

2018 Variable Annuity Guaranteed Benefits Survey

Survey of Assumptions for Policyholder Behavior
in the Tail





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Overview

- Lapses and income utilization rates are critical assumptions for pricing, reserving, and the risk management of variable annuity guarantees. This survey explores the range of assumptions used and drivers of those assumptions. Individual responses vary significantly among companies throughout this report. Comparing your assumptions in the tail with others may be enlightening and useful since actual data is very limited or unavailable.

Specific Highlights

Tail Scenario

- The median equity tail scenario tracked the 10th percentile return of the AAA equity index (Figure 7).
- However, the cumulative equity return in the tail scenario for individual companies varies widely (Figure 4).

Dynamic Lapses

- Dynamic lapse functions are used by most companies across all benefit types (Figure 9).
- Practices vary considerably. Some companies use a floor lapse rate as a percentage of the base, others use a constant floor, and a few use some other method to establish the floor (Figure 10, Figure 12, Figure 14, Figure 16, and Figure 18).

Lapse Assumptions for a Newly Issued Policy

- The median base lapse assumptions are similar across benefit types (Figure 20) for a newly issued policy, with the GLWB assumption being somewhat lower.
- The median tail lapse assumptions are also similar across benefit types. Again, the GLWB assumption is somewhat lower (Figure 26).

Lapse Assumptions for an Aggregate Block

- Median base lapse assumptions for the aggregate block are somewhat lower for the GMWB and GLWB benefit types (Figure 32).
- Except for GMWB, median tail lapse rates are generally lower than median base lapse assumptions, especially after the early projection years (Figure 44 through Figure 48).

Utilization Rates

- GMIB utilization rates increase as the policy becomes more in-the-money, which occurs in a tail scenario.
- However, many companies do not vary their GMWB and GLWB utilization rates by scenario.
- Income and withdrawal utilization rates vary by multiple drivers, but duration was the most commonly cited (Figure 49).

Distribution System

- Most responding companies sell through multiple distribution systems.
- Of those that sell through multiple distribution systems, only about 30% measure their lapse experience by distribution system and about 20% vary their lapse assumptions by distribution system.

Source of Assumptions

- Company experience is relied on much more heavily for base assumptions than for tail assumptions (Figure 55).
- There is a general trend toward a higher percentage of companies using 10+ years of experience in lapse studies (Figure 53).

Changes in Assumptions

- One-half of the responding companies changed assumptions since the prior year (Figure 57), typically to update experience, but sometimes to also update dynamic lapse formulas.

Sensitivity Analysis

- Most companies do sensitivity analysis/testing of critical assumptions. The most common sensitivity tests performed are relative to base lapse assumptions, equity returns, and utilization assumptions (Figure 58).

General

- The PBITT committee appreciates the 16 participating companies. However, this participation level is lower than in past years and additional participation is important to enhance the quality of information presented and continuity from year to year.
- Some charts were omitted if there were fewer than 5 responding companies, consistent with SOA research standards.

Acknowledgements

Special thanks to all the companies that responded to the survey and provided helpful information. Without their efforts, this survey would not be possible. While the identities of the responding companies for a particular response remain anonymous to the Policyholder Behavior in the Tail (PBITT) committee, companies were given a chance to identify themselves as a participating company. The committee would like to thank these and all anonymous companies for their contribution.

AIG
 Ameriprise Financial
 Ameritas Life Insurance Corp.
 Delaware Life
 Guardian Life Insurance Company
 John Hancock
 MetLife
 Phoenix
 Prudential
 Securian
 Transamerica
 Western & Southern Financial Group

The Society of Actuaries' PBITT committee gratefully acknowledges Jeff Hartman for all his efforts in analyzing the survey data and drafting this report.

The PBITT committee is interested in comments on the survey and results. Please e-mail comments to either Jim Reiskytl, Chair of the Policyholder Behavior in the Tail committee, at jimreiskytl@wi.rr.com or Barbara Scott, Society of Actuaries Sr. Research Administrator at bscott@soa.org.

Background

In 2005, the Society of Actuaries' PBITT committee distributed a survey to insurers. The goal of the survey was to gain insight into companies' assumptions of variable annuity policyholder behavior in the tail of the C3 Phase II Risk Based Capital calculation. Each edition of the survey has had approximately 16-30 responses; however, not every company answered every question. The following sections highlight responses from the 2018 survey and, where applicable, illustrate how answers compare to previous years' results. To judge the credibility of results, some charts indicate how many companies responded to the question for the five most recent survey years.

It is our hope that this study's report on assumptions will enable actuaries to improve and compare their "tail" expectations with those assumed by others. Actuaries may use this study to aid in both (a) setting their assumptions,

and (b) setting up experience studies to parameterize such dynamic functions, especially from experience gained in “tail” historical periods.

The latest survey reflects a different response group from that in the prior survey. As a result, some of the changes described below reflect different respondents, not necessarily a change by any given company. While the exact relationships of new versus prior respondents vary by individual question, the Society of Actuaries’ staff was able to verify that 9 respondents also participated in the 2017 survey and 7 did not.

Please note that when percentages of responding companies are shown, the percentages are based on the number of respondents and not their size.

When providing responses, companies were asked to consider five different benefit types:

- GMDB – guaranteed minimum death benefit with no living benefit
- GMIB – guaranteed minimum income at annuitization; may also include death benefit
- GMWB – guaranteed minimum income over specified (non-lifetime) period; may also include death benefit
- GLWB – guaranteed income stream for life; may also include death benefit
- GMAB – guaranteed minimum account value at a specified time; may also include death benefit

Respondents Profile

Figure 1 indicates the relative size of companies responding to the survey as measured by Total Account Value. This year there were no companies with small blocks of variable annuities with guarantees (less than \$1B).

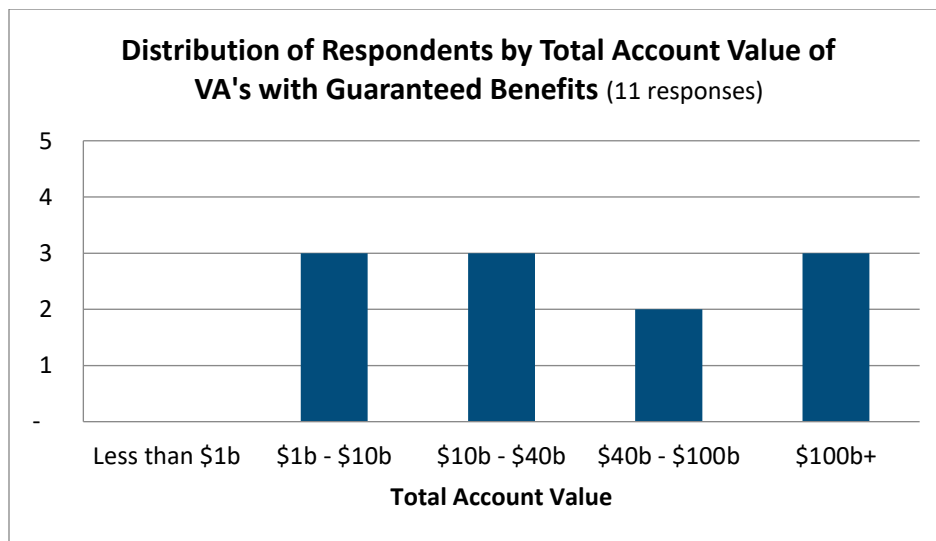


Figure 1

Tail Scenario

As in past years, the vast majority of respondents indicated that they used stochastic modeling to set capital levels. In the 2018 survey 14 out of 15 (93%) indicated that they used stochastic scenarios to set capital levels.

While not all companies answered every question, most of these respondents provided additional details regarding their calculation. In 2018, as in past years, 1,000 scenarios was the predominant response to the number of scenarios modeled (Figure 2).

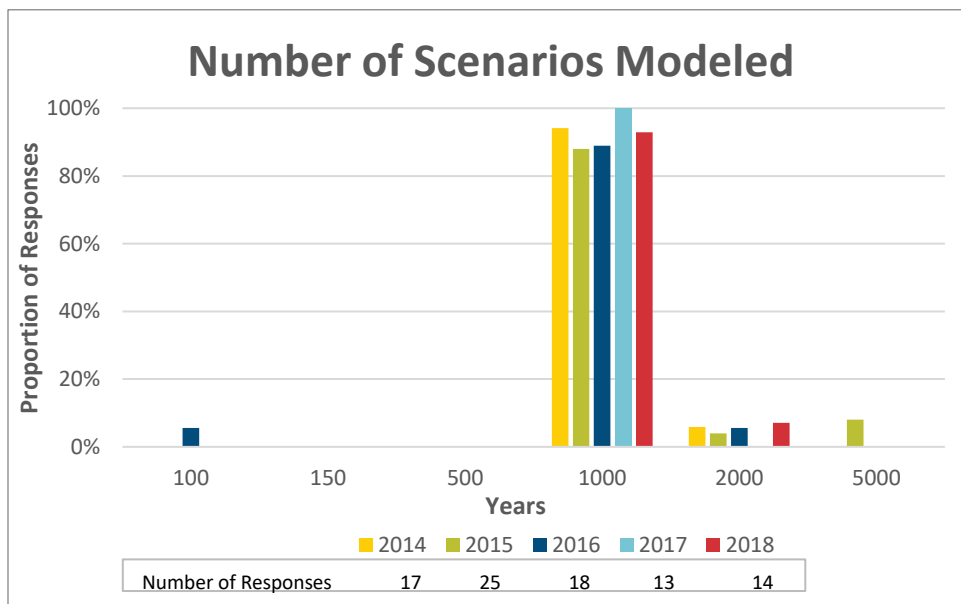


Figure 2

In terms of projection horizon, 30 years was cited most frequently as has been the case in past surveys (Figure 3), with a slight trend toward longer horizons.

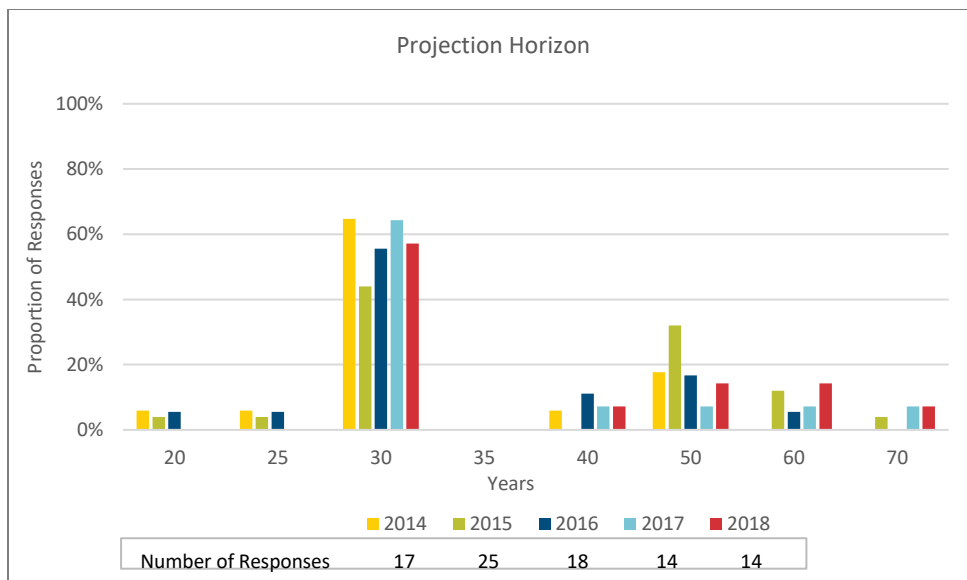


Figure 3

A new question in 2017 asked whether companies’ projections used hedges in accordance with a Clearly Defined Hedging Strategy (CDHS). In 2018, a positive response was given by 10 of the 15 companies that responded to that question (67%) which is consistent with 10 of 14 (71%) in 2017.

Insurers were asked to describe the tail scenario that determines the first negative result of their modified 90 CTE calculation (that is, the least negative result of all scenarios with a negative present value). If no scenario produced a negative result, the scenario with the smallest positive was provided.

Responses varied widely among insurers regarding the equity returns of the tail scenario. Figure 4 shows the equity performance in their tail scenario on a cumulative basis for each of the 12 insurers that provided data. There is a wide disparity of equity return results. While many companies reported tail scenarios with negative equity returns, a few showed positive returns. We specifically asked about positive returns as a tail scenario. Two companies responded that hedging costs led to a negative outcome, one mentioned the step-up feature of their guarantee that prevented the reserve from dropping in high equity scenarios, and one noted that little business remains after year 10 in their projection so high equity returns at that point had little impact.

