarized in this report.

In Figure 1, we can see that there was some drop-off in response rates the further one moved toward the end of the survey. However, most of that drop-off occurred in the early part of the survey; 23 respondents provided fewer than 40 responses, while of the remaining 131 respondents, 122 respondents provided more than 80 responses. In spite of the length of the survey, 82% of respondents completed the survey.

In looking at Figure 1, one should understand that large downward spikes on a question typically indicate that the question was contingent on a prior response. For example, the third question, with 157 responses, asked whether the respondent was responsible for reporting on more than one entity. The fourth question, with 101 responses, asked those who indicated responsibility for multiple entities how they were responding to the survey (e.g., multiple surveys, relying on the largest entity, generalizing across all of their entities).

Figure 1: Minimal Drop-off in Response Rates as Respondents Progressed through Survey



# AAT 2020 Survey Results

**1. What type is your current employer?**

| Answer Choices | 154 Responses |
|---|---|
| US Stock insurer | 46.10% |
| US Mutual insurer | 20.78% |
| US Fraternal insurer | 2.60% |
| US Reinsurer | 7.14% |
| US Insurance regulator | 0.00% |
| Accounting firm | 0.65% |
| Consulting firm | 16.88% |
| Other (please describe) | 5.84% |

**2. Which of the following responsibilities are part of your role (check all that apply)?**

| Answer Choices | 157 Responses |
|---|---|
| Chief actuary | 25.48% |
| Appointed actuary | 88.54% |
| AAT modeling | 42.68% |
| AAT assumption-setting | 51.59% |
| CFO | 1.27% |
| CRO | 2.55% |
| CIO | 0.00% |
| Other (please describe) | 5.73% |

**3. Please indicate how many entities rely on you for the statement of actuarial opinion.**

| Answer Choices | 157 Responses |
|---|---|
| 1 | 35.03% |
| 2 | 22.93% |
| 3 | 11.46% |
| More than 3 | 30.57% |

**4. Because you provide the opinion for more than one entity, please indicate how we should interpret your responses.**

| Answer Choices | 101 Responses |
|---|---|
| Unrelated entities: I will complete one survey for each of these. | 1.98% |
| Unrelated entities: I will complete a survey for only one of these. | 2.97% |
| Related entities, and I will complete my survey in light of the largest entity. | 28.71% |
| Related entities, and I will complete a survey for each of these. | 0.00% |
| I will complete one survey, making my responses as broad as possible in consideration for all entities. | 66.34% |
| Other (please describe) | 0.00% |

**5. For those lines of business which are material to your asset adequacy testing, what is your primary method for testing asset adequacy for each line?**

| Testing Method, if Material | 149 Responses | | | | |
|---|---|---|---|---|---|
| | Cash flow testing (CFT) | Gross premium valuation (GPV) | Combination of CFT and GPV | Other (please describe) | Total |
| Non-Par whole life | 88.78% | 7.14% | 2.04% | 2.04% | 100.00% |
| Participating whole Life | 95.59% | 2.94% | 1.47% | 0.00% | 100.00% |
| Group life | 61.36% | 22.73% | 0.00% | 15.91% | 100.00% |
| Term life | 91.30% | 7.83% | 0.87% | 0.00% | 100.00% |
| Interest sensitive - without SG | 96.30% | 1.23% | 0.00% | 2.47% | 100.00% |
| Interest sensitive - with SG | 96.49% | 0.00% | 0.00% | 3.51% | 100.00% |
| Variable life | 79.41% | 5.88% | 2.94% | 11.76% | 100.00% |
| Indexed life | 97.56% | 0.00% | 0.00% | 2.44% | 100.00% |
| Guaranteed Living Benefit Riders on Life Products | 76.92% | 7.69% | 0.00% | 15.38% | 100.00% |
| Guaranteed Death Benefits Riders on Life Products | 85.00% | 0.00% | 0.00% | 15.00% | 100.00% |
| Other life insurance (please describe) | 77.78% | 0.00% | 0.00% | 22.22% | 100.00% |
| Fixed deferred annuities | 95.19% | 0.96% | 1.92% | 1.92% | 100.00% |
| Variable annuities | 79.55% | 2.27% | 0.00% | 18.18% | 100.00% |
| Payout annuities | 95.96% | 1.01% | 1.01% | 2.02% | 100.00% |
| Indexed annuities | 95.56% | 0.00% | 2.22% | 2.22% | 100.00% |
| Guaranteed Living Benefit Riders on Annuities | 84.62% | 0.00% | 2.56% | 12.82% | 100.00% |
| Guaranteed Death Benefits Riders on Annuities | 90.00% | 0.00% | 0.00% | 10.00% | 100.00% |
| Other annuity (please describe) | 71.43% | 0.00% | 0.00% | 28.57% | 100.00% |
| Medical | 22.22% | 55.56% | 5.56% | 16.67% | 100.00% |
| Individual LTC | 56.10% | 24.39% | 12.20% | 7.32% | 100.00% |
| Group LTC | 47.06% | 23.53% | 17.65% | 11.76% | 100.00% |
| LTC combo products | 71.43% | 7.14% | 7.14% | 14.29% | 100.00% |
| Individual LTD | 54.17% | 25.00% | 8.33% | 12.50% | 100.00% |
| Group LTD | 56.00% | 24.00% | 4.00% | 16.00% | 100.00% |
| Other long duration health (please describe) | 30.00% | 55.00% | 5.00% | 10.00% | 100.00% |
| Other short duration health (please describe) | 32.00% | 40.00% | 0.00% | 28.00% | 100.00% |
| Other (please describe) | | | | | |

**6. What is the size group of your company by Reserve, net of 3rd party reinsurance?**

| Answer Choices | 149 Responses |
|---|---|
| $0-20 million | 6.04% |
| $20-100 million | 10.74% |
| $100-500 million | 14.77% |
| $500-5,000 million | 27.52% |
| $5,000-20,000 million | 8.05% |
| $20,000-50,000 million | 9.40% |
| $50,000 million + | 23.49% |

**7. Is your company calculating VM-20 Principle-Based Reserves?**

| Answer Choices | 149 Responses |
|---|---|
| Yes, effective 1/1/2020 | 18.79% |
| Yes, we early adopted prior to 1/1/2020 | 17.45% |
| We are taking the Life PBR Exemption | 40.94% |
| Our business or Company is not subject to PBR, or some other reason (please describe) | 22.82% |

**8. In the current environment there's a much greater likelihood for material changes between an earlier testing date and year-end, and subsequent to year-end. How are you considering that risk in planning 2020 AAT, particularly if you're not currently tooled to run 12/31/XX models?**

| Summary | 129 Qualitative Responses |
|---|---|
| Plan to test as of 12/31/20 | 35.66% |
| Plan to test as of 9.30/20, but updating interest rate and/or economic conditions to 12/31/20 | 11.63% |
| Plan to test as of 9/30/20, but updating inforce business to 12/31/20 | 0.78% |
| Plan to test as of 9/30/20, but will update testing to 12/31/20 if needed | 15.50% |
| Plan to use sensitivity analyses based on 9/30/20 testing | 17.05% |
| Plan to add scenarios to sensitivity testing | 5.43% |
| Will examine changes between 9/30 and 12/31/20 | 6.98% |
| Don't know what will do | 2.33% |
| Will not be doing anything other than the usual | 2.33% |
| Other | 2.33% |

**9. Do you test using 12/31/XX inforce assets and liabilities or do you use an earlier date?**

| Answer Choices | 144 Responses |
|---|---|
| 12/31/XX | 36.81% |
| 12/31/XX economic conditions, but with assets and liabilities as of an earlier date | 18.06% |
| Earlier | 45.14% |

**10. You indicated that you test earlier than 12/31/XX. Please indicate the date of testing.**

| Answer Choices | 68 Responses |
|---|---|
| 9/30/xx | 100.00% |

**11. How do you handle events after 12/31/XX and prior to signing opinion letter?**

| Answer Choices | 147 Responses |
|---|---|
| I believe this is out of scope. | 6.12% |
| I believe this is only important if the event is material enough to change my opinion. | 21.77% |
| I believe that if a material event occurs but doesn't change my opinion, I must still mention this in the Actuarial Memorandum. | 25.85% |
| I believe the opinion is as of 12/31 but any material subsequent events that may have altered the opinion should be disclosed in the Actuarial Opinion and discussed in the Actuarial Memorandum. | 42.18% |
| Other (please specify and/or explain) | 4.08% |

**12. If we need to follow-up on any item to better clarify your comments, a representative of the American Academy of Actuaries will contact you if you give permission. Please indicate whether you are willing to be contacted; if yes, please provide your name and email address.**

| Answer Choices | 144 Responses |
|---|---|
| Yes | 69.44% |
| No | 30.56% |
| If yes, please provide Name and Email address | |

**13. What changes do you anticipate making to your base mortality assumptions for life insurance policies in 2020 as a result of current conditions? (Check all that apply)**

| Answer Choices | 143 Responses |
|---|---|
| No changes anticipated. | 44.06% |
| Increase long-term mortality | 3.50% |
| Decrease long-term mortality | 0.00% |
| Temporary additional mortality, constant by age | 6.29% |
| Temporary additional mortality, varying by age | 18.18% |
| Will make changes, but not due to COVID-19 | 23.08% |
| N/A | 4.90% |
| Other (please describe) | 13.29% |

**14. What changes do you anticipate making to your base mortality assumptions for contracts with longevity risk (payout annuities, LTC, etc.) in 2020 as a result of current conditions? (Check all that apply)**

| Answer Choices | 143 Responses |
|---|---|
| No changes anticipated. | 58.04% |
| Increase long-term mortality | 0.00% |
| Decrease long-term mortality | 0.00% |
| Temporary additional mortality, constant by age | 1.40% |
| Temporary additional mortality, varying by age | 4.20% |
| Will make changes, but not due to COVID-19 | 13.99% |
| N/A | 20.98% |
| Other (please describe) | 5.59% |

**15. What changes do you anticipate making to your base morbidity assumptions for LTC and accident & health insurance policies in 2020 as a result of current conditions? (Check all that apply)**

| Answer Choices | 142 Responses |
|---|---|
| No changes anticipated | 33.10% |
| Increase long-term morbidity | 1.41% |
| Decrease long-term morbidity | 0.00% |
| Temporary additional morbidity, constant by age | 1.41% |
| Temporary additional morbidity, varying by age | 2.11% |
| Temporary reduction to morbidity | 1.41% |
| Will make changes, but not due to COVID-19 | 7.04% |
| N/A | 45.77% |
| Other (please describe) | 8.45% |

**16. Do you anticipate changing your base policyholder behavior assumptions in 2020 as a result of current conditions? (Check all that apply)**

| Answer Choices | 143 Responses |
|---|---|
| No changes anticipated | 52.45% |
| Increase base lapse and/or partial withdrawal rates | 4.90% |
| Decrease base lapse and/or partial withdrawal rates | 2.80% |
| Increase utilization of guaranteed withdrawal benefits | 0.00% |
| Decrease utilization of guaranteed withdrawal benefits | 0.00% |
| Increase flexible premium payment assumptions | 0.00% |
| Decrease flexible premium payment assumptions | 2.10% |
| Will make changes, but not due to COVID-19 | 26.57% |
| N/A | 4.90% |
| Other (please describe) | 13.99% |

