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Asset Adequacy Analysis 2020:
A Survey of Life Appointed Actuaries

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A Report to
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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.

The survey was implemented in SurveyMonkey and was available for responses from Aug. 5 through 24, 2020 (see the survey attached). A letter introducing the survey and ensuring confidentiality for any responses was distributed to appointed actuaries on Aug. 5.

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

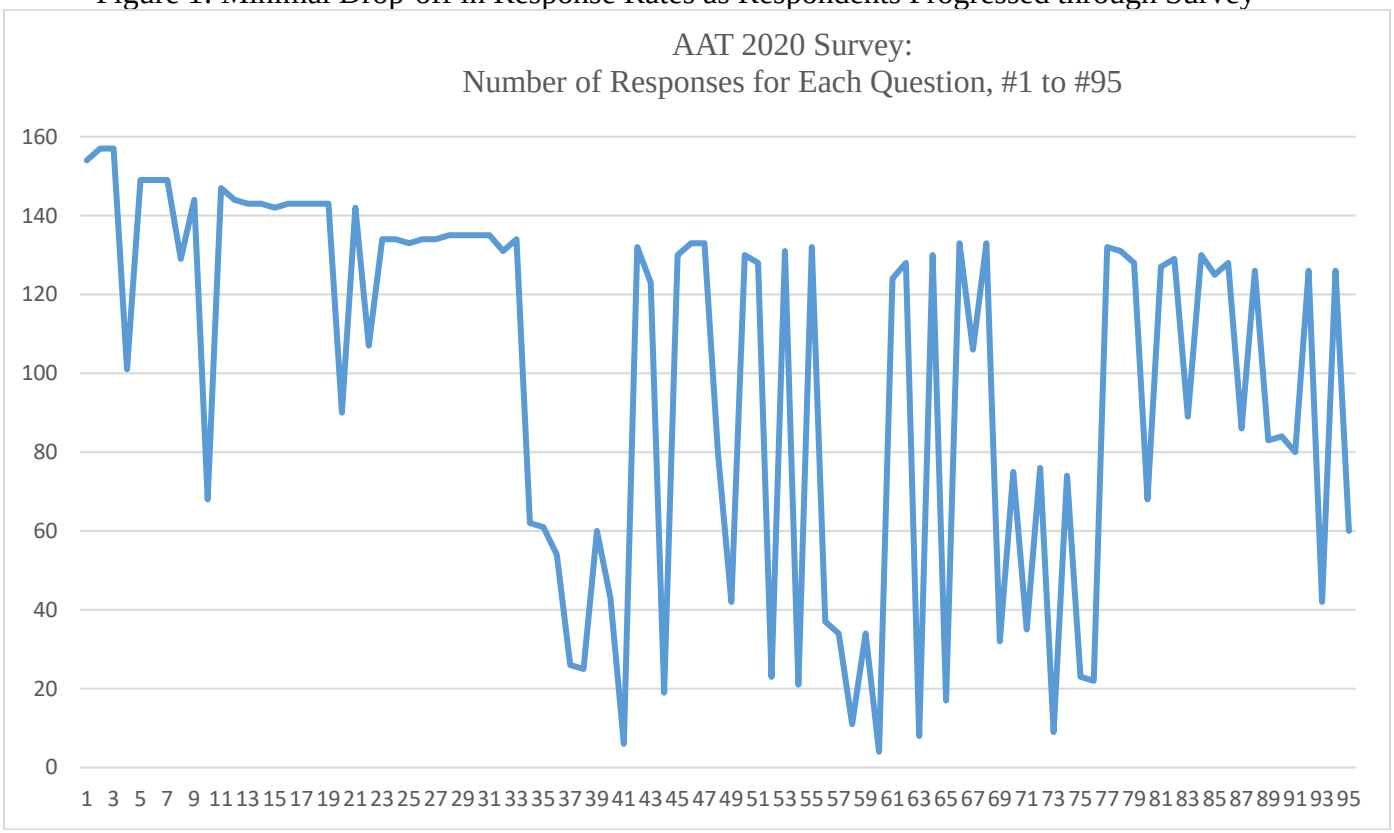
	AAT 2020 Survey, Q. 6	Net Reserves by Parent from S&P Market Intelligence	Survey - S&P
$0-20 million	6.04%	43.20%	-37.16%
$20-100 million	10.74%	13.91%	-3.17%
$100-500 million	14.77%	14.50%	0.27%
$500-5,000 million	27.52%	18.05%	9.47%
$5,000-20,000 million	8.05%	4.73%	3.32%
$20,000-50,000 million	9.40%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