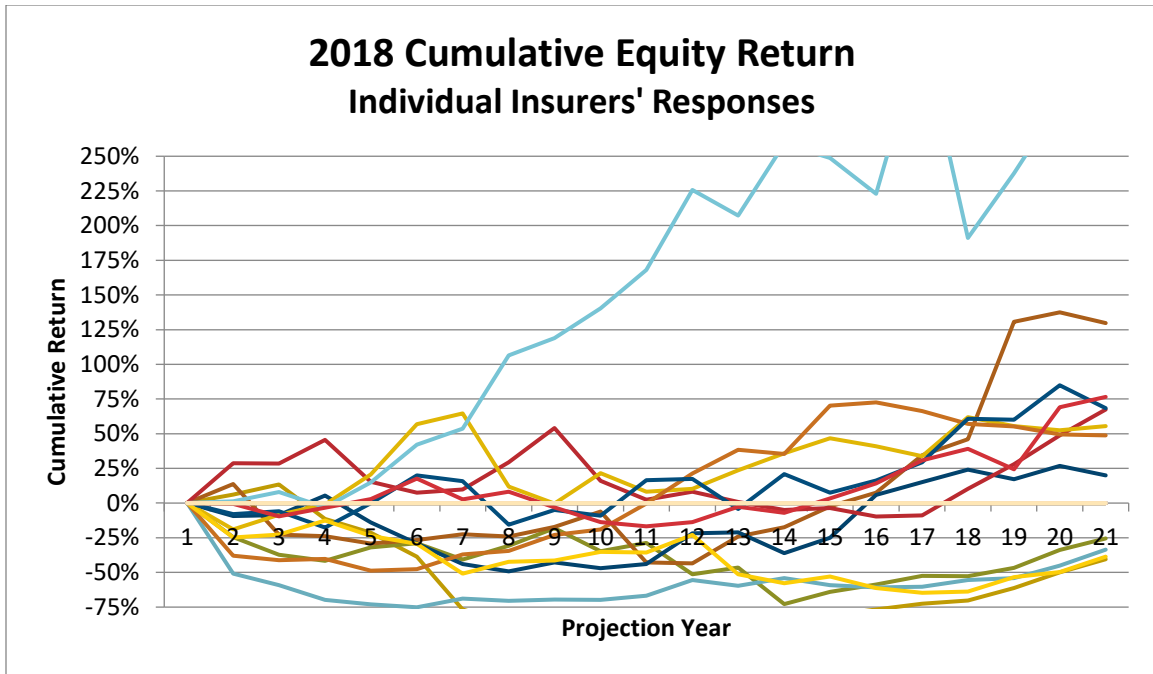


Figure 4

Figure 5 shows the cumulative returns of the bond funds in the tail scenario.

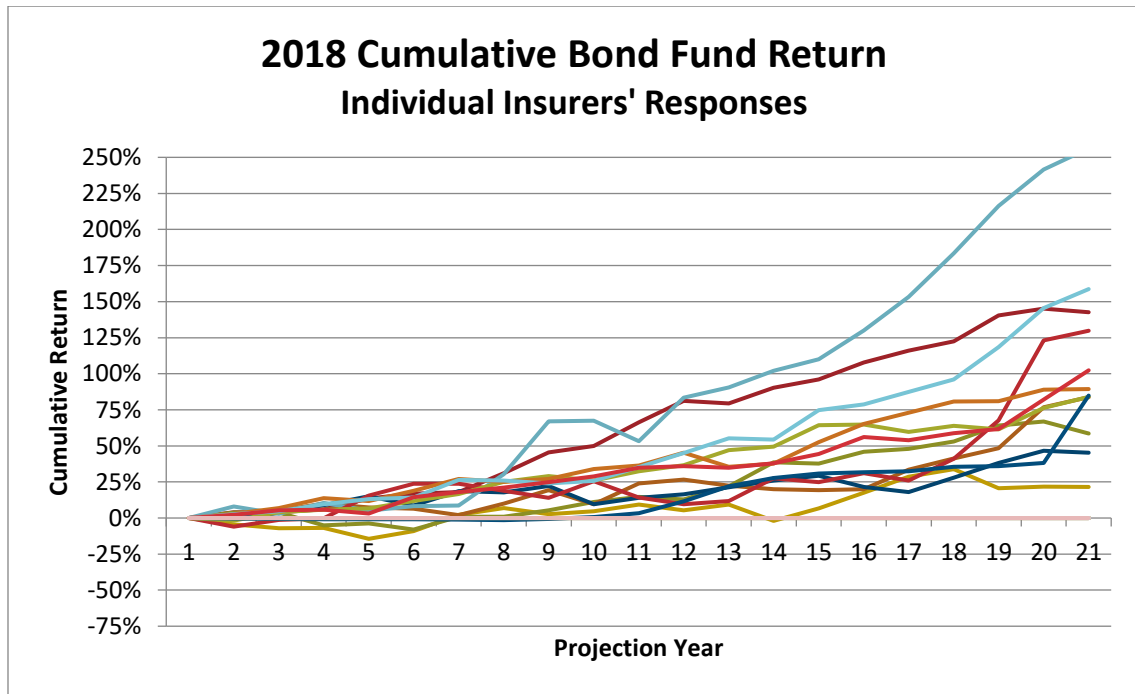


Figure 5

Figure 6 shows the 5-year Treasury interest rate in the tail scenario.

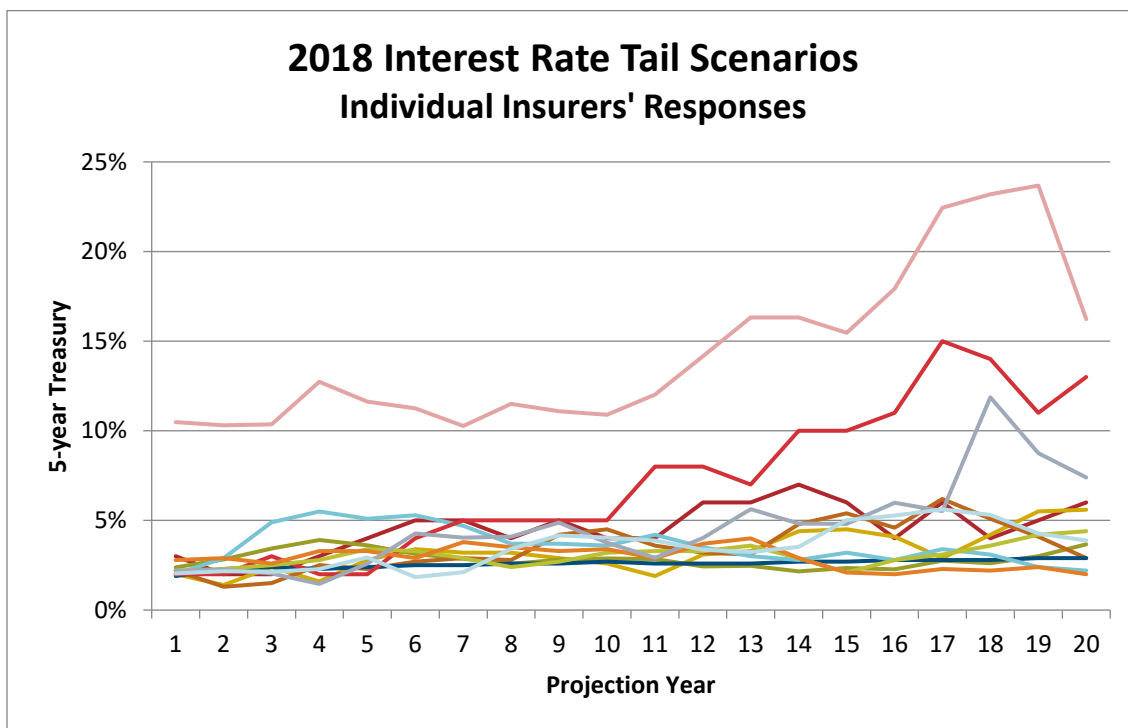


Figure 6

In Figure 7, the median of the 2018 Equity Return Tail Scenarios (from Figure 4) is plotted against the 10th percentile of the equity returns from the American Academy of Actuaries (AAA) pre-packaged scenario set based on 2005 data (http://www.actuary.org/life/phase2_2.asp). The median of insurers' responses from 2018 had a cumulative return that is similar to that of the 10th percentile of the AAA pre-packaged scenarios, especially in the first 15 years.

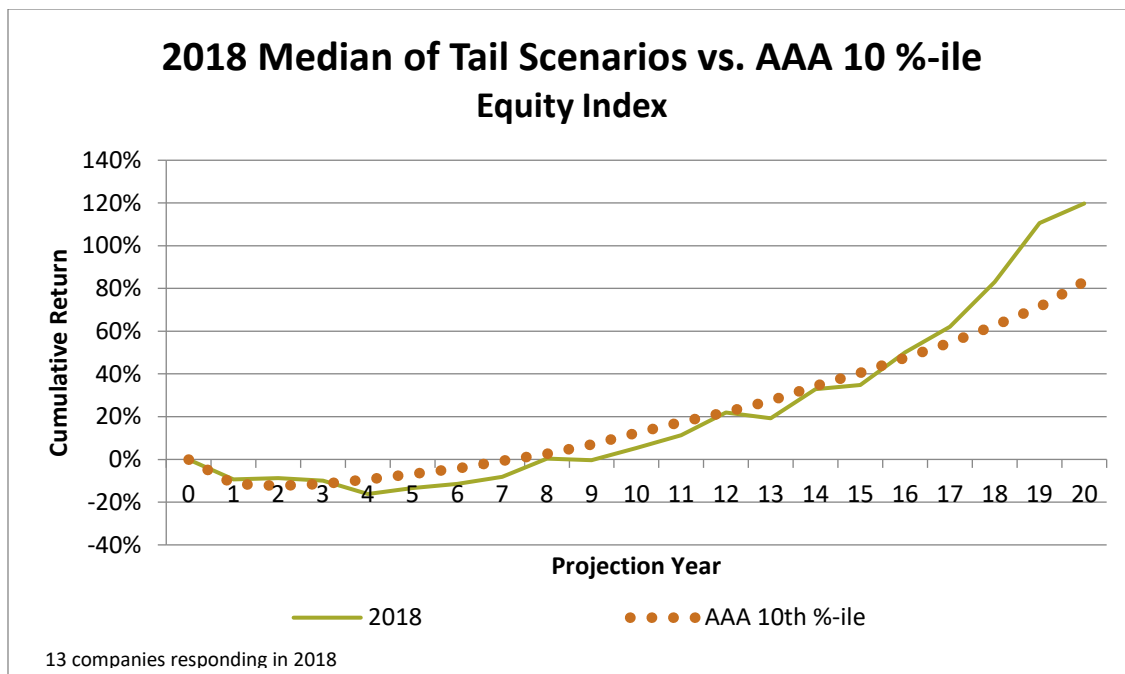


Figure 7

The median equity tail scenario response to the 2018 survey was in the middle compared to prior surveys (Figure 8). Responses may vary from year to year due to changes in products, assumptions or the participating respondents.

Note that the lines in Figure 7 and Figure 8 reference the median (of each survey year) and 10th percentile (of the AAA scenarios) with respect to the cumulative gains at a given duration, rather than representing a particular scenario over all durations.

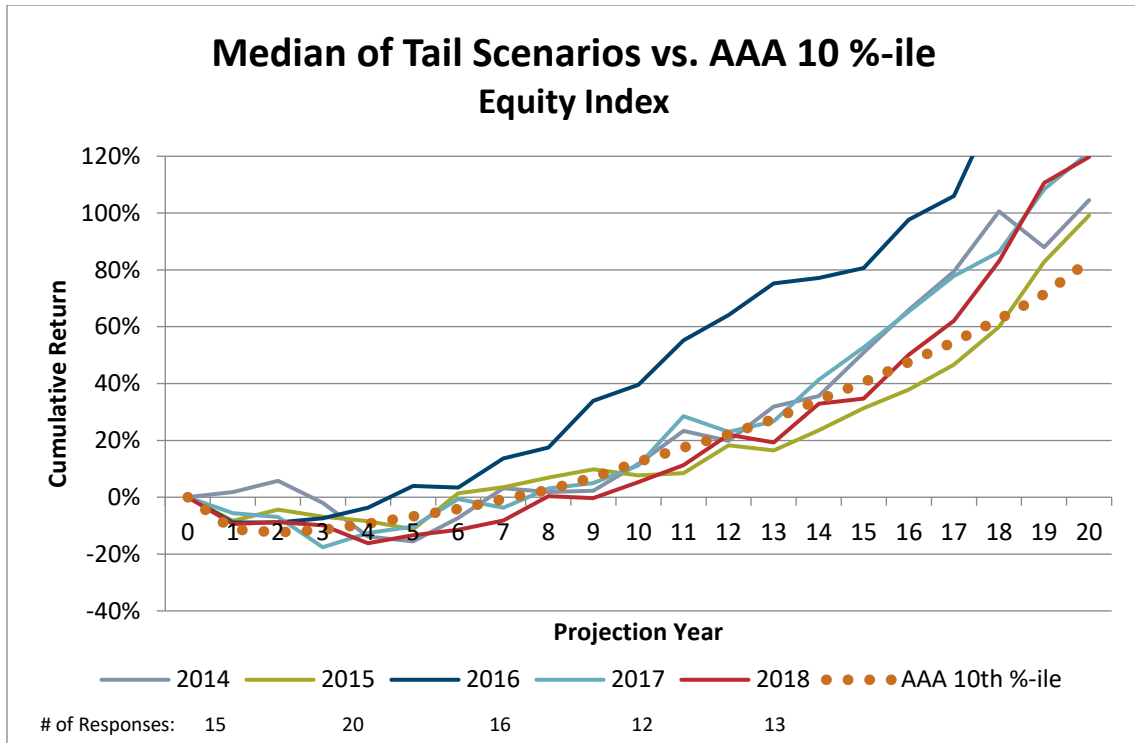


Figure 8

Dynamic Lapses

Companies were asked whether their dynamic lapse functions varied for each of five benefit types. GMDB and GLWB were cited most frequently although at least half of the responses also cited each of GMIB, GMWB, and GMAB. See Figure 9.