17. **Do you anticipate changing your dynamic policyholder behavior parameters in 2020 as a result of current conditions? (Check all that apply)**

| Answer Choices | 143 Responses |
|---|---|
| No changes anticipated | 67.83% |
| Increase surrender and partial withdrawal sensitivity to low competitor rates. | 0.70% |
| Decrease surrender and partial withdrawal sensitivity to low competitor rates. | 0.70% |
| Increase surrender and partial withdrawal sensitivity to high competitor rates. | 1.40% |
| Decrease surrender and partial withdrawal sensitivity to high competitor rates. | 0.00% |
| Will make changes, but not due to COVID-19 | 10.49% |
| N/A | 17.48% |
| Other (please describe) | 2.80% |

18. **Do you anticipate changing your premium persistency behavior parameters in 2020 as a result of current conditions? (Check all that apply)**

| Answer Choices | 143 Responses |
|---|---|
| No changes anticipated | 56.64% |
| Increase premium persistency | 1.40% |
| Decrease premium persistency | 3.50% |
| Assume more one-time premium dump-ins | 0.00% |
| Decrease surrender and partial withdrawal sensitivity to high competitor rates. | 0.00% |
| Will make changes, but not due to COVID-19 | 14.69% |
| N/A | 18.88% |
| Other (please describe) | 4.90% |

**19. Do you believe deflation in projected AAT expenses should be permitted?**

| Answer Choices | 143 Responses |
|---|---|
| Not sure or have never considered | 58.74% |
| No | 32.17% |
| Yes (please describe) | 9.09% |

**20. Is there any guidance you will look to or need as you review the assumptions related to liabilities?**

| | 90 | Qualitative Responses | | |
|---|---|---|---|---|
| **SUMMARY** | | | | |
| COVID-19 | 13 | | | |
| Results from the AAT 2020 Survey | 2 | | | |
| No | 19 | | | |
| ASOPs generally | 10 | | | |
| ASOP No. 7 | 1 | | | |
| ASOP No. 56 | 1 | | | |
| ASOP No. 22 | 4 | | | |
| NYS Special Considerations | 4 | | | |
| OTHER (mostly very general) | 36 | | | |

**21. Do you view the current interest rate environment held level for all future projection periods in the testing horizon as being beyond moderately adverse?**

| Answer Choices | 142 Responses |
|---|---|
| Yes, regardless of length of the testing horizon | 19.01% |
| Yes, for years in the testing horizon which extend beyond 10 years from valuation date | 36.62% |
| Yes, for years in the testing horizon which extend beyond 20 years from valuation date | 17.61% |
| Yes, for years in the testing horizon which extend beyond 40 years from valuation date | 1.41% |
| No | 15.49% |
| Other (please elaborate) | 9.86% |

**22. Has your opinion regarding the level scenario being beyond moderately adverse changed relative to the interest rate environment at the time of your 2019 testing?**

| Answer Choices | 107 Responses |
|---|---|
| Yes | 56.07% |
| No | 43.93% |

**23. At the time this survey was drafted, Treasury rates were at historic low levels. Assuming a similar environment holds at year-end 2020, which of the following best summarizes your viewpoint on the level interest rate scenario (or NY1) in your 2020 AAT? (choose one, based on the information you have thus far)**

| Answer Choices | 134 Responses |
|---|---|
| The Level scenario is a required "pass" for my criteria, regardless of how low interest rates are at valuation date. | 48.51% |
| The Level scenario for 2020 has now moved into the "more than moderately adverse" category, therefore I will not consider it as a required "pass" for my adequacy criteria. | 38.06% |
| I anticipate replacing the Level scenario with an alternative (please specify). | 13.43% |

**24. With respect to low interest rates (i.e. Treasury yields) which of these statements best reflects your view of "moderately adverse conditions" given current interest rate levels?**

| Answer Choices | 134 Responses |
|---|---|
| A moderately adverse scenario should reflect permanent reduction in interest rates from current levels. | 8.21% |
| A moderately adverse scenario should reflect temporary reduction in interest rates, followed by a return | 6.72% |
| A moderately adverse scenario should reflect temporary reduction in interest rates, followed by a return to interest rates above current levels. | 11.94% |
| A moderately adverse scenario should reflect a gradual increase in interest rates from current levels | 9.70% |
| The level scenario is a moderately adverse scenario. | 25.37% |
| A moderately adverse scenario should reflect level interest rates for a period of time, followed by a return to interest rates above current levels. | 32.09% |
| A moderately adverse scenario should reflect an immediate increase in interest rates from current levels | 0.00% |
| Other (please describe) | 5.97% |

**25. Has the view you reflected in the previous question changed since your 2019 testing?**

| Answer Choices | 133 Responses |
|---|---|
| Yes | 45.86% |
| No | 54.14% |
| Is there any guidance you will look to or need as you review this particular assumption? | |
| **SUMMARY** | **41 Qualitative Responses** |
| ASOPs generally | 7.32% |
| ASOP No. 22 | 4.88% |
| AAT 2020 Survey | 2.44% |
| NYS Special Considerations | 7.32% |
| No | 21.95% |
| Other (mostly very general) | 56.10% |

**26. With respect to low fixed income yields (e.g. corporate bond yields) which of these statements best reflects your view of "moderately adverse conditions" given current interest rate levels?**

| Answer Choices | 134 Responses |
|---|---|
| A moderately adverse scenario should reflect permanent reduction in yields from current levels. | 6.72% |
| A moderately adverse scenario should reflect temporary reduction in yields, followed by a return to current levels. | 7.46% |
| A moderately adverse scenario should reflect temporary reduction in yields, followed by a return to yields above current levels. | 13.43% |
| A moderately adverse scenario should reflect a gradual increase in yields from current levels. | 8.21% |
| The level scenario is a moderately adverse scenario. | 26.12% |
| A moderately adverse scenario should reflect level yields for a period of time, followed by a return to yields above current levels. | 27.61% |
| A moderately adverse scenario should reflect an immediate increase in yields from current levels. | 0.00% |
| Other (please describe) | 10.45% |

**27. Has the view you reflected in the previous question changed since your 2019 testing?**

| Answer Choices | 134 Responses |
|---|---|
| Yes | 40.30% |
| No | 59.70% |

**28. If you use deterministic interest rate scenario sets other than the NY7 to support your opinion, do you anticipate making any of the following changes from 2019 to 2020? (check all that apply)**

| Answer Choices | 135 Responses |
|---|---|
| Run same set, but require more scenarios to be passed. | 1.48% |
| Run same set, but require fewer scenarios to be passed. | 10.37% |
| Add higher rate scenarios | 3.70% |
| Eliminate higher rate scenarios | 0.00% |
| Modify high rate scenarios to have more moderate changes | 2.22% |
| Modify high rate scenarios to have more extreme changes | 0.00% |
| Add lower rate scenarios | 4.44% |
| Eliminate lower rate scenarios | 0.00% |
| Modify low rate scenarios to have more moderate changes | 5.93% |
| Modify low rate scenarios to have more extreme changes | 0.74% |
| Do not anticipate making any changes | 36.30% |
| N/A | 33.33% |
| Other (please describe) | 6.67% |

**29. Regarding interim results, how will you consider these results for your 2020 AAT?**

| Answer Choices | 135 Responses |
|---|---|
| Interim results considered equally with ending results | 14.07% |
| Consider management's ability to respond to interim deficiencies | 54.81% |
| Early deficiencies given greater weight than later deficiencies | 11.85% |
| Later deficiencies given greater weight than early deficiencies | 8.15% |
| Interim deficiencies given greater weight for scenarios where conditions revert to normal | 2.22% |
| Other (please describe) | 8.89% |

**30. Has the view you reflected in the previous question changed since your 2019 testing?**

| Answer Choices | 135 Responses |
|---|---|
| Yes | 5.93% |
| No | 94.07% |
| Is there any guidance you will look to or need as you review this particular assumption? | |

**31. Do you anticipate adding any moderately adverse conditions/sensitivities in your 2020 testing relative to 2019?**

| Answer Choices | 135 Responses |
|---|---|
| No | 29.63% |
| Too early | 55.56% |
| Yes (please describe additional condition) | 14.81% |

**32. Looking forward to 2020 AAT, what changes are you contemplating with respect to the primary set of scenarios used to state your opinion?**

| Answer Choices | 131 Responses |
|---|---|
| In 2019 I used a stochastic set of scenarios, I anticipate no material changes in this approach for 2020 | 16.79% |
| In 2019 I used a fixed number of deterministic scenarios, I anticipate ADDING scenarios to this set for 2020 | 12.98% |
| In 2019 I used a stochastic set of scenarios, I anticipate continuing this approach but modifying my criteria for adequacy for 2020, making the passing reserves cover a greater number of scenarios | 0.00% |
| In 2019 I used a stochastic set of scenarios, I anticipate continuing this approach but modifying my criteria for adequacy for 2020, making the passing reserves cover fewer scenarios | 0.76% |
| In 2019 I used a stochastic set of scenarios, I anticipate continuing this approach but modifying my criteria for adequacy for 2020, making the passing reserves cover the same number of scenarios | 3.05% |
| In 2019 I used the basic (NY) 7 scenarios, I anticipate no material changes in this approach for 2020 | 15.27% |
| In 2019 I used the basic (NY) 7 scenarios plus auxiliary scenarios. I anticipate no material changes in this approach for 2020 | 43.51% |
| In 2019 I used the basic (NY) 7 scenarios, I anticipate material changes in this approach for 2020. Please describe the expected changes and/or any Other changes you expect to make | 7.63% |

**33. For some, the criteria for adequacy is based on stochastic scenario testing. How will the passing rate for 2020 compare to that used for 2019?**

| Answer Choices | 134 Responses |
|---|---|
| N/A - I do not utilize stochastic testing in my criteria | 56.72% |
| Consistent with 2019 - i.e. no changes to the passing rate for 2020 AAT | 36.57% |
| I anticipate increasing the required passing rate for 2020 AAT | 0.00% |
| I anticipate decreasing the required passing rate for 2020 AAT | 4.48% |
| Other (please describe) | 2.24% |

**34. Is there any guidance you will look to or need as you review the assumptions related to adequacy criteria?**

| SUMMARY | 62 Qualitative Responses |
|---|---|
| ASOPs generally | 17.74% |
| ASOP No. 22 | 6.45% |
| ASOP No. 10 | 1.61% |
| NYS Special Considerations | 8.06% |
| No | 22.58% |
| Other (mostly very general) | 43.55% |

**35. Does your stochastic interest rate generator utilize mean reversion?**

| Answer Choices | 61 Responses |
|---|---|
| Yes | 86.89% |
| No | 13.11% |

**36. Do you plan to change your mean reversion targets in 2020?**

| Answer Choices | 54 Responses |
|---|---|
| Yes | 50.00% |
| No | 50.00% |

**37. What magnitude of change do you expect to make to the mean reversion target at the 10-year point (or other long rate tenor, if applicable)?**

| Answer Choices | 26 Responses |
|---|---|
| < -2.00% | 0.00% |
| -2.00% to -1.01% | 11.54% |
| -1.00% to -0.51% | 30.77% |
| -0.50% to -0.01% | 53.85% |
| 0.01% to 0.50% | 0.00% |
| 0.51% to 1.00% | 3.85% |
| 1.01% to 2.00% | 0.00% |
| > 2.00% | 0.00% |