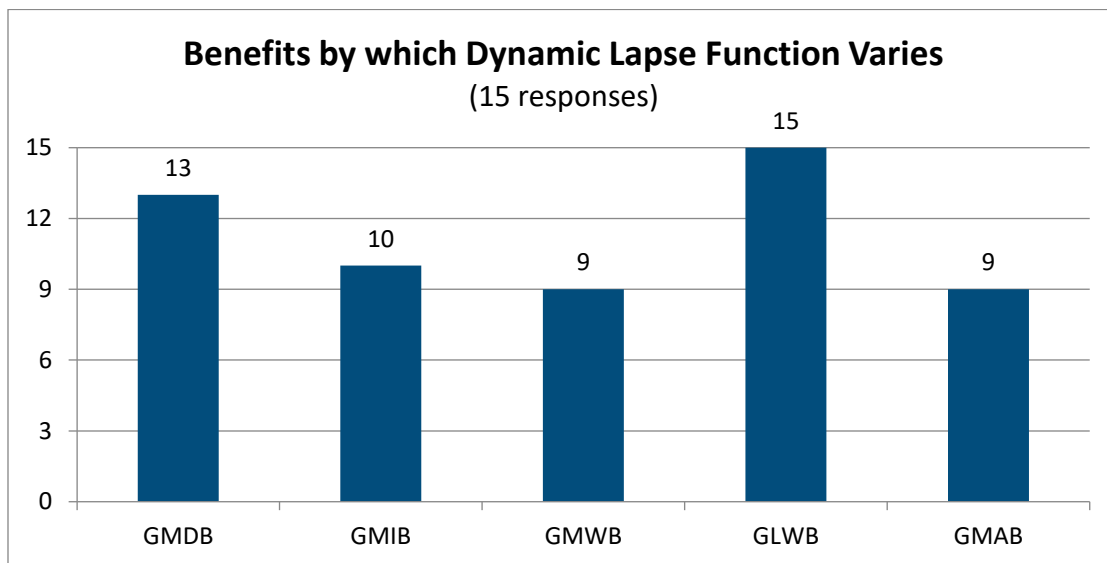


Figure 9

For each benefit type, companies were asked specific follow-up questions.

1. Is your formula one-sided or two-sided?
2. Is the floor lapse rate zero, a percentage of the base lapse rate, a non-zero constant, or other?
3. Is the dynamic aspect of your lapse function related to “in-the-moneyness”?
4. What factors influence the level of dynamic lapses for this benefit?

GMDB

For dynamic lapse functions related to death benefits, 83% of companies (10 of 12) use a one-sided dynamic formula, while the others use a two-sided formula.

Figure 10 shows the distribution of responses regarding the floor lapse rate. Of the 12 responses, 6 use a percent of the base lapse rate and 5 use a constant non-zero floor rate.

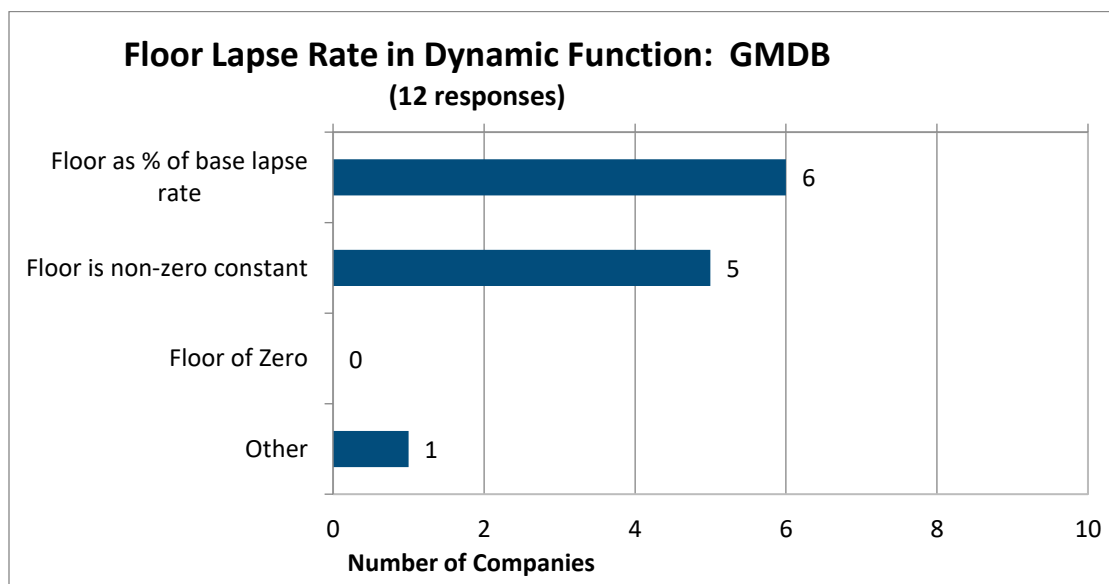


Figure 10

The “Other” response was described as either a non-zero floor or zero floor, depending on moneyness.

All 12 companies that responded to the follow up question cited in-the-moneyness as a factor that influences the dynamic lapse assumption.

A variety of factors were cited as influencing the GMDB dynamic lapse formulas, as seen in Figure 11. The “Other” responses were further described as varying by the base rate, taxpayer rider, or comparison of general account credited rate to market rates.

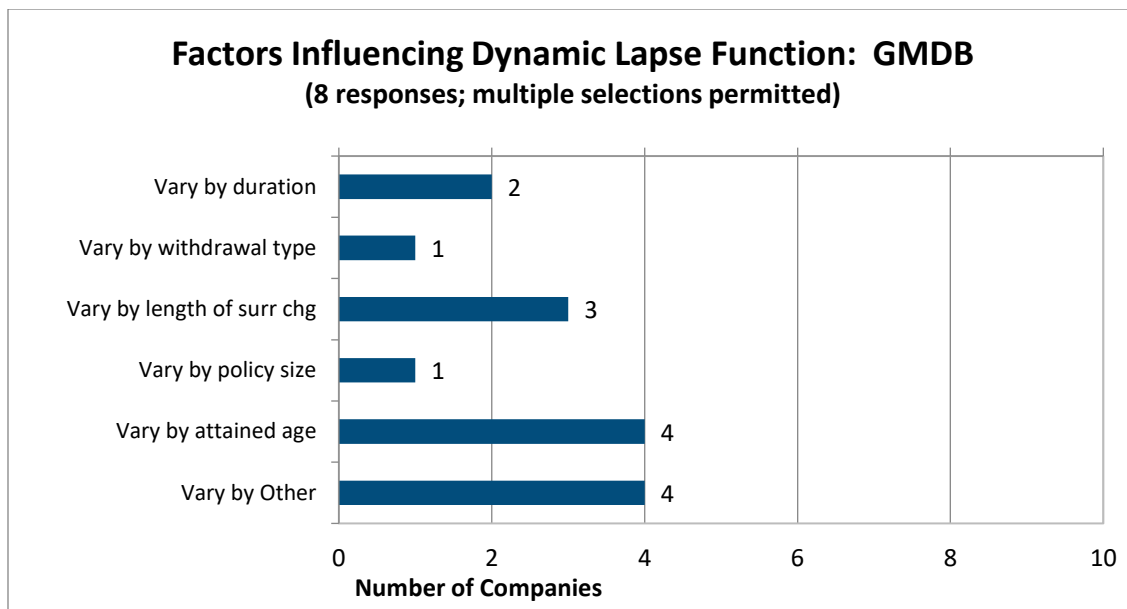


Figure 11

GMIB

For dynamic lapse functions related to guaranteed minimum income benefits, 78% of companies (7 of 9) use a one-sided dynamic formula, while the others use a two-sided formula.

Figure 12 shows the distribution of responses regarding the floor lapse rate. Of the 9 responses, 5 use a percent of the base lapse rate and 3 use a non-zero constant floor rate.

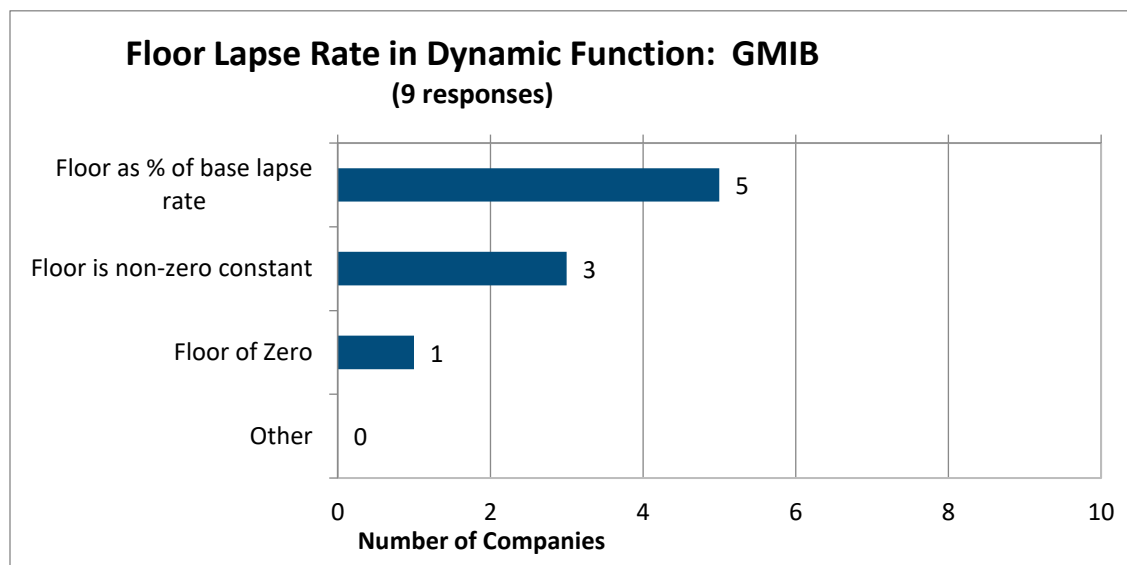


Figure 12

All 9 companies cited in-the-moneyness as a factor that influences the dynamic lapse assumption.

Multiple other factors are used to develop a dynamic function for GMIB's. The "other" responses were further described as varying by the base lapse rate and the interest rate environment.

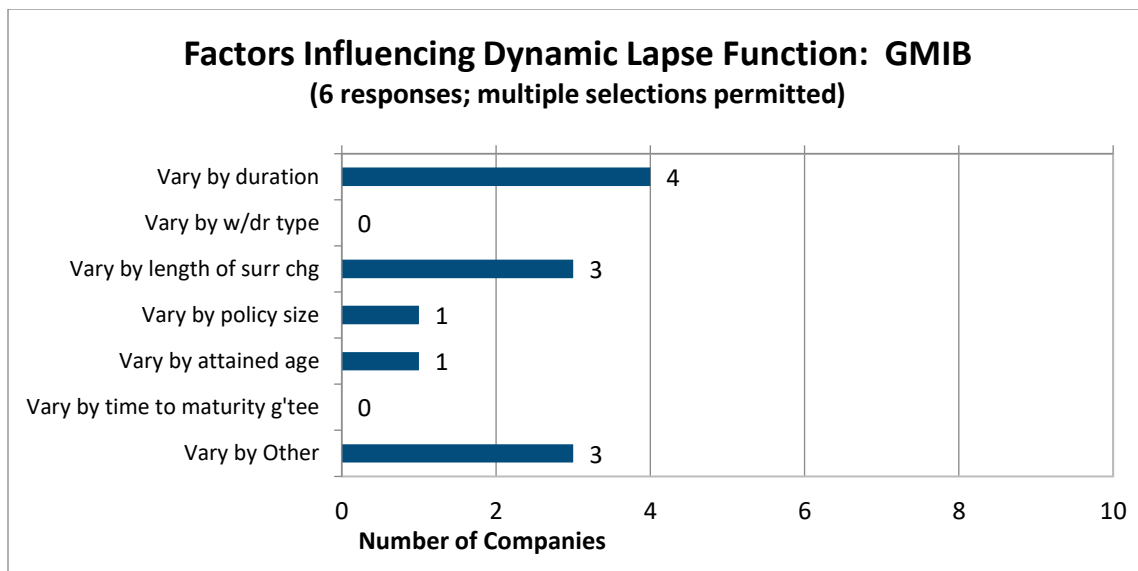


Figure 13

GMWB

For dynamic lapse functions related to guaranteed minimum withdrawal benefits, 50% of companies (4 of 8) use a one-sided dynamic formula, while the others use a two-sided formula.

Figure 14 shows the distribution of responses regarding the floor lapse rate. The two "other" responses further described their floor rate being either zero or a non-zero constant, depending on moneyness.

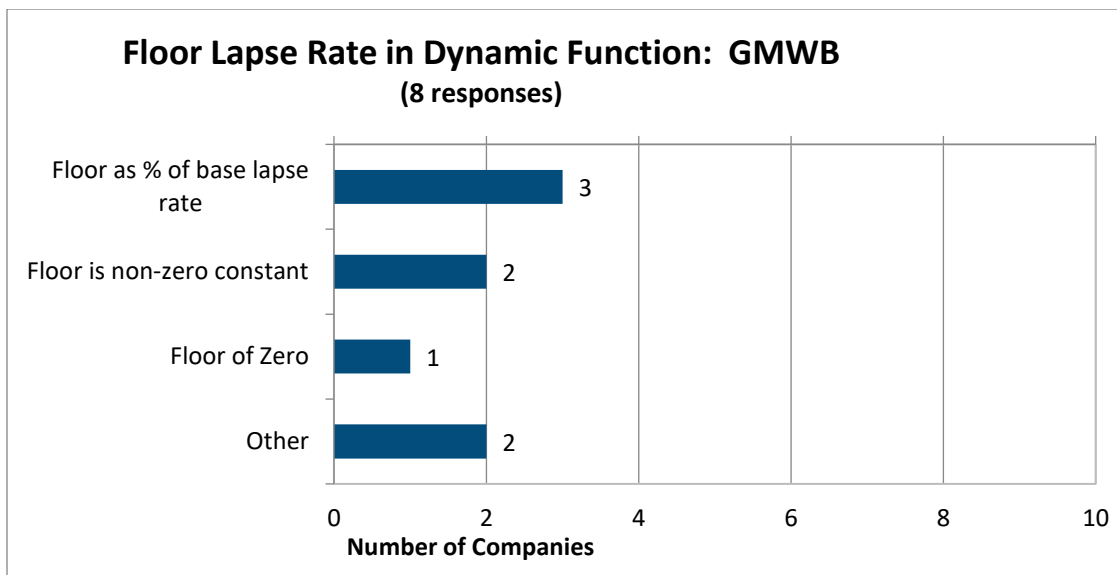


Figure 14

All 8 companies cited in-the-moneyness as a factor that influences the dynamic lapse assumption.

Multiple other factors are used to develop a dynamic function for GMWB’s. Varying by the length of surrender charge and by duration were cited more frequently than the other choices, as seen in Figure 15. The “other” responses included interest rate levels, the surrender charge period, the base lapse rate, and whether the contract holder is taking withdrawals.

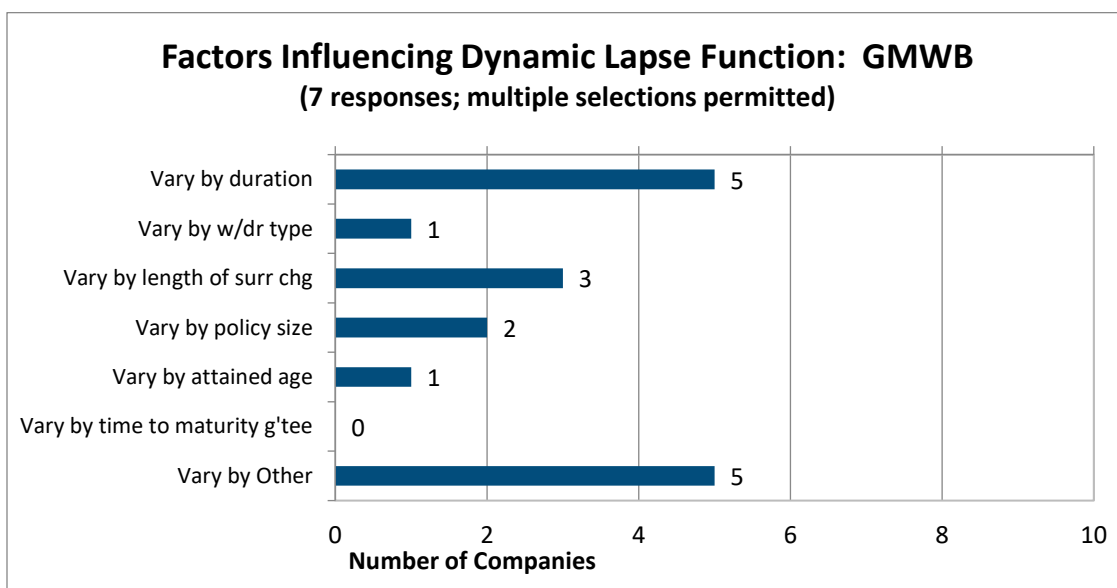


Figure 15

GLWB

For dynamic lapse functions related to guaranteed living withdrawal benefits, 71% of companies (10 of 14) use a one-sided dynamic formula.

Figure 16 shows the distribution of responses regarding the floor lapse rate. Of the 14 responses, 7 use a percent of the base lapse rate and 4 use a non-zero constant floor rate. The “other” two responses further described their floor rate as either a zero or a non-zero constant depending on either the surrender charge or moneyiness.

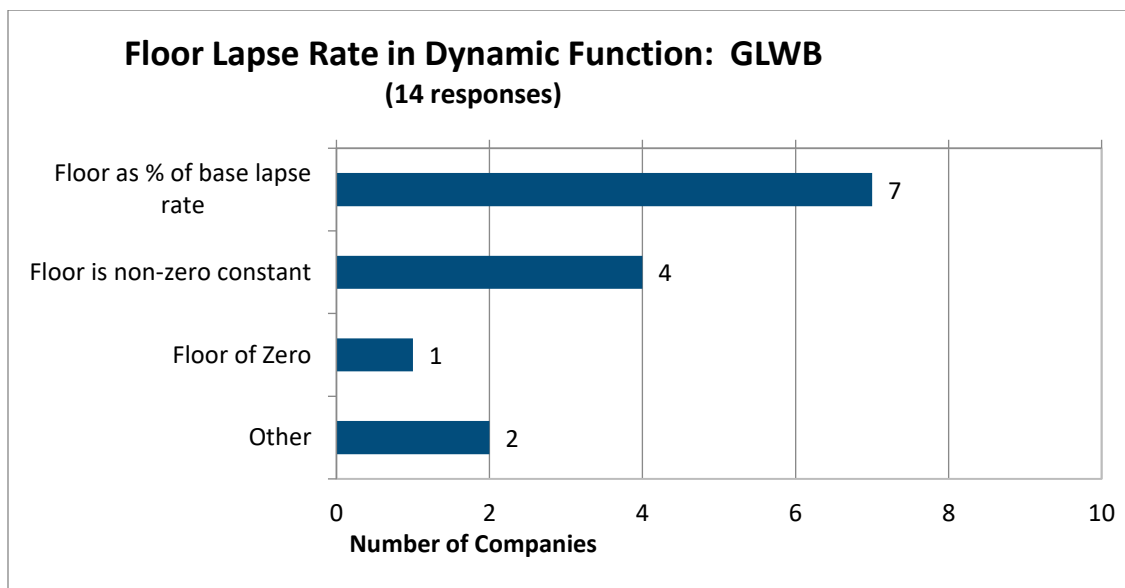


Figure 16

All 14 companies cited in-the-moneyness as a factor that influences the dynamic lapse assumption.

The length of surrender charge and duration were the most frequently cited factors that influenced GLWB dynamic lapse formulas, although a variety of factors were selected by at least one company, as seen in Figure 17. “Other” responses included base lapse rate, whether the policyholder was taking withdrawals, surrender charge period, and interest sensitivity.

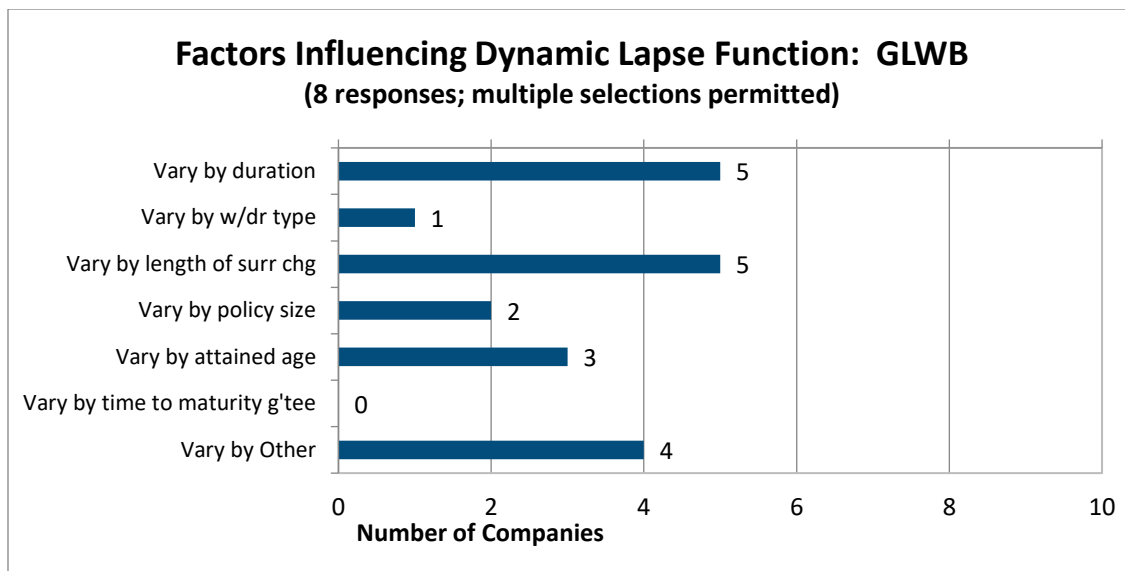


Figure 17

GMAB

For dynamic lapse functions related to guaranteed accumulation benefits, 78% of companies (7 of 9) use a one-sided dynamic formula, while the others use a two-sided formula.

Figure 18 shows the distribution of responses regarding the floor lapse rate. Of the 9 responses, 5 use a percent of the base lapse rate. The “other” response was further described as other zero or non-zero depending on moneyiness.

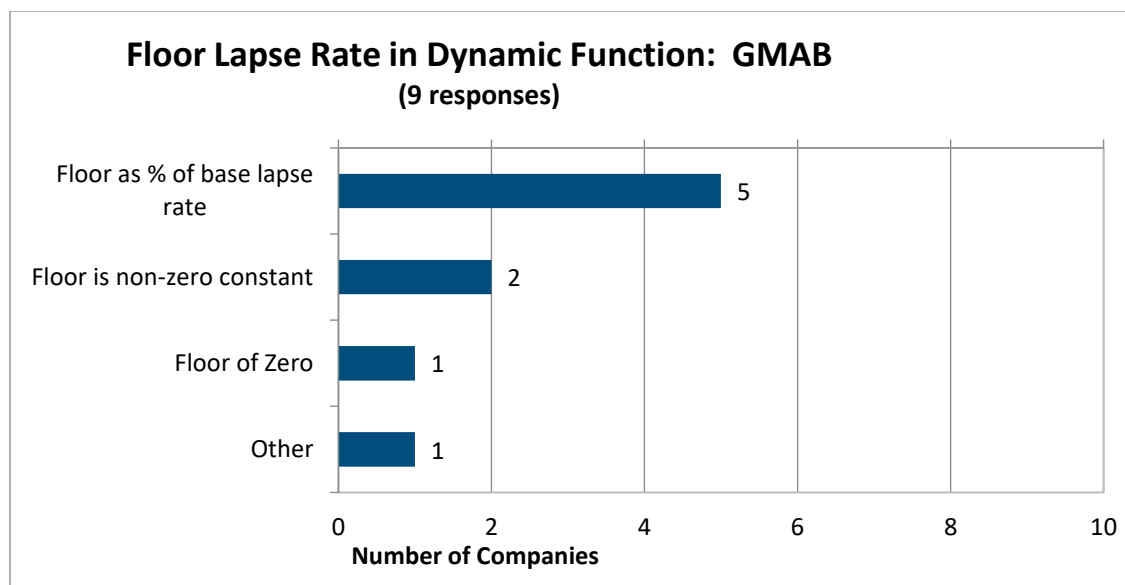


Figure 18

All 9 companies cited in-the-moneyness as a factor that influences the dynamic lapse assumption.