**38. What mean reversion rate was used in 2019 AAT?**

| Answer Choices | 25 Responses |
|---|---|
| 2.42% | 4.00% |
| 3.00% | 4.00% |
| 3.50% | 36.00% |
| 3.75% | 12.00% |
| 3.80% | 4.00% |
| 4.00% | 8.00% |
| 4.25% | 4.00% |
| 4.50% | 8.00% |
| 5.50% | 4.00% |
| 6.50% | 4.00% |
| Other | 12.00% |

**39. Do your stochastic interest rate scenarios include implicit or explicit floors?**

| Answer Choices | 60 Responses |
|---|---|
| Yes | 71.67% |
| No | 28.33% |

**40. Do you plan to change the stochastic interest rate floors in 2020?**

| Answer Choices | 43 Responses |
|---|---|
| Yes | 13.95% |
| No | 86.05% |

**41. What change are you planning in 2020 for interest rate floors?**

| Answer Choices | 6 Responses |
|---|---|
| Planning to eliminate floors. | 16.67% |
| Planning to reduce floors, but still above zero. | 16.67% |
| Planning to reduce floors to below zero. | 66.67% |
| Planning to increase floors. | 0.00% |
| Other (please describe) | 0.00% |

**42. Do your deterministic interest rate scenarios include implicit or explicit floors?**

| Answer Choices | 132 Responses |
|---|---|
| Yes | 93.94% |
| No | 6.06% |

**43. Do you plan to change the deterministic interest rate floors in 2020?**

| Answer Choices | 23 Responses |
|---|---|
| Yes | 13.82% |
| No | 86.18% |

**44. What change in interest rate floors are you planning for 2020?**

| Answer Choices | 19 Responses |
|---|---|
| Planning to eliminate floors. | 10.53% |
| Planning to reduce floors, but still above zero. | 52.63% |
| Planning to reduce floors to below zero. | 21.05% |
| Planning to increase floors. | 0.00% |
| Other (please describe) | 15.79% |

**45. Did your 2019 AAT scenarios include negative interest rates, and do you anticipate using any negative interest rate scenarios in 2020? (Select one response for each year)**

| Answer Choices | 2019 (128 Responses) | 2020 (129 Responses) |
|---|---|---|
| Yes, for both deterministic and stochastic | 0.78% | 2.33% |
| Yes, for deterministic only | 1.56% | 13.18% |
| Yes, for stochastic only | 1.56% | 4.65% |
| No, due to model limitations | 28.91% | 24.03% |
| No, for other reasons | 67.19% | 55.81% |
| Other (please describe if alternate approach) | 0 | 0 |

**46. Please describe your approach to modeling asset spreads in 2019.**

| Answer Choices | 133 Responses |
|---|---|
| Constant spreads based on December 31 actual | 18.80% |
| Constant spreads based on earlier model start date | 15.79% |
| Constant spreads based on long-term average | 8.27% |
| Initial spreads Reverting to long-term average | 48.12% |
| Other (please describe) | 9.02% |

**47. Please describe your plans for modeling asset spreads in 2020.**

| Answer Choices | 133 Responses |
|---|---|
| Constant spreads based on December 31 actual | 15.04% |
| Constant spreads based on earlier model start date | 12.78% |
| Constant spreads based on long-term average | 6.02% |
| Initial spreads Reverting to long-term average | 52.63% |
| Other (please describe) | 13.53% |

**48. Do you plan to change your long-term average spread assumptions in 2020?**

| Answer Choices | 80 Responses |
|---|---|
| Yes | 52.50% |
| No | 47.50% |

**49. How do you plan to change your long-term average spread assumptions in 2020? (check all that apply)**

| Answer Choices | 42 Responses |
|---|---|
| Planning to increase long-term average spreads. | 7.14% |
| Planning to decrease long-term average spreads. | 26.19% |
| Planning to increase spread reversion period. | 14.29% |
| Planning to decrease spread reversion period. | 2.38% |
| Other (please describe) | 59.52% |

**50. Please describe your approach to modeling asset defaults and/or credit losses in 2019 and your plans for 2020.**

| 130 Responses Each Year | 2019 | 2020 |
|---|---|---|
| Constant defaults based on December 31 expectations | 22.31% | 20.77% |
| Constant defaults based on earlier model start date | 12.31% | 9.23% |
| Constant defaults based on long-term average | 55.38% | 48.46% |
| Higher initial defaults reverting to long term average | 3.85% | 19.23% |
| Lower initial defaults reverting to long term average | 6.15% | 2.31% |

**51. Other than refreshing long-term rates for another year of experience, do you plan to change your default assumptions in 2020?**

| Answer Choices | 128 Responses |
|---|---|
| Yes | 14.06% |
| No | 85.94% |

**52. How do you plan to change your default assumptions in 2020? (Check all that apply)**

| Answer Choices | 23 Responses |
|---|---|
| Planning to increase initial default rates. | 52.17% |
| Planning to decrease initial default rates. | 0.00% |
| Planning to increase long-term average default rates. | 4.35% |
| Planning to decrease long-term default rates. | 0.00% |
| Planning to increase default rate reversion period. | 8.70% |
| Planning to decrease default rate reversion period. | 0.00% |
| Other (please describe) | 34.78% |

**53. For 2020, do you plan to assume any correlation among interest rates, spread, and default/credit loss assumptions?**

| Answer Choices | 131 Responses |
|---|---|
| Yes | 14.50% |
| No | 85.50% |

**54. For 2020, what assumptions are you planning to make concerning correlation among interest rates, spread, and default/credit loss assumptions? (check all that apply)**

| Answer Choices | 21 Responses |
|---|---|
| Spreads positively correlated to interest rates. | 9.52% |
| Spreads negatively correlated to interest rates. | 14.29% |
| Initial spreads and defaults positively correlated. | 47.62% |
| Initial spreads and defaults negatively correlated. | 0.00% |
| Ultimate spreads and defaults positively correlated. | 28.57% |
| Ultimate spreads and defaults negatively correlated. | 0.00% |
| Other (please describe) | 19.05% |

**55. Do you model equities or equity-like assets, either as existing assets or reinvestment assets?**

| Answer Choices | 132 Responses |
|---|---|
| Yes | 27.27% |
| No | 72.73% |

**56. How do you model equities or equity-like assets?**

| Answer Choices | 37 Responses |
|---|---|
| Deterministically. | 70.27% |
| Stochastically. | 2.70% |
| Both deterministically and stochastically. | 27.03% |

**57. Are you planning to change your deterministic equity return assumptions in 2020?**

| Answer Choices | 34 Responses |
|---|---|
| Yes | 29.41% |
| No | 70.59% |

**58. How are you planning to change your deterministic equity return assumptions in 2020? (check all that apply)**

| Answer Choices | 11 Responses |
|---|---|
| Increase long-term equity rates of return. | 18.18% |
| Decrease long-term equity rates of return. | 54.55% |
| Add or increase initial equity price shock. | 18.18% |
| Remove or decrease initial equity price shock. | 0.00% |
| Other (please describe) | 45.45% |

**59. Are you planning to change your stochastic equity return assumptions in 2020?**

| Answer Choices | 34 Responses |
|---|---|
| Yes | 8.82% |
| No | 91.18% |

**60. How are you planning to change your stochastic equity return assumptions in 2020? (check all that apply)**

| Answer Choices | 4 Responses |
|---|---|
| Increase long-term equity volatility assumption | 0.00% |
| Decrease long-term equity volatility assumption. | 0.00% |
| Increase initial equity volatility assumption. | 0.00% |
| Decrease initial equity volatility assumption. | 0.00% |
| Add or strengthen correlation between equity returns and interest rates. | 25.00% |
| Remove or weaken correlation between equity returns and interest rates. | 0.00% |
| Other (please describe) | 75.00% |

**61. In light of persistent low interest rates, what is your view on the appropriateness of using historical averages to set equity return targets?**

| Answer Choices | 124 Responses |
|---|---|
| Long-term average return is an appropriate basis for future expected equity returns. | 42.74% |
| Long-term average equity risk premium (over risk free rates) is an appropriate basis for future expected equity returns. | 25.81% |
| Long-term average return and equity risk premium overstate future expected equity returns and equity risk premia. | 9.68% |
| Other (please describe) | 21.77% |

| 62. Do you plan to make changes to the allocation of existing assets to your 2020 AAT models due to the current environment? | |
|---|---|
| **Answer Choices** | **128 Responses** |
| Yes | 7.81% |
| No | 92.19% |

**63. What changes do you plan to make to the allocation of existing assets to your 2020 AAT models due to the current environment? (check all that apply)**

| | Increase | Decrease | Total Responses |
|---|---|---|---|
| Investment grade bond allocation. | 25.00% | 75.00% | 4 |
| High yield bond allocation. | 50.00% | 50.00% | 2 |
| Mortgage loan allocation. | 60.00% | 40.00% | 5 |
| Structured security allocation. | 66.67% | 33.33% | 3 |
| Equity allocation. | 50.00% | 50.00% | 4 |
| Other invested asset allocation. | 0.00% | 100.00% | 1 |
| Asset duration | 60.00% | 40.00% | 5 |
| Other (please specify) | | | 5 |
| **Total Responses** | | | **8** |

**64. Do you plan to make changes to the reinvestment asset mix in your 2020 AAT models due to the current environment?**

| Answer Choices | 130 Responses |
|---|---|
| Yes | 23.08% |
| No | 76.92% |

**65. What changes do you plan to make to the reinvestment asset mix in your 2020 AAT models due to the current environment? (check all that apply)**

| | Increase | Decrease | Total Responses |
|---|---|---|---|
| Investment grade bond allocation. | 40.00% | 60.00% | 10 |
| High yield bond allocation. | 60.00% | 40.00% | 10 |
| Mortgage loan allocation. | 33.33% | 66.67% | 3 |
| Structured security allocation. | 66.67% | 33.33% | 3 |
| Equity allocation. | 50.00% | 50.00% | 6 |
| Other invested asset allocation. | 40.00% | 60.00% | 5 |
| Asset duration | 81.82% | 18.18% | 11 |
| Other (please specify) | | | 14 |
| **Total Responses** | | | **17** |

**66. ASOP No. 22 does not mention considerations for reinsurance. Revisions to ASOP No. 22 recently exposed specifically provide guidance on reinsurance ceded (3.1.3). For your 2020 AAT, which best describes your approach?**

| Answer Choices | 133 Responses |
|---|---|
| Reinsurance is not present, or is immaterial | 14.29% |
| AAT was performed on a direct basis in 2019, and will continue to be performed on a direct basis, even though reinsurance ceded is present | 3.01% |
| AAT was performed on a net basis in 2019, and will continue to be performed on a net basis in 2020, with distinct consideration for reinsurance recoverability | 23.31% |
| AAT was performed on a net basis in 2019, and will continue to be performed on a net basis in 2020. No special consideration for reinsurance recoverability will be added. | 50.38% |
| AAT was performed on a direct basis in 2019, but will now be performed on a net basis in 2020 | 0.00% |
| Other (please describe) | 9.02% |