Multiple other factors are used to develop a dynamic function for GMAB's. The most common response was to vary by time to maturity guarantee which was cited 3 times, as seen in Figure 19. The "other" responses were further described as a function of the base lapse rate or year of issue.

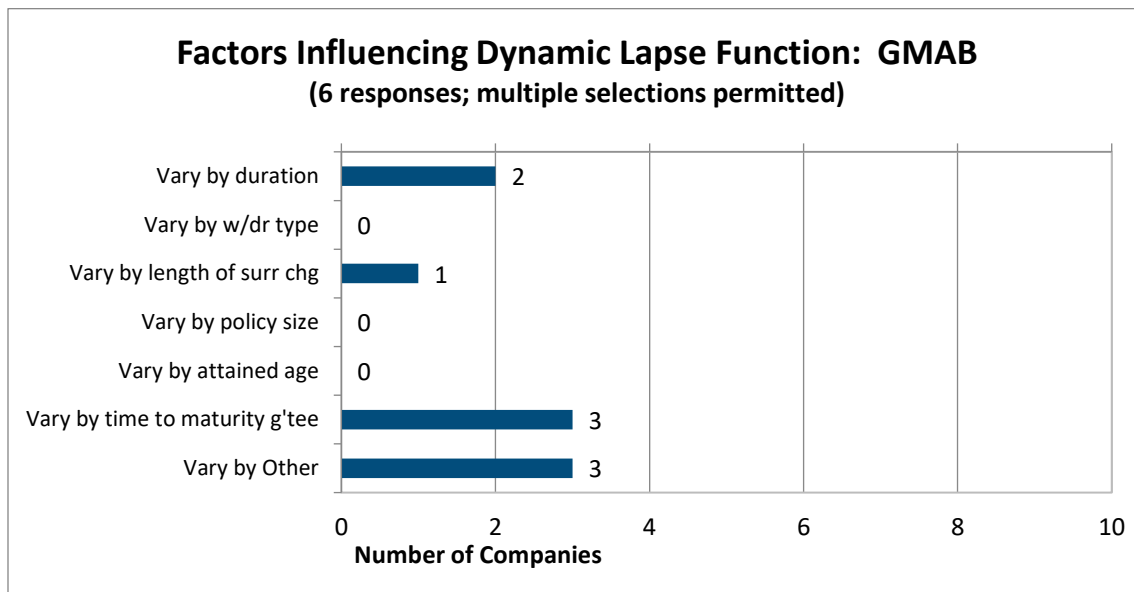


Figure 19

Base Lapse Assumptions – Newly Issued Policy

Insurers were asked to provide their base lapse assumption (non-dynamic) for a newly issued policy for each of the five benefit types. The majority of responses indicated that year 8 was the first year without surrender charge. Other responses indicated that years 7 and 11 were the first without surrender charge (one response each).

Figure 20 compares the median response for each of the benefit types. The pattern of base lapse rates is very similar across benefit types, especially in the first 12 years except that GLWB has a somewhat lower median base lapse rate.

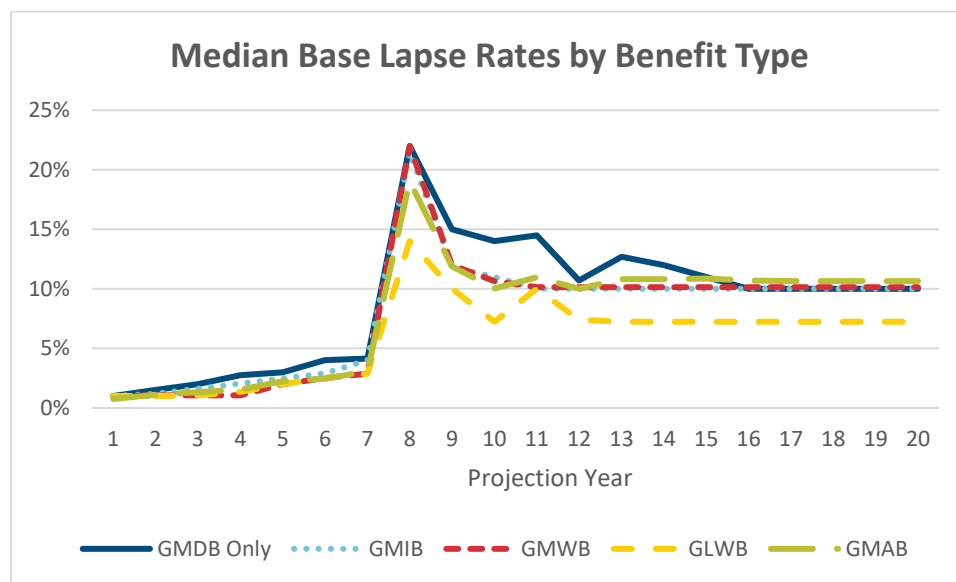


Figure 20

Figure 21 through Figure 25 show each insurer’s response for base lapses for each benefit type to show the distribution of individual company responses. Most but not all companies indicated an increase in base lapse rates after surrender charge expiration.

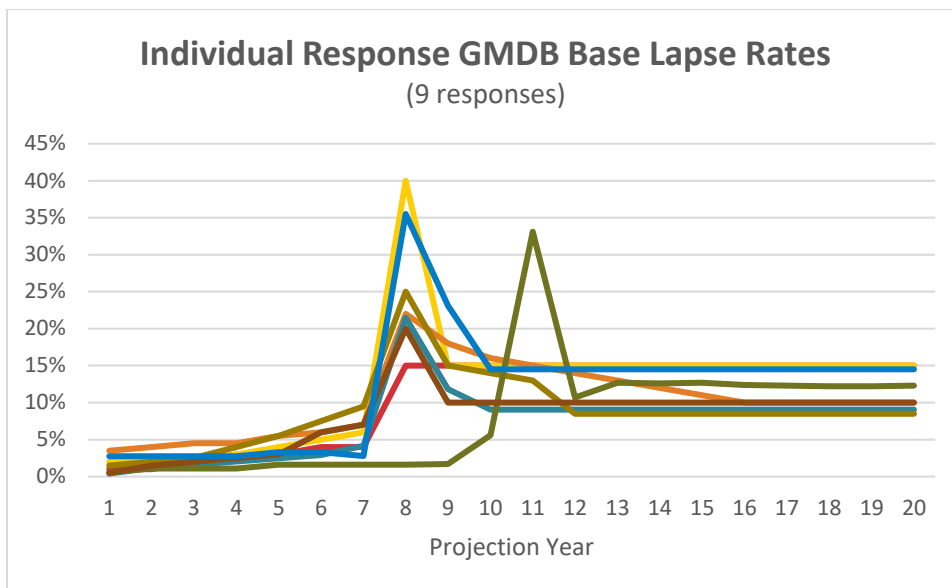


Figure 21

Individual Response GMIB Base Lapse Rates

Individual Responses Not Shown Since
There Were Fewer Than 5 Responses.

Figure 22

Individual Response GMWB Base Lapse Rates

Individual Responses Not Shown Since
There Were Fewer Than 5 Responses.

Figure 23

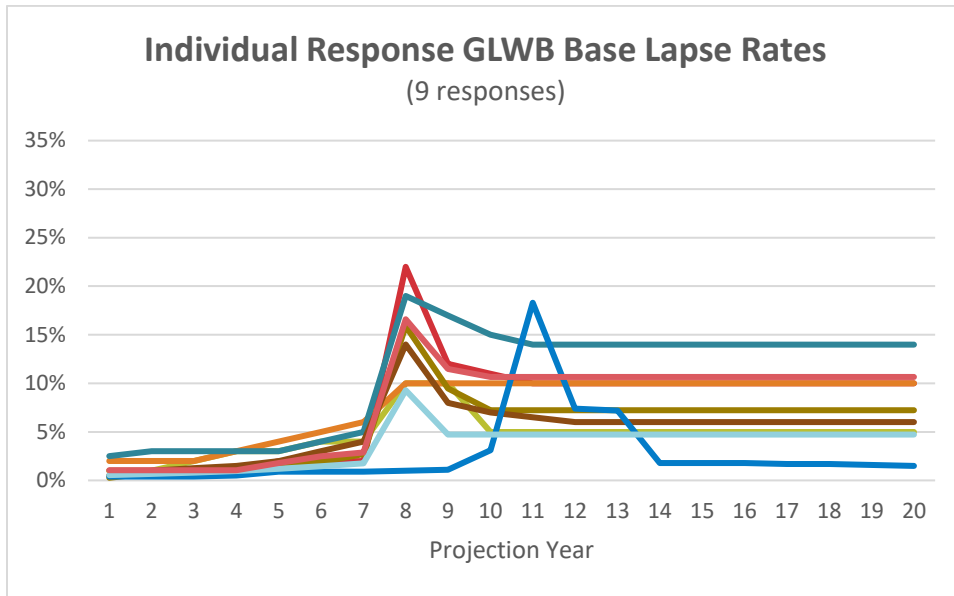


Figure 24

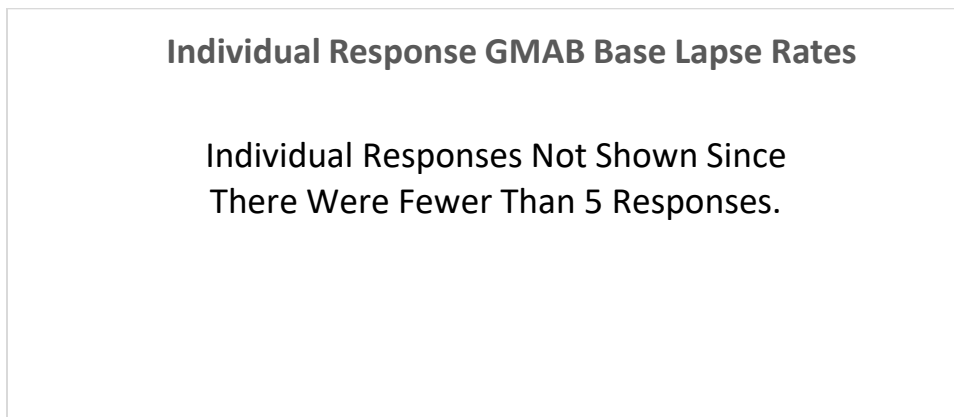


Figure 25

Lapses in the Tail – Newly Issued Policy

Insurers were asked to list the dynamic lapse rate assumption assuming the tail scenario for each of the five benefit types. As described in the

Tail **Scenario** section, the tail scenario is defined as the scenario that gives the first negative result of the insurer’s modified 90 CTE calculation when rank ordered.

Figure 26 compares the median tail lapse response for each of the benefit types. GLWB median lapse rates in the tail are significantly lower than the median lapse rate of other benefit types in the tail.

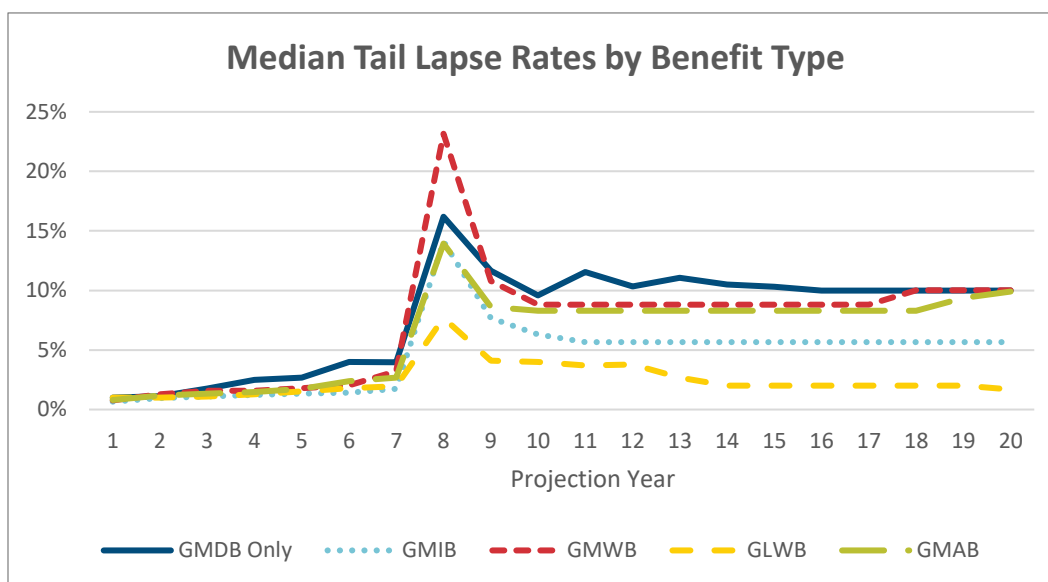


Figure 26

Figure 27 through Figure 31 show each insurer’s response for tail lapses for each benefit type, which demonstrates the distribution of individual company responses. Most but not all companies indicated an increase in base lapse rates after surrender charge expiration.