**67. If YRT reinsurance is an element of your AAT, will your AAT assumption anticipate reinsurers increasing YRT premiums due to COVID-19 or other adverse experience?**

| Answer Choices | 106 Responses |
|---|---|
| Yes | 13.21% |
| No | 86.79% |
| | |
| **Summary of Comments** | **18 Comments** |
| Plan to rely on sensitivity analyses | 27.78% |
| Waiting to hear from reinsurers | 16.67% |
| Don't know what will do | 11.11% |
| In different ways, build in a margin to allow for increases in premium | 11.11% |
| Other (mostly very general) | 33.33% |

**68. Will you revise the basis for the discount rates used in your GPV analyses?**

| Answer Choices | 133 Responses |
|---|---|
| Yes | 23.31% |
| No | 30.83% |
| I do not use GPV analysis. | 45.86% |

**69. How will you revise the basis for the discount rates used in your GPV analyses? I intend to use (check all that apply):**

| Answer Choices | 32 Responses |
|---|---|
| Initial portfolio yield held constant | 25.00% |
| Initial market yield held constant | 0.00% |
| Initial portfolio yield grading downward to reflect future reinvestment | 28.13% |
| Initial portfolio yield grading upward to reflect future reinvestment | 6.25% |
| Initial market yield grading downward to reflect future reinvestment | 6.25% |
| Initial market yield grading upward to reflect future reinvestment | 6.25% |
| Other (please specify) | 31.25% |

**70. Will you revise your GPV discount rate adjusted to be net of investment expense and/or defaults?**

| Answer Choices | 75 Responses |
|---|---|
| Yes | 46.67% |
| No | 53.33% |

**71. How will you revise your GPV discount rate adjusted to be net of investment expense and/or defaults? I intend to adjust for (check all that apply):**

| Answer Choices | 35 Responses |
|---|---|
| Both investment expense and default rate, with constant defaults based on expectations at model start date | 34.29% |
| Both investment expense and default rate, with constant defaults based on expectations at year-end | 5.71% |
| Both investment expense and default rate, with constant defaults based on long-term average | 25.71% |
| Both investment expense and default rate, with higher initial defaults reverting to long-term average | 5.71% |
| Both investment expense and default rate, with lower initial defaults reverting to long-term average | 0.00% |
| Only investment expense | 5.71% |
| Only default rate, with constant defaults based on expectations at model start date | 0.00% |
| Only default rate, with constant defaults based on expectations at year-end | 0.00% |
| Only default rate, with constant defaults based on long-term average | 0.00% |
| Only default rate, with higher initial defaults reverting to long-term average | 5.71% |
| Only default rate, with lower initial defaults reverting to long-term average | 0.00% |
| Other (please describe) | 20.00% |

**72. Will you revise how expected conservatism is reflected in your GPV discount rate?**

| Answer Choices | 76 Responses |
|---|---|
| Yes | 11.84% |
| No | 88.16% |

**73. In what way will you revise how expected conservatism is reflected in your GPV discount rate? I intend to (check all that apply):**

| Answer Choices | 9 Responses |
|---|---|
| Add margin to achieve moderately adverse margin | 44.44% |
| Add margin to achieve greater than moderately adverse margin | 0.00% |
| Add margin to achieve margin that is less than moderately adverse margin | 0.00% |
| Remove margin to achieve moderately adverse margin | 33.33% |
| Remove margin to achieve greater than moderately adverse margin | 11.11% |
| Remove margin to achieve margin that is less than moderately adverse margin | 0.00% |
| Other (please describe) | 11.11% |

**74. Will you add any sensitivity tests for your GPV discount rate?**

| Answer Choices | 74 Responses |
|---|---|
| Yes | 31.08% |
| No | 68.92% |

**75. I intend to sensitivity test for (check all that apply):**

| Answer Choices | 23 Responses |
|---|---|
| a GPV discount rate <=1.0% in all years | 34.78% |
| a GPV discount rate >1.0% in all years | 13.04% |
| a GPV discount rate <=1.0% as an ultimate discount rate | 13.04% |
| a GPV discount rate >1.0% as an ultimate discount rate | 8.70% |
| a GPV discount rate which considers a temporary shock for excess defaults | 21.74% |
| Other (please describe) | 34.78% |

**76. Does your adequacy conclusion consider the results of any sensitivity testing?**

| Answer Choices | 22 Responses |
|---|---|
| Yes | 86.36% |
| No | 13.64% |

**77. What is your expectation around establishing additional reserves as a result of 2020 AAT?**

| Answer Choices | 132 Responses |
|---|---|
| Expect to hold additional reserves at same relative level as 2019, considering growth or decline in block size | 12.12% |
| Expect to hold additional reserves at levels higher than 2019, due to COVID-related environment | 18.18% |
| Expect to hold additional reserves at levels higher than 2019, due to reasons OTHER THAN COVID-related environment | 9.85% |
| Expect to hold additional reserves at levels lower than 2019, due to COVID-related environment | 0.00% |
| Expect to hold additional reserves at levels lower than 2019, due to reasons OTHER THAN COVID-related environment | 1.52% |
| Did not hold additional reserves at 2019, and do not expect this to change for 2020 | 50.00% |
| Other (please describe) | 8.33% |

**78. Regarding modeling methods, check all that you expect will apply to 2020 AAT.**

| Answer Choices | 131 Responses |
|---|---|
| Change in aggregating lines of business—more aggregation than for 2019 | 2.29% |
| Change in aggregating lines of business—less aggregation than for 2019 | 0.00% |
| Change in stochastic generation of asset variables (interest/equity rates)—more | 3.82% |
| Change in stochastic generation of asset variables (interest/equity rates)—less | 0.76% |
| Change in stochastic generation of asset variables (other than interest/equity rates)—more | 0.00% |
| Change in stochastic generation of asset variables (other than interest/equity rates)—less | 0.00% |
| Change in stochastic generation of liability variables—more | 0.00% |
| Change in stochastic generation of liability variables—less | 0.00% |
| Changes I intend to implement reflect an increase in conservatism from 2019 methods | 9.92% |
| Changes I intend to implement reflect a decrease in conservatism from 2019 methods | 1.53% |
| No changes to modeling methods | 78.63% |
| Other (please describe) | 6.11% |

**79. Will 2020 AAT include more sensitivity tests than were performed for 2019 AAT?**

| Answer Choices | 128 Responses |
|---|---|
| Yes | 50.00% |
| No | 50.00% |

**80. I intend to expand my sensitivity testing for (check all that apply):**

| Answer Choices | 68 Responses |
|---|---|
| premium persistency | 14.71% |
| mortality | 50.00% |
| morbidity | 16.18% |
| lapses | 22.06% |
| renewal expenses | 2.94% |
| inflation | 8.82% |
| spreads | 38.24% |
| defaults | 39.71% |
| option/rider election rates | 2.94% |
| Other (please describe) | 20.59% |

**81. Regarding generation of economic environment variables (such as interest rates, equity returns) which of these statements best summarizes your primary concerns as you look to 2020 AAT? (check all that apply)**

| Answer Choices | 127 Responses |
|---|---|
| I have considered negative interest rates and I hold the opinion that these are not appropriate for AAT | 41.73% |
| I feel I should be testing negative interest rates, but my interest rate generator is not capable of producing negative rates | 6.30% |
| Even if I use negative interest rates, I am unsure whether my model can accommodate these (i.e. I have never tested this capability) | 36.22% |
| Equity returns: Compared to 2019, my equity return scenarios will demonstrate smaller price shocks | 0.79% |
| Equity returns: Compared to 2019, my equity return scenarios will demonstrate larger price shocks | 1.57% |
| Equity returns: Compared to 2019, my equity return scenarios will demonstrate an increase to long-term return assumptions | 0.79% |
| Equity returns: Compared to 2019, my equity return scenarios will demonstrate an decrease to long-term return assumptions | 8.66% |
| Equity returns: These do not apply to my AAT | 26.77% |
| Other (please describe) | 18.11% |

**82. Are you familiar with the Academy Interest Rate Generator?**

| Answer Choices | 129 Responses |
|---|---|
| Yes | 75.19% |
| No | 24.81% |

**83. What do you believe are limitations of the Academy Interest Rate Generator for capturing moderately adverse conditions in the current environment? (check all that apply)**

| Answer Choices | 89 Responses |
|---|---|
| No significant limitations | 33.71% |
| Formulaic mean reversion targets too high. | 22.47% |
| Formulaic mean reversion targets too low. | 3.37% |
| Insufficient dispersion among scenarios. | 11.24% |
| Too much dispersion among scenarios. | 1.12% |
| Insufficient interest rate variability within scenarios. | 11.24% |
| Too much interest rate variability within scenarios. | 3.37% |
| Interest rates floored above zero. | 25.84% |
| Not enough low rate scenarios. | 8.99% |
| Too many low rate scenarios. | 3.37% |
| Not enough high rate scenarios. | 3.37% |
| Too many high rate scenarios. | 3.37% |
| Equity Returns produced are not correlated with interest rates | 13.48% |
| Other (please describe) | 22.47% |

**84. Have you held any discussions with your regulator about current conditions and potential AAT changes for year-end 2020?**

| Answer Choices | 130 Responses |
|---|---|
| No | 89.23% |
| Yes | 10.77% |
| If yes, describe the general nature of guidance provided. | |

**85. On a scale of 1-5 where 5 is most useful, how useful is each of the following guidance or reference sources in the AAT exercise (esp. selecting scenarios; setting assumptions; assessing adequacy)?**

| | ← Less Useful | | | | More Useful → | |
|---|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** | **Total** |
| Standard Valuation Law | 10.83% | 23.33% | 24.17% | 19.17% | 22.50% | 120 |
| State-specific AOMR, including NY Reg126 | 9.48% | 9.48% | 12.93% | 28.45% | 39.66% | 116 |
| VM-20—PBR Requirements for Life Products | 15.65% | 17.39% | 26.09% | 27.83% | 13.04% | 115 |
| VM-21—PBR Requirements for Variable Annuities | 36.26% | 16.48% | 17.58% | 23.08% | 6.59% | 91 |
| VM-22—Statutory Maximum Valuation Interest Rates for Income Annuities | 31.96% | 20.62% | 20.62% | 16.49% | 10.31% | 97 |
| VM-25—Health Insurance Minimum Reserve Requirements | 47.25% | 10.99% | 23.08% | 14.29% | 4.40% | 91 |
| VM-30—AOMR | 8.26% | 4.96% | 15.70% | 27.27% | 43.80% | 121 |
| ASOP No. 2—Nonguaranteed Charges or Benefits for Life and Annuity | 22.68% | 21.65% | 31.96% | 18.56% | 5.15% | 97 |
| ASOP No. 5—Incurred Health and Disability Claims | 36.00% | 15.00% | 26.00% | 15.00% | 8.00% | 100 |
| ASOP No. 7—Analysis of Life, Health, or P&C Insurer Cash Flows | 12.39% | 8.85% | 25.66% | 27.43% | 25.66% | 113 |
| ASOP No. 11—Financial Statement Treatment of Reinsurance Transactions | 20.19% | 19.23% | 35.58% | 18.27% | 6.73% | 104 |
| ASOP No. 15—Dividends for individual Participating life, Annuities and Disability Insurance | 47.87% | 9.57% | 31.91% | 6.38% | 4.26% | 94 |
| ASOP No. 18—Long Term Care Insurance | 49.45% | 13.19% | 26.37% | 4.40% | 6.59% | 91 |
| ASOP No. 21—Responding to or Assisting Auditors or Examiners | 26.67% | 15.24% | 37.14% | 10.48% | 10.48% | 105 |
| ASOP No. 22 (current or revised exposure) Statements of Opinion Based on Asset Adequacy Analysis by Actuaries for Life or Health Insurers | 0.83% | 0.83% | 12.50% | 30.00% | 55.83% | 120 |
| ASOP No. 23—Data Quality | 4.35% | 8.70% | 34.78% | 30.43% | 21.74% | 115 |
| ASOP No. 25—Credibility Procedures | 12.73% | 24.55% | 39.09% | 16.36% | 7.27% | 110 |