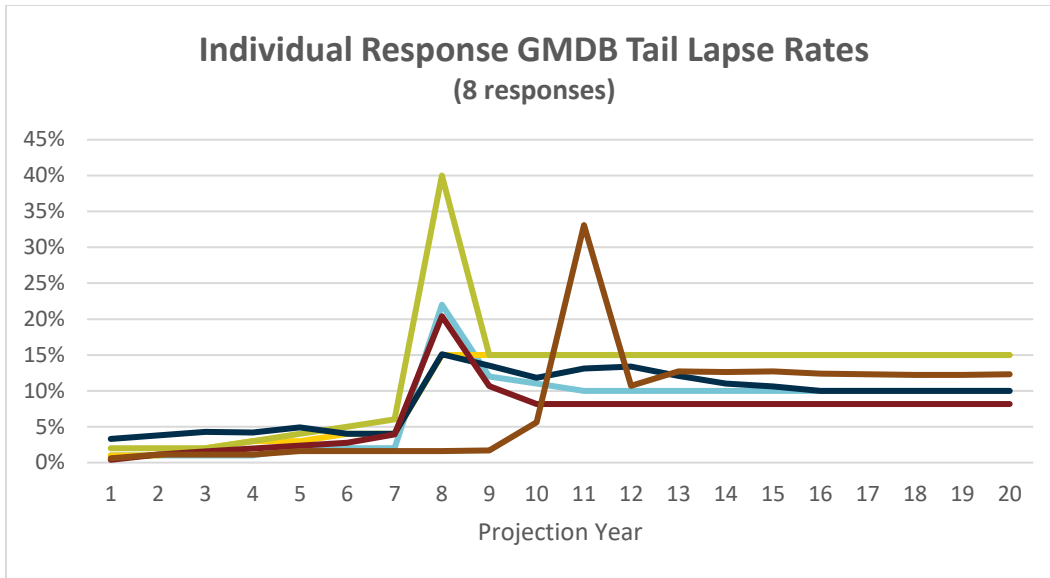


Figure 27

Individual Response GMIB Tail Lapse Rates

Individual Responses Not Shown Since
There Were Fewer Than 5 Responses.

Figure 28

Individual Response GMWB Tail Lapse Rates

Individual Responses Not Shown Since
There Were Fewer Than 5 Responses.

Figure 29

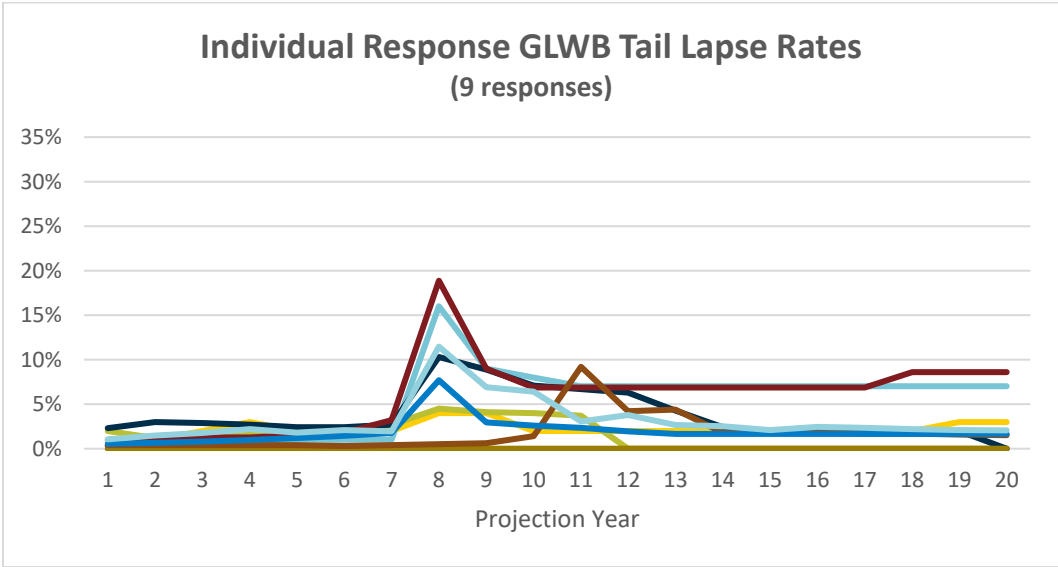


Figure 30

Individual Response GMAB Tail Lapse Rates

Individual Responses Not Shown Since
There Were Fewer Than 5 Responses.

Figure 31

Base Lapse Assumptions – Aggregate Block

In contrast to the individual policy view starting at the issue date, insurers were asked to list their aggregate non-dynamic lapse assumption in a normal (non-tail) scenario for each of the five benefit types for business in force.

Figure 32 compares the median lapse rate response for each of the benefit types. GMWB and GLWB are noticeably lower than the other benefit types.

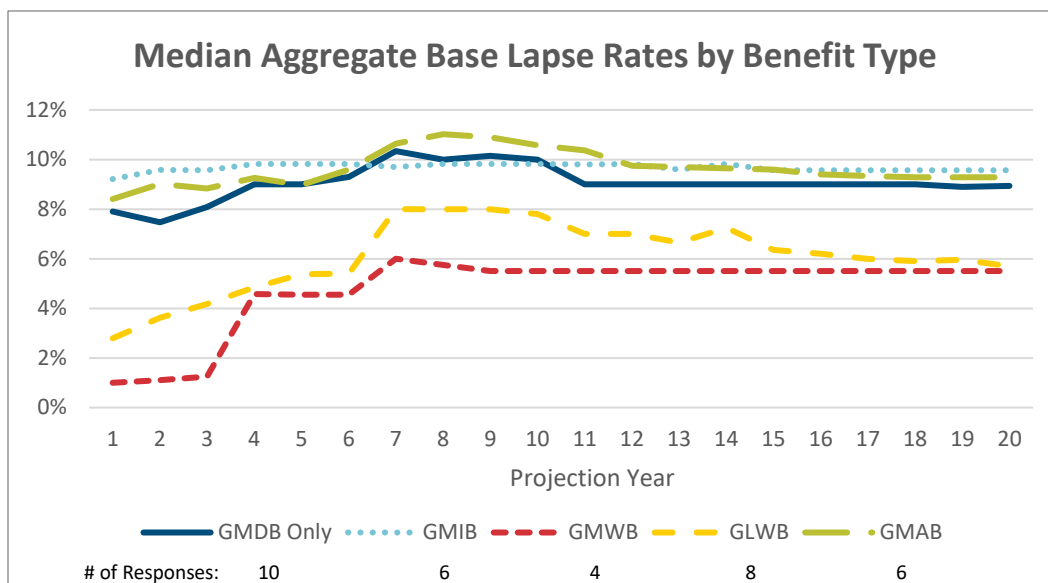


Figure 32

Figure 33 through Figure 37 show each insurer’s response for aggregate normal (non-tail) lapse rates for each benefit type.

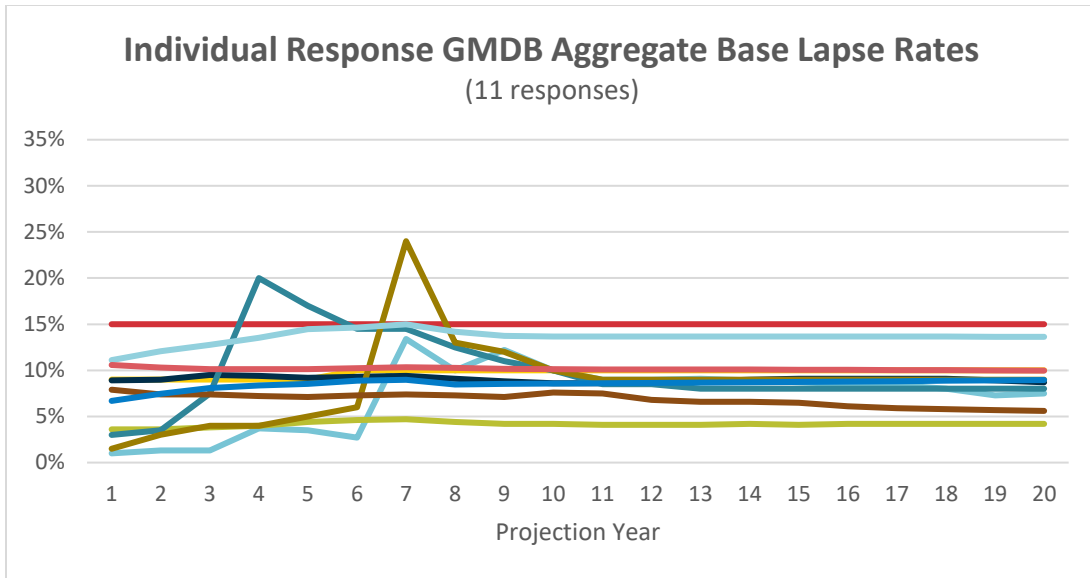


Figure 33

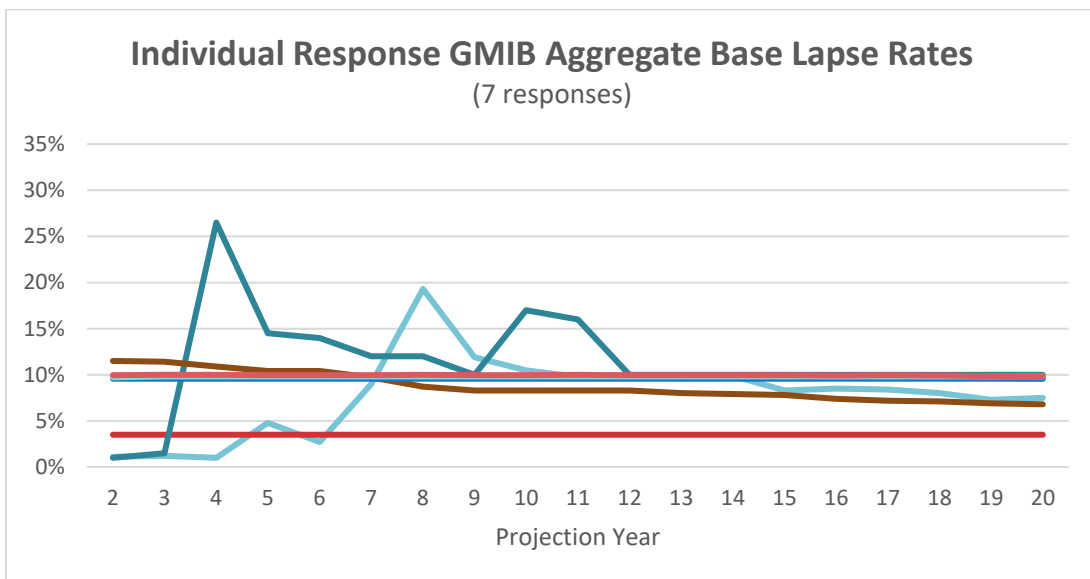


Figure 34

Individual Response GMWB Aggregate Base Lapse Rates

Individual Responses Not Shown Since There
Were Fewer Than 5 Responses.

Figure 35

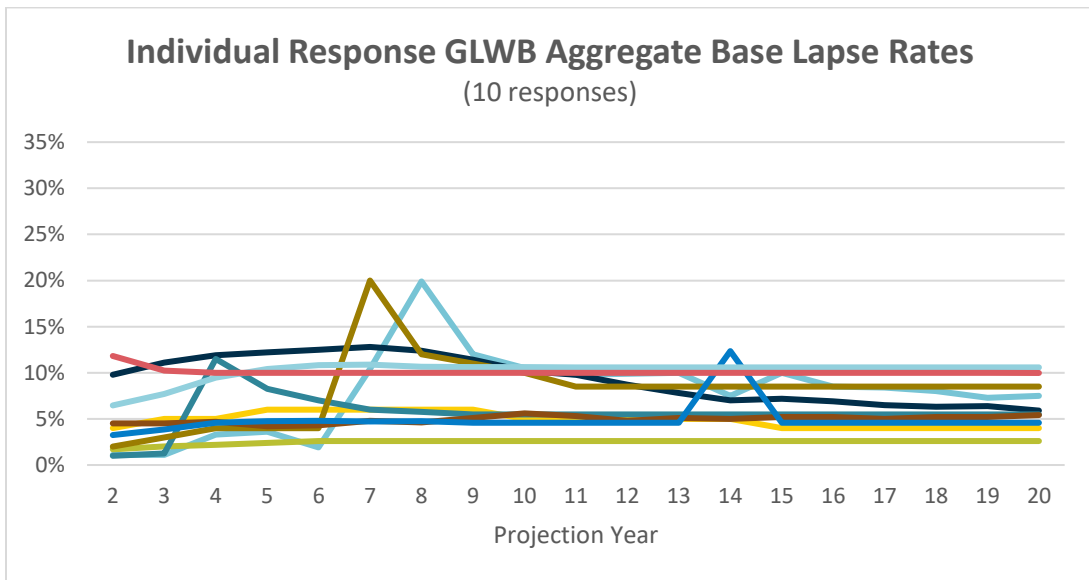


Figure 36

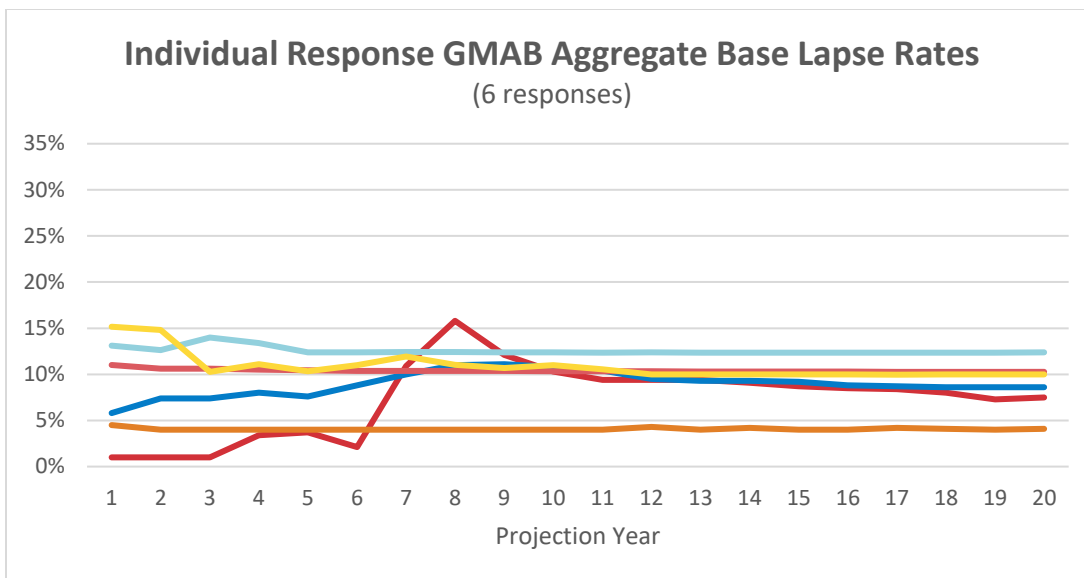


Figure 37

Lapses in the Tail – Aggregate Block

In contrast to the individual policy view starting at the issue date, insurers were asked to list their aggregate lapse assumption in the tail scenario for each of the five benefit types for business in force.

Figure 38 compares the median lapse rate response for each of the benefit types. Again GLWB is noticeably lower than the other benefit types.

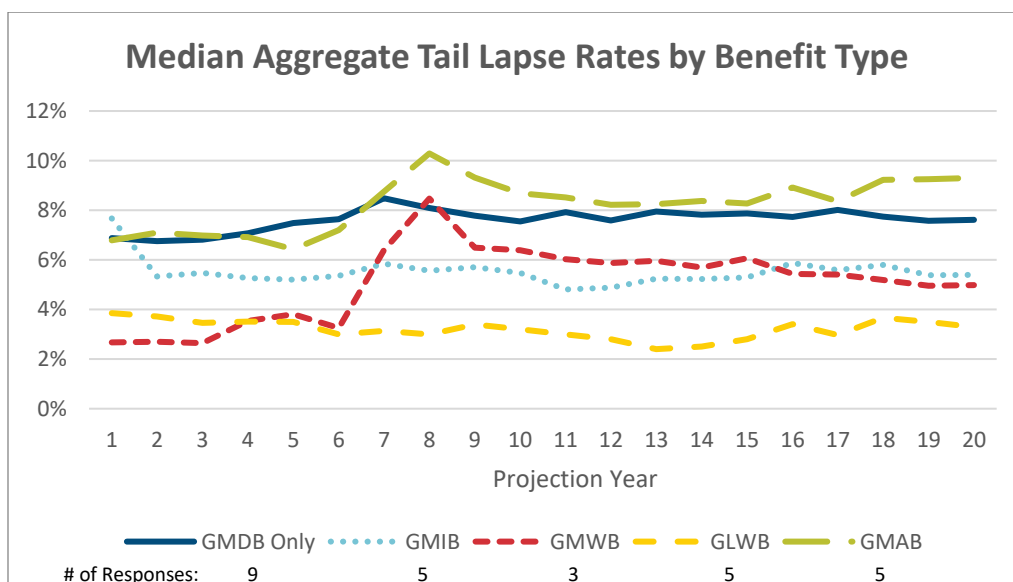


Figure 38

Figure 39 through Figure 43 show each insurer’s response for aggregate tail lapse rates for each benefit type.

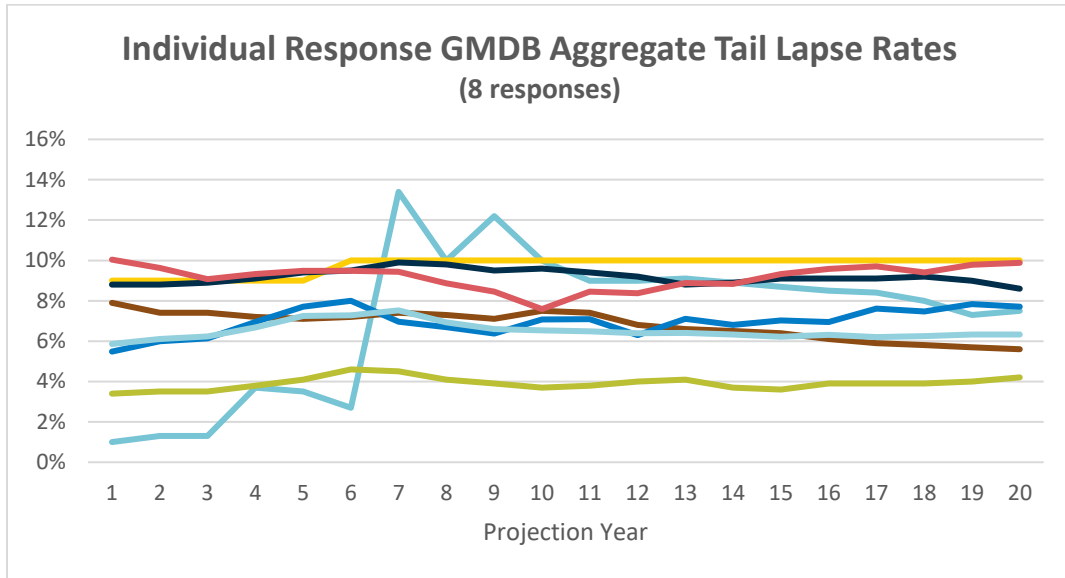


Figure 39

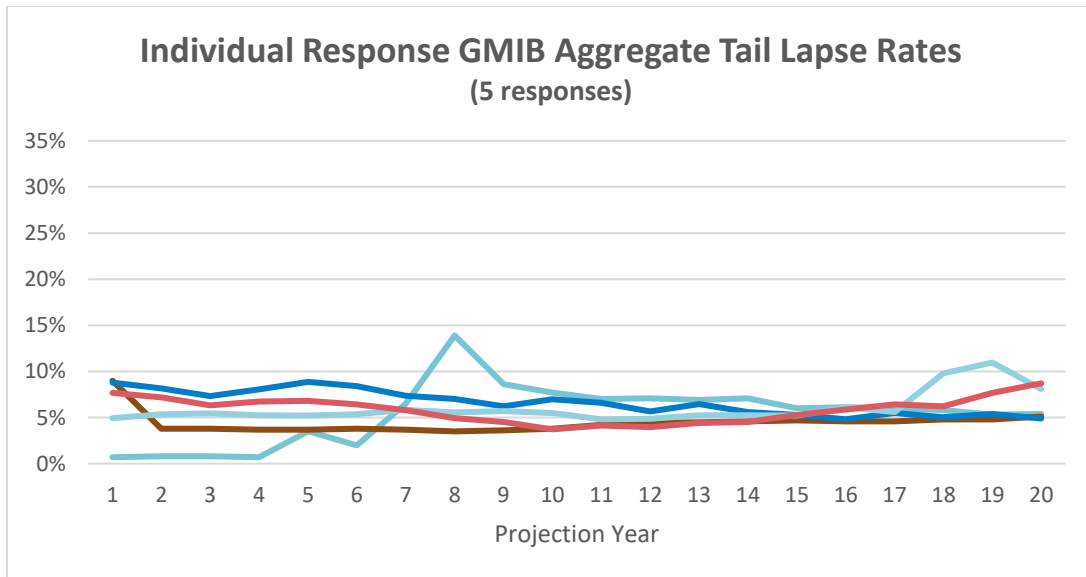


Figure 40

Individual Response GMWB Aggregate Tail Lapse Rates

Individual Responses Not Shown Since There
Were Fewer Than 5 Responses.

Figure 41

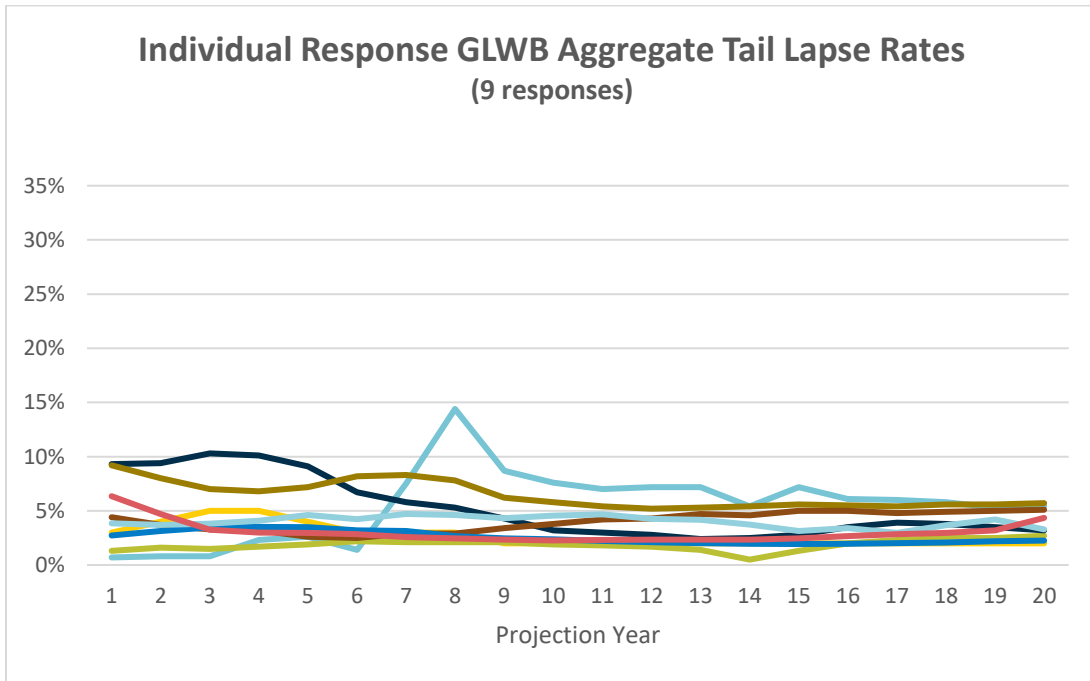


Figure 42

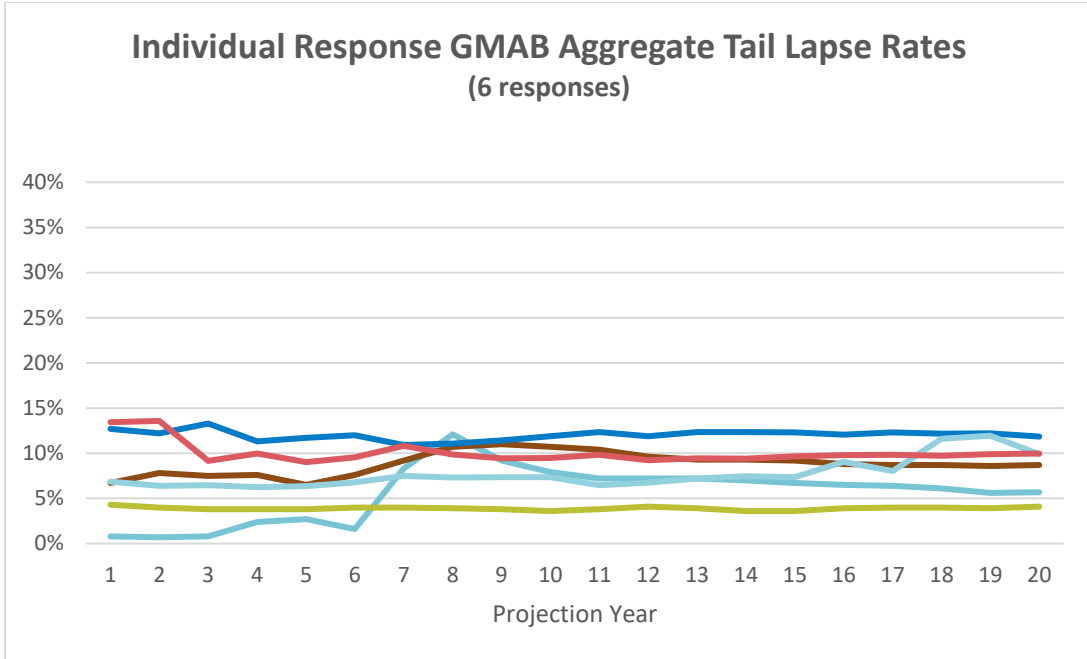


Figure 43

The next set of charts (Figure 44 through Figure 48) compare the median tail scenario lapse rate to the median normal scenario lapse rate for each benefit type for the aggregate block. The lapse rate in the tail is generally lower as guarantees are in-the-money, but the degree varies by benefit type. For GMWB the tail lapse rates are very similar to base lapse rates. In contrast, GMIB and GLWB lapses in the tail scenario are significantly lower than in the base scenario. GMAB and GMDB lapses in the tail scenario are somewhat lower than in the base, but not as dramatically as GMIB and GLWB.