**85. (cont'd) On a scale of 1-5 where 5 is most useful, how useful is each of the following guidance or reference sources in the AAT exercise (esp. selecting scenarios; setting assumptions; assessing adequacy)?**

| | ← Less Useful | | | | More Useful → | |
|---|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** | **Total** |
| ASOP No. 40—Compliance with Valuation of Life Ins Policies Model Reg with respect to deficiency reserve mortality | 27.55% | 23.47% | 29.59% | 17.35% | 2.04% | 98 |
| ASOP No. 42—Health and disability Actuarial Assets and Liabilities other than Liabilities for Incurred Claims | 34.38% | 20.83% | 29.17% | 8.33% | 7.29% | 96 |
| ASOP No. 52—Principle-based Reserves for Life Products under the NAIC Valuation Manual | 27.45% | 20.59% | 29.41% | 17.65% | 4.90% | 102 |
| Academy Practice Note on Asset Adequacy Analysis | 2.50% | 0.83% | 12.50% | 30.00% | 54.17% | 120 |
| Academy Life & Health Valuation Law Manual | 12.15% | 10.28% | 22.43% | 28.04% | 27.10% | 107 |
| Academy Life PBR Assumption Resource Manual | 23.53% | 16.67% | 27.45% | 26.47% | 5.88% | 102 |
| Other regulatory guidance | 21.74% | 13.04% | 24.64% | 24.64% | 15.94% | 69 |
| Other ASOP | 25.81% | 17.74% | 32.26% | 17.74% | 6.45% | 62 |
| Other Practice Notes | 20.97% | 14.52% | 33.87% | 27.42% | 3.23% | 62 |
| Other guidance | 30.61% | 16.33% | 36.73% | 12.24% | 4.08% | 49 |
| Please describe any Other options | | | | | | 16 |

**86. Interest Rate Scenarios - Do you intend to use the Academy ESG with VM-20 parameterization, without modification?**

| Answer Choices | 128 Responses |
|---|---|
| Yes | 30.47% |
| No | 69.53% |

**87. Interest Rate Scenarios - I intend to use (check all that apply):**

| Answer Choices | 86 Responses |
|---|---|
| US Treasury rate history | 90.70% |
| Interest rate history in other countries | 3.49% |
| Society of Actuaries interest rate research reports and/or Other (please describe) | 20.93% |

**88. Credit Spreads - Do you intend to use the VM-20 spread requirements without modification (i.e. including grading, etc.)?**

| Answer Choices | 126 Responses |
|---|---|
| Yes | 33.33% |
| No | 66.67% |

**89. Credit Spreads - I intend to use (check all that apply):**

| Answer Choices | 83 Responses |
|---|---|
| NAIC VM-20 Long-term spreads | 18.07% |
| NAIC VM-20 Current spreads | 18.07% |
| Investment advisors | 61.45% |
| Consulting firm | 6.02% |
| Proprietary bond yield indices and/or Other (please describe) | 24.10% |

**90. Asset Defaults - Do you intend to use the VM-20 default cost requirements without modification?**

| Answer Choices | 84 Responses |
|---|---|
| Yes | 5.95% |
| No | 94.05% |

**91. Asset default - I intend to use (Check all that apply)**

| Answer Choices | 80 Responses |
|---|---|
| NAIC's PBR (VM20/VM21) default cost methodology (and baseline default rate table) | 8.75% |
| Own experience | 12.50% |
| Combination of industry studies and own experience | 50.00% |
| Investment advisors | 20.00% |
| Consulting firm | 7.50% |
| Company investment department | 25.00% |
| Proprietary default cost studies and/or Other (please specify) | 21.25% |

**92. Equity return and/or Volatility - Do you intend to use the Academy ESG with VM- 20 parameterization, without modification?**

| Answer Choices | 126 Responses |
|---|---|
| Yes | 19.05% |
| No | 34.92% |
| N/A | 46.03% |

**93. Equity return and volatility - I intend to use (check all that apply):**

| Answer Choices | 42 Responses |
|---|---|
| Long-term averages of publicly available equity return indices | 28.57% |
| Long-term averages of proprietary equity return indices | 9.52% |
| Long-term averages of publicly available volatility indices | 11.90% |
| Long-term averages of proprietary volatility indices | 2.38% |
| Recent averages of publicly available equity return indices | 7.14% |
| Recent averages of proprietary equity return indices | 0.00% |
| Recent averages of publicly available volatility indices | 4.76% |
| Recent averages of proprietary volatility indices | 0.00% |
| Own experience | 7.14% |
| Combination of external indices and own experience | 14.29% |
| Company investment department | 40.48% |
| Investment advisors | 21.43% |
| Consulting firm | 0.00% |
| Other (please describe) | 21.43% |

**94. Mortgage Asset Prepayment - I intend to use (check all that apply):**

| Answer Choices | 126 Responses |
|---|---|
| Own experience | 15.87% |
| Combination of external indices and own experience | 11.90% |
| Company investment department | 40.48% |
| Investment advisors | 12.70% |
| Consulting firm | 3.97% |
| Proprietary assumptions in asset modeling platforms | 22.22% |
| Other (please describe) | 13.49% |

**95. Are there gaps in the authoritative guidance or in the available data sources for setting assumptions that you believe significantly limit the ability of the appointed actuary to project economic assumptions into the future and/or to otherwise fulfill their obligations in the current environment (please describe).**

| **60 Responses** |
|---|
| 10 Raised Issues |
| 50 Answered No |
| |
| **ISSUES RAISED (some comments raised more than once; some issues mentioned in more than one comment)** |
| Extreme environments |
| Negative and very low interest rates |
| Definition of moderately adverse |
| Corporate spreads |
| Interest rate mean reversion |
| NY7 |
| Mortality improvement |
| Economic conditions 30-50 years out |
| Improved ESG |
| Dynamic lapses |
| Mortgage prepayments |

20200805 AAT 2020

## Welcome to the AAT 2020 Survey

**We appreciate your participation in the American Academy of Actuaries' Asset Adequacy Testing 2020 survey. Please contact Steve Jackson at sjackson@actuary.org with any questions or comments.**

## 20200805 AAT 2020

### BACKGROUND

1. What type is your current employer?

- [ ] US Stock insurer
- [ ] US Mutual insurer
- [ ] US Fraternal insurer
- [ ] US Reinsurer
- [ ] US Insurance regulator
- [ ] Accounting firm
- [ ] Consulting firm
- [ ] Other (please describe)

2. Which of the following responsibilities are part of your role (check all that apply)?

- [ ] Chief actuary
- [ ] Appointed actuary
- [ ] AAT modeling
- [ ] AAT assumption-setting
- [ ] CFO
- [ ] CRO
- [ ] CIO
- [ ] Other (please describe)

3. Please indicate how many entities rely on you for the statement of actuarial opinion.

- [ ] 1
- [ ] 2
- [ ] 3
- [ ] More than 3

## BACKGROUND

4. Because you provide the opinion for more than one entity, please indicate how we should interpret your responses.

- [ ] Unrelated entities: I will complete one survey for each of these.
- [ ] Related entities, and I will complete a survey for each of these.
- [ ] Unrelated entities: I will complete a survey for only one of these.
- [ ] I will complete one survey, making my responses as broad as possible in consideration for all entities.
- [ ] Related entities, and I will complete my survey in light of the largest entity.
- [ ] Other (please describe)

## BACKGROUND

5. For those lines of business which are material to your asset adequacy testing, what is your primary method for testing asset adequacy for each line?

| | Testing Method, if Material |
|---|---|
| Non-Par whole life | |
| Participating whole Life | |
| Group life | |
| Term life | |
| Interest sensitive - without SG | |
| Interest sensitive - with SG | |
| Variable life | |
| Indexed life | |
| Guaranteed Living Benefit Riders on Life Products | |
| Guaranteed Death Benefits Riders on Life Products | |
| Other life insurance (please describe) | |
| Fixed deferred annuities | |
| Variable annuities | |
| Payout annuities | |
| Indexed annuities | |
| Guaranteed Living Benefit Riders on Annuities | |
| Guaranteed Death Benefits Riders on Annuities | |
| Other annuity (please describe) | |
| Medical | |
| Individual LTC | |

Testing Method, if Material

Group LTC

LTC combo products

Individual LTD

Group LTD

Other long duration health (please describe)

Other short duration health (please describe)

Other (please describe)

## BACKGROUND

6. What is the size group of your company by Reserve, net of 3rd party reinsurance.

- $0-20 million
- $20-100 million
- $100-500 million
- $500-5,000 million
- $5,000-20,000 million
- $20,000-50,000 million
- $50,000 million +

7. Is your company calculating VM-20 Principle-Based Reserves?

- Yes, effective 1/1/2020
- Yes, we early adopted prior to 1/1/2020
- We are taking the Life PBR Exemption
- Our business or Company is not subject to PBR, or some other reason (please describe)

8. In the current environment there's a much greater likelihood for material changes between an earlier testing date and year-end, and subsequent to year-end. How are you considering that risk in planning 2020 AAT, particularly if you're not currently tooled to run 12/31/XX models?

9. Do you test using 12/31/XX inforce assets and liabilities or do you use an earlier date?

- 12/31/XX
- 12/31/XX economic conditions, but with assets and liabilities as of an earlier date
- Earlier

## BACKGROUND

10. You indicated that you test earlier than 12/31/XX. Please indicate the date of testing.

Date

Date

MM/DD/YYYY

## BACKGROUND

11. How do you handle events after 12/31/XX and prior to signing opinion letter?

- [ ] I believe this is out of scope.
- [ ] I believe this is only important if the event is material enough to change my opinion.
- [ ] I believe that if a material event occurs but doesn't change my opinion I must still mention this in the Actuarial Memorandum.
- [ ] I believe the opinion is as of 12/31 but any material subsequent events that may have altered the opinion should be disclosed in the Actuarial Opinion and discussed in the Actuarial Memorandum.
- [ ] Other (please specify and/or explain)

12. If we need to follow-up on any item to better clarify your comments, a representative of the American Academy of Actuaries will contact you if you give permission. Please indicate whether you are willing to be contacted; if yes, please provide your name and email address.

- [ ] Yes
- [ ] No

If yes, please provide Name and Email address

## LIABILITIES

13. What changes do you anticipate making to your base mortality assumptions for life insurance policies in 2020 as a result of current conditions? (Check all that apply)

- [ ] No changes anticipated.
- [ ] Increase long-term mortality
- [ ] Decrease long-term mortality
- [ ] Temporary additional mortality, constant by age
- [ ] Temporary additional mortality, varying by age
- [ ] Will make changes, but not due to COVID-19
- [ ] N/A
- [ ] Other (please describe)

14. What changes do you anticipate making to your base mortality assumptions for contracts with longevity risk (payout annuities, LTC, etc.) in 2020 as a result of current conditions? (Check all that apply)

- [ ] No changes anticipated.
- [ ] Increase long-term mortality
- [ ] Decrease long-term mortality
- [ ] Temporary additional mortality, constant by age
- [ ] Temporary additional mortality, varying by age
- [ ] Will make changes, but not due to COVID-19
- [ ] N/A
- [ ] Other (please describe)

15. What changes do you anticipate making to your base morbidity assumptions for LTC and accident & health insurance policies in 2020 as a result of current conditions? (Check all that apply)

- [ ] No changes anticipated
- [ ] Increase long-term morbidity
- [ ] Decrease long-term morbidity
- [ ] Temporary additional morbidity, constant by age
- [ ] Temporary additional morbidity, varying by age
- [ ] Temporary reduction to morbidity
- [ ] Will make changes, but not due to COVID-19
- [ ] N/A
- [ ] Other (please describe)

16. Do you anticipate changing your base policyholder behavior assumptions in 2020 as a result of current conditions? (Check all that apply)

- [ ] No changes anticipated
- [ ] Increase base lapse and/or partial withdrawal rates
- [ ] Decrease base lapse and/or partial withdrawal rates
- [ ] Increase utilization of guaranteed withdrawal benefits
- [ ] Decrease utilization of guaranteed withdrawal benefits
- [ ] Increase flexible premium payment assumptions
- [ ] Decrease flexible premium payment assumptions
- [ ] Will make changes, but not due to COVID-19
- [ ] N/A
- [ ] Other (please describe)

17. Do you anticipate changing your dynamic policyholder behavior parameters in 2020 as a result of current conditions? (Check all that apply)

- [ ] No changes anticipated
- [ ] Increase surrender and partial withdrawal sensitivity to low competitor rates.
- [ ] Decrease surrender and partial withdrawal sensitivity to low competitor rates.
- [ ] Increase surrender and partial withdrawal sensitivity to high competitor rates.
- [ ] Decrease surrender and partial withdrawal sensitivity to high competitor rates.
- [ ] Will make changes, but not due to COVID-19
- [ ] N/A
- [ ] Other (please describe)

18. Do you anticipate changing your premium persistency behavior parameters in 2020 as a result of current conditions? (Check all that apply)

- [ ] No changes anticipated
- [ ] Increase premium persistency
- [ ] Decrease premium persistency
- [ ] Assume more one-time premium dump-ins
- [ ] Decrease surrender and partial withdrawal sensitivity to high competitor rates.
- [ ] Will make changes, but not due to COVID-19
- [ ] N/A
- [ ] Other (please describe)

19. Do you believe deflation in projected AAT expenses should be permitted?

- [ ] Not sure or have never considered
- [ ] No
- [ ] Yes (please describe)

20. Is there any guidance you will look to or need as you review the assumptions related to liabilities?

## ADEQUACY CRITERIA

21. Do you view the current interest rate environment held level for all future projection periods in the testing horizon as being beyond moderately adverse?

- [ ] Yes, regardless of length of the testing horizon
- [ ] Yes, for years in the testing horizon which extend beyond 10 years from valuation date
- [ ] Yes, for years in the testing horizon which extend beyond 20 years from valuation date
- [ ] Other (please elaborate)
- [ ] Yes, for years in the testing horizon which extend beyond 40 years from valuation date
- [ ] No

## ADEQUACY CRITERIA

22. Has your opinion regarding the level scenario being beyond moderately adverse changed relative to the interest rate environment at the time of your 2019 testing?

- [ ] Yes
- [ ] No

## ADEQUACY CRITERIA

23. At the time this survey was drafted, Treasury rates were at historic low levels. Assuming a similar environment holds at year-end 2020, which of the following best summarizes your viewpoint on the level interest rate scenario (or NY1) in your 2020 AAT? (choose one, based on the information you have thus far)

- [ ] The Level scenario is a required "pass" for my criteria, regardless of how low interest rates are at valuation date.
- [ ] The Level scenario for 2020 has now moved into the "more than moderately adverse" category, therefore I will not consider it as a required "pass" for my adequacy criteria.
- [ ] I anticipate replacing the Level scenario with an alternative (please specify).

24. With respect to low interest rates (i.e. Treasury yields) which of these statements best reflects your view of "moderately adverse conditions" given current interest rate levels?

- [ ] A moderately adverse scenario should reflect permanent reduction in interest rates from current levels.
- [ ] A moderately adverse scenario should reflect temporary reduction in interest rates, followed by a return to current levels.
- [ ] A moderately adverse scenario should reflect temporary reduction in interest rates, followed by a return to interest rates above current levels.
- [ ] A moderately adverse scenario should reflect a gradual increase in interest rates from current levels
- [ ] The level scenario is a moderately adverse scenario.
- [ ] A moderately adverse scenario should reflect level interest rates for a period of time, followed by a return to interest rates above current levels.
- [ ] A moderately adverse scenario should reflect an immediate increase in interest rates from current levels.
- [ ] Other (please describe)

25. Has the view you reflected in the previous question changed since your 2019 testing?

- [ ] Yes
- [ ] No

Is there any guidance you will look to or need as you review this particular assumption?

26. With respect to low fixed income yields (e.g. corporate bond yields) which of these statements best reflects your view of "moderately adverse conditions" given current interest rate levels?

- A moderately adverse scenario should reflect permanent reduction in yields from current levels.
- A moderately adverse scenario should reflect temporary reduction in yields, followed by a return to current levels.
- A moderately adverse scenario should reflect temporary reduction in yields, followed by a return to yields above current levels.
- A moderately adverse scenario should reflect a gradual increase in yields from current levels
- The level scenario is a moderately adverse scenario.
- A moderately adverse scenario should reflect level yields for a period of time, followed by a return to yields above current levels.
- A moderately adverse scenario should reflect an immediate increase in yields from current levels.
- Other (please describe)

27. Has the view you reflected in the previous question changed since your 2019 testing?

- Yes
- No

28. If you use deterministic interest rate scenario sets other than the NY7 to support your opinion, do you anticipate making any of the following changes from 2019 to 2020? (check all that apply)

- Run same set, but require more scenarios to be passed.
- Run same set, but require fewer scenarios to be passed.
- Add higher rate scenarios
- Eliminate higher rate scenarios
- Modify high rate scenarios to have more moderate changes
- Modify high rate scenarios to have more extreme changes
- Other (please describe)
- Add lower rate scenarios
- Eliminate lower rate scenarios
- Modify low rate scenarios to have more moderate changes
- Modify low rate scenarios to have more extreme changes
- Do not anticipate making any changes
- N/A

29. Regarding interim results, how will you consider these results for your 2020 AAT?

- Interim results considered equally with ending results
- Consider management's ability to respond to interim deficiencies
- Early deficiencies given greater weight than later deficiencies
- Later deficiencies given greater weight than early deficiencies
- Interim deficiencies given greater weight for scenarios where conditions revert to normal
- Other (please describe)

30. Has the view you reflected in the previous question changed since your 2019 testing?

- [ ] Yes
- [ ] No

31. Do you anticipate adding any moderately adverse conditions/sensitivities in your 2020 testing relative to 2019?

- [ ] No
- [ ] Too early
- [ ] Yes (please describe additional condition)

32. Looking forward to 2020 AAT, what changes are you contemplating with respect to the primary set of scenarios used to state your opinion?

- [ ] In 2019 I used a stochastic set of scenarios, I anticipate no material changes in this approach for 2020
- [ ] In 2019 I used a fixed number of deterministic scenarios, I anticipate ADDING scenarios to this set for 2020
- [ ] In 2019 I used a stochastic set of scenarios, I anticipate continuing this approach but modifying my criteria for adequacy for 2020, making the passing reserves cover a greater number of scenarios
- [ ] In 2019 I used a stochastic set of scenarios, I anticipate continuing this approach but modifying my criteria for adequacy for 2020, making the passing reserves cover fewer scenarios
- [ ] In 2019 I used a stochastic set of scenarios, I anticipate continuing this approach but modifying my criteria for adequacy for 2020, making the passing reserves cover the same number of scenarios
- [ ] In 2019 I used the basic (NY) 7 scenarios, I anticipate no material changes in this approach for 2020
- [ ] In 2019 I used the basic (NY) 7 scenarios plus auxiliary scenarios. I anticipate no material changes in this approach for 2020
- [ ] In 2019 I used the basic (NY) 7 scenarios, I anticipate material changes in this approach for 2020. Please describe the expected changes and/or any Other changes you expect to make

33. For some, the criteria for adequacy is based on stochastic scenario testing. How will the passing rate for 2020 compare to that used for 2019?

- [ ] N/A - I do not utilize stochastic testing in my criteria
- [ ] Consistent with 2019 - i.e. no changes to the passing rate for 2020 AAT
- [ ] I anticipate increasing the required passing rate for 2020 AAT
- [ ] I anticipate decreasing the required passing rate for 2020 AAT
- [ ] Other (please describe)

34. Is there any guidance you will look to or need as you review the assumptions related to adequacy criteria?

## STOCHASTIC ASSUMPTIONS

35. Does your stochastic interest rate generator utilize mean reversion?

- [ ] Yes
- [ ] No

## STOCHASTIC ASSUMPTIONS

36. Do you plan to change your mean reversion targets in 2020?

- [ ] Yes
- [ ] No

## STOCHASTIC ASSUMPTIONS

37. What magnitude of change do you expect to make to the mean reversion target at the 10-year point (or other long rate tenor, if applicable)?

- ☐ < -2.00%
- ☐ -2.00% to -1.01%
- ☐ -1.00% to -0.51%
- ○ -0.50% to -0.01%
- ☐ 0.01% to 0.50%
- ☐ 0.51% to 1.00%
- ☐ 1.01% to 2.00%
- ○ > 2.00%

## STOCHASTIC ASSUMPTIONS

38. What mean reversion rate was used in 2019 AAT?

## STOCHASTIC ASSUMPTIONS

39. Do your stochastic interest rate scenarios include implicit or explicit floors?

- [ ] Yes
- [ ] No

## STOCHASTIC ASSUMPTIONS

40. Do you plan to change the stochastic interest rate floors in 2020?

- [ ] Yes
- [ ] No

## STOCHASTIC ASSUMPTIONS

41. What change are you planning in 2020 for interest rate floors?

- [ ] Planning to eliminate floors.
- [ ] Planning to reduce floors, but still above zero.
- [ ] Planning to reduce floors to below zero.
- [ ] Planning to increase floors.
- [ ] Other (please describe)

## DETERMINISTIC ASSUMPTIONS

42. Do your deterministic interest rate scenarios include implicit or explicit floors?

- [ ] Yes
- [ ] No

## DETERMINISTIC ASSUMPTIONS

43. Do you plan to change the deterministic interest rate floors in 2020?

- [ ] Yes
- [ ] No

## DETERMINISTIC ASSUMPTIONS

44. What change in interest rate floors are you planning for 2020?

- [ ] Planning to eliminate floors.
- [ ] Planning to reduce floors, but still above zero.
- [ ] Planning to reduce floors to below zero.
- [ ] Planning to increase floors.
- [ ] Other (please describe)

## ASSETS AND ECONOMIC ASSUMPTIONS

45. Did your 2019 AAT scenarios include negative interest rates, and do you anticipate using any negative interest rate scenarios in 2020? (Select one response for each year)

| | 2019 | 2020 |
|---|---|---|
| Yes, for both deterministic and stochastic | ☐ | ☐ |
| Yes, for deterministic only | ☐ | ☐ |
| Yes, for stochastic only | ☐ | ☐ |
| No, due to model limitations | ☐ | ☐ |
| No, for other reasons | ☐ | ☐ |

Other (please describe if alternate approach)

## ASSETS AND ECONOMIC ASSUMPTIONS

46. Please describe your approach to modeling asset spreads in 2019.

- [ ] Constant spreads based on December 31 actual
- [ ] Constant spreads based on earlier model start date
- [ ] Constant spreads based on long-term average
- [ ] Initial spreads Reverting to long-term average
- [ ] Other (please describe)

47. Please describe your plans for modeling asset spreads in 2020.

- [ ] Constant spreads based on December 31 actual
- [ ] Constant spreads based on earlier model start date
- [ ] Constant spreads based on long-term average
- [ ] Initial spreads Reverting to long-term average
- [ ] Other (please describe)

## ASSETS AND ECONOMIC ASSUMPTIONS

48. Do you plan to change your long-term average spread assumptions in 2020?

- [ ] Yes
- [ ] No

## ASSETS AND ECONOMIC ASSUMPTIONS

49. How do you plan to change your long-term average spread assumptions in 2020? (check all that apply)

- [ ] Planning to increase long-term average spreads.
- [ ] Planning to decrease long-term average spreads.
- [ ] Planning to increase spread reversion period.
- [ ] Planning to decrease spread reversion period.
- [ ] Other (please describe)

## ASSETS AND ECONOMIC ASSUMPTIONS

50. Please describe your approach to modeling asset defaults and/or credit losses in 2019 and your plans for 2020.

| | 2019 | 2020 |
|---|---|---|
| Constant defaults based on December 31 expectations | ☐ | ☐ |
| Constant defaults based on earlier model start date | ☐ | ☐ |
| Constant defaults based on long-term average | ☐ | ☐ |
| Higher initial defaults reverting to long term average | ☐ | ☐ |
| Lower initial defaults reverting to long term average | ☐ | ☐ |

51. Other than refreshing long-term rates for another year of experience, do you plan to change your default assumptions in 2020?

- ☐ Yes
- ○ No

## ASSETS AND ECONOMIC ASSUMPTIONS

52. How do you plan to change your default assumptions in 2020? (Check all that apply)

- [ ] Planning to increase initial default rates.
- [ ] Planning to decrease initial default rates.
- [ ] Planning to increase long-term average default rates.
- [ ] Planning to decrease long-term default rates.
- [ ] Planning to increase default rate reversion period.
- [ ] Planning to decrease default rate reversion period.
- [ ] Other (please describe)

## ASSETS AND ECONOMIC ASSUMPTIONS

53. For 2020, do you plan to assume any correlation among interest rates, spread, and default/credit loss assumptions?

- [ ] Yes
- [ ] No

## ASSETS AND ECONOMIC ASSUMPTIONS

54. For 2020, what assumptions are you planning to make concerning correlation among interest rates, spread, and default/credit loss assumptions? (check all that apply)

- [ ] Spreads positively correlated to interest rates.
- [ ] Spreads negatively correlated to interest rates.
- [ ] Initial spreads and defaults positively correlated.
- [ ] Initial spreads and defaults negatively correlated.
- [ ] Ultimate spreads and defaults positively correlated.
- [ ] Ultimate spreads and defaults negatively correlated.
- [ ] Other (please describe)

## ASSETS AND ECONOMIC ASSUMPTIONS

55. Do you model equities or equity-like assets, either as existing assets or reinvestment assets?

- [ ] Yes
- [ ] No

## ASSETS AND ECONOMIC ASSUMPTIONS

56. How do you model equities or equity-like assets?

- [ ] Deterministically.
- [ ] Stochastically.
- [ ] Both deterministically and stochastically.

## ASSETS AND ECONOMIC ASSUMPTIONS

57. Are you planning to change your deterministic equity return assumptions in 2020?

- [ ] Yes
- [ ] No

## ASSETS ND ECONOMIC ASSUMPTIONS

58. How are you planning to change your deterministic equity return assumptions in 2020? (check all that apply)

- [ ] Increase long-term equity rates of return.
- [ ] Decrease long-term equity rates of return.
- [ ] Add or increase initial equity price shock.
- [ ] Remove or decrease initial equity price shock.
- [ ] Other (please describe)

## ASSETS AND ECONOMIC ASSUMPTIONS

59. Are you planning to change your stochastic equity return assumptions in 2020?

- [ ] Yes
- [ ] No

## ASSETS AND ECONOMIC ASSUMPTIONS

60. How are you planning to change your stochastic equity return assumptions in 2020? (check all that apply)

- [ ] Increase long-term equity volatility assumption
- [ ] Decrease long-term equity volatility assumption.
- [ ] Increase initial equity volality assumption.
- [ ] Decrease initial equity volality assumption.
- [ ] Add or strengthen correlation between equity returns and interest rates.
- [ ] Remove or weaken correlation between equity returns and interest rates.
- [ ] Other (please describe)

## ASSETS AND ECONOMIC ASSUMPTIONS

61. In light of persistent low interest rates, what is your view on the appropriateness of using historical averages to set equity return targets?

- [ ] Long-term average return is an appropriate basis for future expected equity returns.
- [ ] Long-term average equity risk premium (over risk free rates) is an appropriate basis for future expected equity returns.
- [ ] Long-term average return and equity risk premium overstate future expected equity returns and equity risk premia.
- [ ] Other (please describe)

62. Do you plan to make changes to the allocation of existing assets to your 2020 AAT models due to the current environment?

- [ ] Yes
- ( ) No

## ASSETS AND ECONOMIC ASSUMPTIONS

63. What changes do you plan to make to the allocation of existing assets to your 2020 AAT models due to the current environment? (check all that apply)

| | Increase | Decrease |
|---|---|---|
| Investment grade bond allocation. | ○ | ○ |
| High yield bond allocation. | ○ | ○ |
| Mortgage loan allocation. | ○ | ○ |
| Structured security allocation. | ○ | ○ |
| Equity allocation. | ○ | ○ |
| Other invested asset allocation. | ○ | ○ |
| Asset duration | ○ | ○ |

Other (please specify)

## ASSETS AND ECONOMIC ASSUMPTIONS

64. Do you plan to make changes to the reinvestment asset mix in your 2020 AAT models due to the current environment?

- [ ] Yes
- [ ] No

## ASSETS AND ECONOMIC ASSUMPTIONS

65. What changes do you plan to make to the reinvestment asset mix in your 2020 AAT models due to the current environment? (check all that apply)

| | Increase | Decrease |
|---|---|---|
| Investment grade bond allocation. | ○ | ○ |
| High yield bond allocation. | ○ | ○ |
| Mortgage loan allocation. | ○ | ○ |
| Structured security allocation. | ○ | ○ |
| Equity allocation. | ○ | ○ |
| Other invested asset allocation. | ○ | ○ |
| Asset duration | ○ | ○ |

Other (please describe

## REINSURANCE

66. ASOP No. 22 does not mention considerations for reinsurance. Revisions to ASOP No. 22 recently exposed specifically provide guidance on reinsurance ceded (3.1.3). For your 2020 AAT, which best describes your approach?

- Reinsurance is not present, or is immaterial
- AAT was performed on a direct basis in 2019, and will continue to be performed on a direct basis, even though reinsurance ceded is present
- AAT was performed on a net basis in 2019, and will continue to be performed on a net basis in 2020, with distinct consideration for reinsurance recoverability
- AAT was performed on a net basis in 2019, and will continue to be performed on a net basis in 2020. No special consideration for reinsurance recoverability will be added.
- AAT was performed on a direct basis in 2019, but will now be performed on a net basis in 2020
- Other (please describe)

67. If YRT reinsurance is an element of your AAT, will your AAT assumption anticipate reinsurers increasing YRT premiums due to COVID-19 or other adverse experience?

- Yes
- No

Comments

## GPV

68. Will you revise the basis for the discount rates used in your GPV analyses?

- Yes
- No
- i do not use GPV analysis.

## GPV

69. How will you revise the basis for the discount rates used in your GPV analyses? I intend to use (check all that apply):

- [ ] Initial portfolio yield held constant
- [ ] Initial market yield held constant
- [ ] Initial portfolio yield grading downward to reflect future reinvestment
- [ ] Initial portfolio yield grading upward to reflect future reinvestment
- [ ] Initial market yield grading downward to reflect future reinvestment
- [ ] Initial market yield grading upward to reflect future reinvestment
- [ ] Other (please specify)

## GPV

70. Will you revise your GPV discount rate adjusted to be net of investment expense and/or defaults?

- [ ] Yes
- [ ] No

## GPV

71. How will you revise your GPV discount rate adjusted to be net of investment expense and/or defaults? I intend to adjust for (check all that apply):

- [ ] Both investment expense and default rate, with constant defaults based on expectations at model start date
- [ ] Both investment expense and default rate, with constant defaults based on expectations at year-end
- [ ] Both investment expense and default rate, with constant defaults based on long-term average
- [ ] Both investment expense and default rate, with higher initial defaults reverting to long-term average
- [ ] Both investment expense and default rate, with lower initial defaults reverting to long-term average
- [ ] Only default rate, with constant defaults based on expectations at model start date
- [ ] Only default rate, with constant defaults based on expectations at year-end
- [ ] Only default rate, with constant defaults based on long-term average
- [ ] Only default rate, with higher initial defaults reverting to long-term average
- [ ] Only default rate, with lower initial defaults reverting to long-term average
- [ ] Only investment expense
- [ ] Other (please describe)

## GPV

72. Will you revise how expected conservatism is reflected in your GPV discount rate?

- Yes
- No

## GPV

73. In what way will you revise how expected conservatism is reflected in your GPV discount rate? I intend to (check all that apply):

- [ ] Add margin to achieve moderately adverse margin
- [ ] Add margin to achieve greater than moderately adverse margin
- [ ] Add margin to achieve margin that is less than moderately adverse margin
- [ ] Remove margin to achieve moderately adverse margin
- [ ] Remove margin to achieve greater than moderately adverse margin
- [ ] Remove margin to achieve margin that is less than moderately adverse margin
- [ ] Other (please describe)

## GPV

74. Will you add any sensitivity tests for your GPV discount rate?

- [ ] Yes
- [ ] No

## GPV

75. I intend to sensitivity test for (check all that apply):

- [ ] a GPV discount rate <=1.0% in all years
- [ ] a GPV discount rate >1.0% in all years
- [ ] a GPV discount rate <=1.0% as an ultimate discount rate
- [ ] a GPV discount rate >1.0% as an ultimate discount rate
- [ ] a GPV discount rate which considers a temporary shock for excess defaults
- [ ] Other (please describe)

76. Does your adequacy conclusion consider the results of any sensitivity testing?

- ( ) Yes
- ( ) No

## Management Actions

77. What is your expectation around establishing additional reserves as a result of 2020 AAT?

- [ ] Expect to hold additional reserves at same relative level as 2019, considering growth or decline in block size
- [ ] Expect to hold additional reserves at levels lower than 2019, due to COVID-related environment
- [ ] Expect to hold additional reserves at levels higher than 2019, due to COVID-related environment
- [ ] Expect to hold additional reserves at levels lower than 2019, due to reasons OTHER THAN COVID-related environment
- [ ] Expect to hold additional reserves at levels higher than 2019, due to reasons OTHER THAN COVID-related environment
- [ ] Did not hold additional reserves at 2019, and do not expect this to change for 2020
- [ ] Other (please describe)

## MODELING METHODS

78. Regarding modeling methods, check all that you expect will apply to 2020 AAT.

- [ ] Change in aggregating lines of business - more aggregation than for 2019
- [ ] Change in aggregating lines of business - less aggregation than for 2019
- [ ] Change in stochastic generation of asset variables (interest/equity rates)- more
- [ ] Change in stochastic generation of asset variables (interest/equity rates)- less
- [ ] Change in stochastic generation of asset variables (other than interest/equity rates)- more
- [ ] Change in stochastic generation of asset variables (other than interest/equity rates)- less
- [ ] Change in stochastic generation of liability variables - more
- [ ] Change in stochastic generation of liability variables - less
- [ ] Changes I intend to implement reflect an increase in conservatism from 2019 methods
- [ ] Changes I intend to implement reflect a decrease in conservatism from 2019 methods
- [ ] No changes to modeling methods
- [ ] Other (please describe)

79. Will 2020 AAT include more sensitivity tests than were performed for 2019 AAT?

- [ ] Yes
- [ ] No

## MODELING METHODS

80. I intend to expand my sensitivity testing for (check all that apply):

- [ ] premium persistency
- [ ] mortality
- [ ] morbidity
- [ ] lapses
- [ ] renewal expenses
- [ ] inflation
- [ ] spreads
- [ ] defaults
- [ ] option/rider election rates
- [ ] Other (please describe)

## MODELING METHODS

81. Regarding generation of economic environment variables (such as interest rates, equity returns) which of these statements best summarizes your primary concerns as you look to 2020 AAT? (check all that apply)

- [ ] I have considered negative interest rates and I hold the opinion that these are not appropriate for AAT
- [ ] I feel I should be testing negative interest rates, but my interest rate generator is not capable of producing negative rates
- [ ] Even if I use negative interest rates, I am unsure whether my model can accommodate these (i.e. I have never tested this capability)
- [ ] Equity returns : Compared to 2019, my equity return scenarios will demonstrate smaller price shocks
- [ ] Equity returns : Compared to 2019, my equity return scenarios will demonstrate larger price shocks
- [ ] Equity returns : Compared to 2019, my equity return scenarios will demonstrate an increase to long-term return assumptions
- [ ] Equity returns : Compared to 2019, my equity return scenarios will demonstrate an decrease to long-term return assumptions
- [ ] Equity returns : These do not apply to my AAT
- [ ] Other (please describe)

82. Are you familiar with the Academy Interest Rate Generator?

- [ ] Yes
- [ ] No

## MODELING METHODS

83. What do you believe are limitations of the Academy Interest Rate Generator for capturing moderately adverse conditions in the current environment? (check all that apply)

- [ ] No significant limitations
- [ ] Formulaic mean reversion targets too high.
- [ ] Formulaic mean reversion targets too low.
- [ ] Insufficient dispersion among scenarios.
- [ ] Too much dispersion among scenarios.
- [ ] Insufficient interest rate variability within scenarios.
- [ ] Too much interest rate variability within scenarios.
- [ ] Interest rates floored above zero.
- [ ] Not enough low rate scenarios.
- [ ] Too many low rate scenarios.
- [ ] Not enough high rate scenarios.
- [ ] Too many high rate scenarios.
- [ ] Equity Returns produced are not correlated with interest rates
- [ ] Other (please describe)

## DATA SOURCES

84. Have you held any discussions with your regulator about current conditions and potential AAT changes for yearend 2020?

- ◯ No
- ◯ Yes

If yes, describe the general nature of guidance provided.

85. On a scale of 1-5 where 5 is most useful, how useful is each of the following guidance or reference sources in the AAT exercise (esp. selecting scenarios; setting assumptions; assessing adequacy)?

| | 1 (Least Useful) | 2 | 3 | 4 | 5 (Most Useful) |
|---|---|---|---|---|---|
| Standard Valuation Law | ◯ | ◯ | ◯ | ◯ | ◯ |
| State-specific AOMR, including NY Reg126 | ◯ | ◯ | ◯ | ◯ | ◯ |
| VM-20 - PBR Requirements for Life Products | ◯ | ◯ | ◯ | ◯ | ◯ |
| VM-21 - PBR Requirements for Variable Annuities | ◯ | ◯ | ◯ | ◯ | ◯ |
| VM-22 - Statutory Maximum Valuation Interest Rates for Income Annuities | ◯ | ◯ | ◯ | ◯ | ◯ |
| VM-25 - Health Insurance Minimum Reserve Requirements | ◯ | ◯ | ◯ | ◯ | ◯ |
| VM-30 - AOMR | ◯ | ◯ | ◯ | ◯ | ◯ |
| ASOP No. 2 - Nonguaranteed Charges or Benefits For Life and Annuity | ◯ | ◯ | ◯ | ◯ | ◯ |
| ASOP No. 5 - Incurred Health and Disability Claims | ◯ | ◯ | ◯ | ◯ | ◯ |
| ASOP No. 7 - Analysis of Life, Health, or P&C Insurer Cash Flows | ◯ | ◯ | ◯ | ◯ | ◯ |

| | 1 (Least Useful) | 2 | 3 | 4 | 5 (Most Useful) |
|---|---|---|---|---|---|
| ASOP No. 11 - Financial Statement Treatment of Reinsurance Transactions | | | | | |
| ASOP No. 15 - Dividends for individual Participating life, Annuities and Disability Insurance | | | | | |
| ASOP No. 18 - Long Term Care Insurance | | | | | |
| ASOP No. 21 - Responding to or Assisting Auditors or Examiners | | | | | |
| ASOP No. 22 (current or revised exposure) Statements of Opinion Based on Asset Adequacy Analysis by Actuaries for Life or Health Insurers | | | | | |
| ASOP No. 23 - Data Quality | | | | | |
| ASOP No. 25 - Credibility Procedures | | | | | |
| ASOP No. 40 - Compliance with Valuation of Life Ins Policies Model Reg with respect to deficiency reserve mortality | | | | | |
| ASOP No. 42 - Health and disability Actuarial Assets and Liabilities other than Liabilities for Incurred Claims | | | | | |
| ASOP No. 52 - Principle-based Reserves for Life Products under the NAIC Valuation Manual | | | | | |
| Academy Practice Note on Asset Adequacy Analysis | | | | | |

| | 1 (Least Useful) | 2 | 3 | 4 | 5 (Most Useful) |
|---|---|---|---|---|---|
| Academy Life & Health Valuation Manual | ○ | ○ | ○ | ○ | ○ |
| Academy Life PBR Assumption Resource Manual | ○ | ○ | ○ | ○ | ○ |
| Other regulatory guidance | ○ | ○ | ○ | ○ | ○ |
| Other ASOP | ○ | ○ | ○ | ○ | ○ |
| Other Practice Notes | ○ | ○ | ○ | ○ | ○ |
| Other guidance | ○ | ○ | ○ | ○ | ○ |

Please describe any Other options

## DATA SOURCES

**The following set of questions relate to Data Sources you expect to use for 2020 AAT in developing certain asset and economic assumptions.**

86. Interest Rate Scenarios - Do you intend to use the Academy ESG with VM-20 parameterization, without modification?

- [ ] Yes
- [ ] No

## DATA SOURCES

87. Interest Rate Scenarios - I intend to use (check all that apply):

- [ ] US Treasury rate history
- [ ] Interest rate history in other countries
- [ ] Society of Actuaries interest rate research reports and/or Other (please describe)

## DATA SOURCES

88. Credit Spreads - Do you intend to use the VM-20 spread requirements without modification (i.e. including grading, etc.)?

- [ ] Yes
- [ ] No

## DATA SOURCES

89. Credit Spreads - I intend to use (check all that apply):

- [ ] NAIC VM-20 Long-term spreads
- [ ] NAIC VM-20 Current spreads
- [ ] Investment advisors
- [ ] Consulting firm
- [ ] Proprietary bond yield indices and/or Other (please describe)

## DATA SOURCES

90. Asset Defaults - Do you intend to use the VM-20 default cost requirements without modification?

- [ ] Yes
- [ ] No

## DATA SOURCES

91. Asset default - I intend to use (Check all that apply)

- [ ] NAIC's PBR (VM20/VM21) default cost methodology (and baseline default rate table)
- [ ] Own experience
- [ ] Combination of industry studies and own experience
- [ ] Proprietary default cost studies and/or
- [ ] Other (please specify)
- [ ] Investment advisors
- [ ] Consulting firm
- [ ] Company investment department

## DATA SOURCES

92. Equity return and/or Volatility - Do you intend to use the Academy ESG with VM-20 parameterization, without modification?

- Yes
- No
- N/A

## DATA SOURCES

93. Equity return and volatility - I intend to use (check all that apply):

- [ ] Long-term averages of publicly available equity return indices
- [ ] Long-term averages of proprietary equity return indices
- [ ] Long-term averages of publicly available volatility indices
- [ ] Long-term averages of proprietary volatility indices
- [ ] Recent averages of publicly available equity return indices
- [ ] Recent averages of proprietary equity return indices
- [ ] Recent averages of publicly available volatility indices
- [ ] Recent averages of proprietary volatility indices
- [ ] Own experience
- [ ] Combination of external indices and own experience
- [ ] Company investment department
- [ ] Investment advisors
- [ ] Consulting firm
- [ ] Other (please describe)

## DATA SOURCES

94. Mortgage Asset Prepayment - I intend to use (check all that apply):

- [ ] Own experience
- [ ] Investment advisors
- [ ] Combination of external indices and own experience
- [ ] Consulting firm
- [ ] Company investment department
- [ ] Proprietary assumptions in asset modeling platforms
- [ ] Other (please describe)

95. Are there gaps in the authoritative guidance or in the available data sources for setting assumptions that you believe significantly limit the ability of the appointed actuary to project economic assumptions into the future and/or to otherwise fulfill their obligations in the current environment (please describe).

## CONCLUSION

**Thank you for participating in the Asset Adequacy Testing 2020 survey. And thank you for completing the survey.**