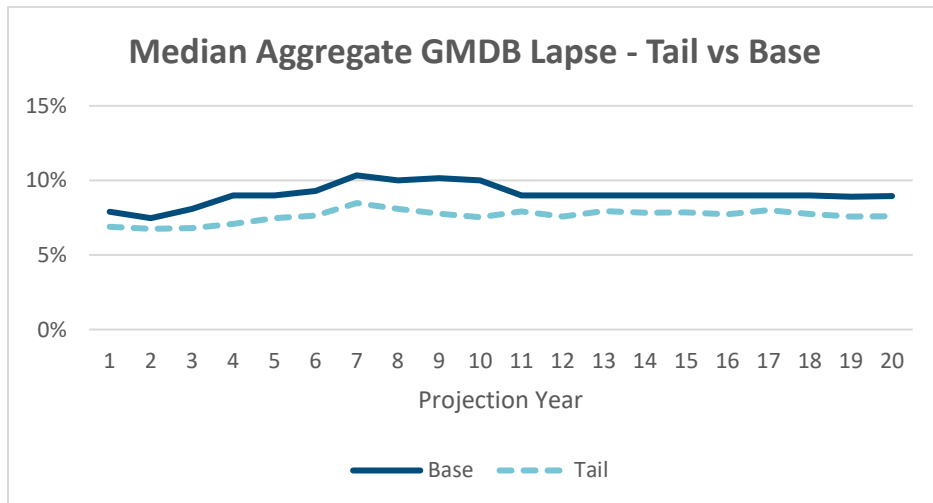


Figure 44

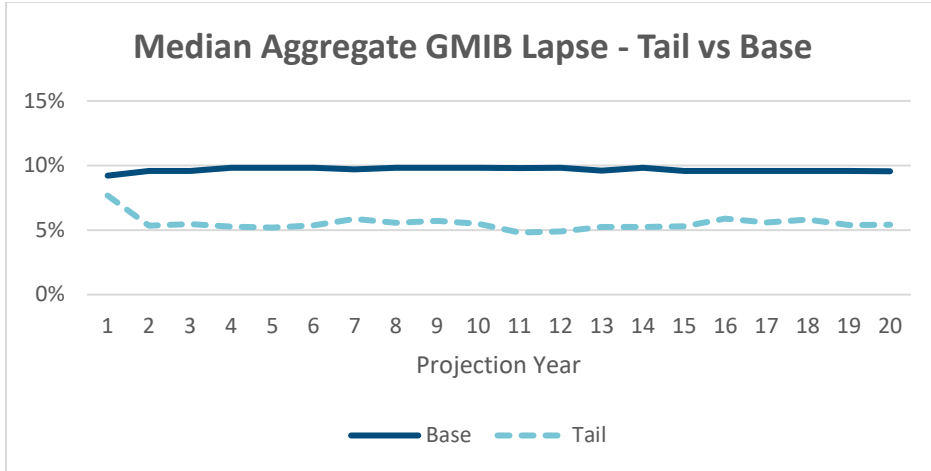


Figure 45

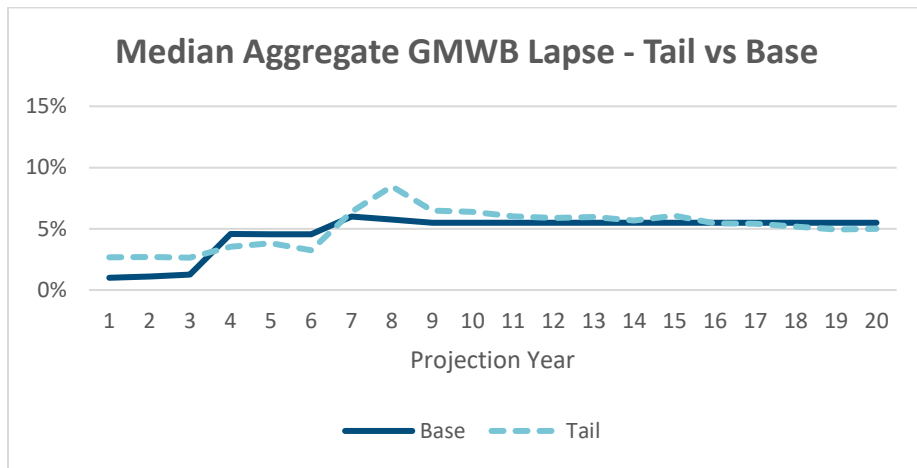


Figure 46

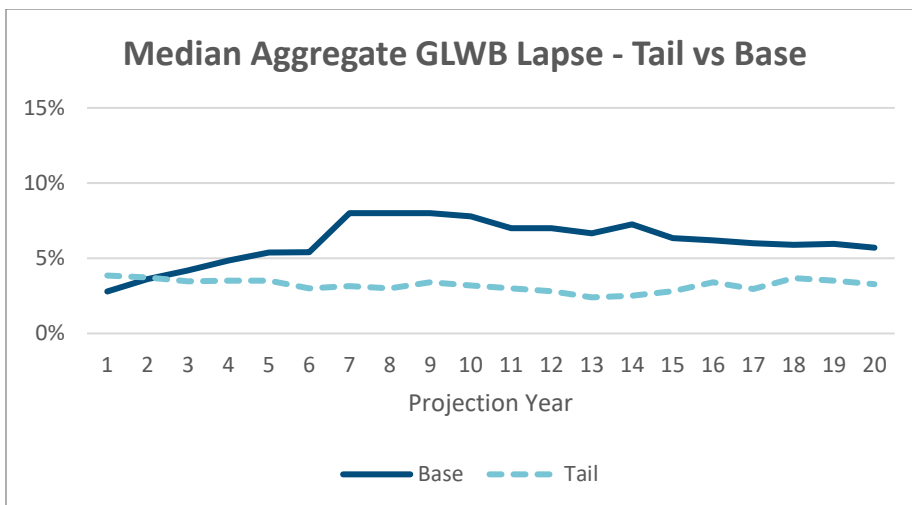


Figure 47

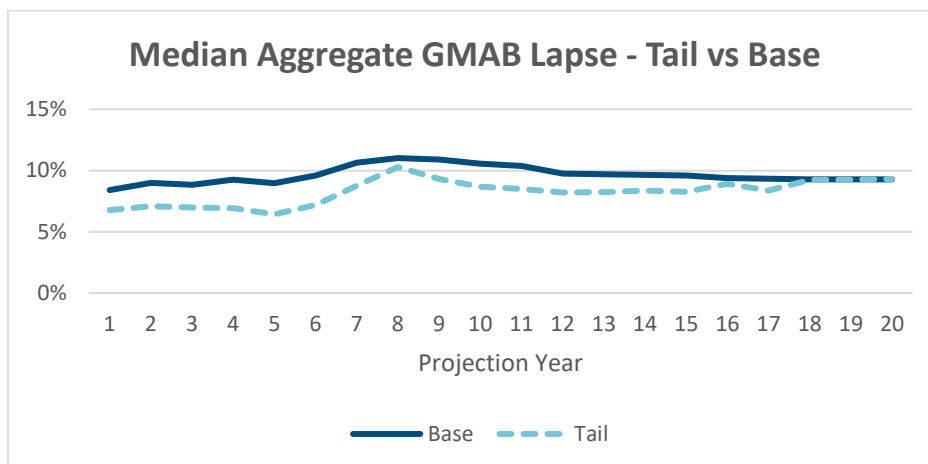


Figure 48

GMIB Annuitization Utilization Rates in the Tail

An open-ended question regarding utilization rates for GMIB annuitization rates asked whether or how the utilization rates assumed in the tail scenario differed from those in a normal scenario.

Thirteen (13) companies responded to this question. In general, respondents agreed that there is a strong correlation between utilization rates and the degree of in-the-moneyness, and much less so for other parameters given the same age group. Utilization rates increase as the policies become more in-the-money. Two companies also cited a relationship between utilization rates and policy duration.

GMWB Withdrawal Utilization Rates in the Tail

An open-ended question regarding utilization rates for GMWB withdrawal rates asked whether or how the utilization rates assumed in the tail scenario differed from those in a normal scenario.

Twelve (12) companies responded to this question and eight (8) had material blocks of GMWB policies. For most of those companies, utilization rate function and parameters used in the tail scenario are substantially the same as those used in the base scenario.

For a given age group, two companies also cited duration and two also cited tax qualified status regarding parameters that could influence GMWB utilization rates.

GLWB Withdrawal Utilization Rates in the Tail

An open-ended question regarding utilization rates for GLWB withdrawal rates asked whether or how the utilization rates assumed in the tail scenario differed from those in a normal scenario.

Fourteen (14) companies responded to this question. Those fourteen companies generally agreed that the utilization rates used in the tail scenario are the same as in the base scenario. Further, the utilization rates are typically defined by policy terms and do not vary by moneyness.

For a given age cohort, four companies cited any parameters by which GLWB utilization rates would vary. Those parameters included moneyness, duration, tax qualified status, and death benefit type.

Income and Withdrawal Utilization Rates

A recently added question explores the complexity of assumptions related to income and partial withdrawal utilization rates. Companies were prompted to select all factors that apply and there are a wide number of factors being used that influence utilization rates as summarized in Figure 49. Duration was the most commonly identified factor, whereas in 2017 attained age was the most common. The “Other” responses were generally described as the type of benefit or related features.

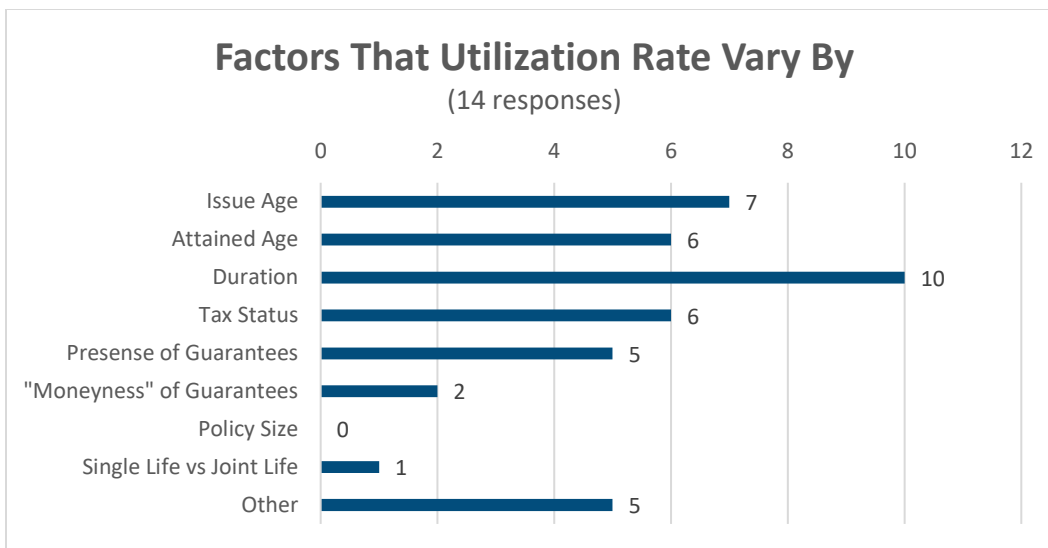


Figure 49

Tax Qualified Status

To further explore the impact of tax qualified status on the utilization assumption for GMIB, GMWB, and GLWB, an additional question was added to the survey in 2017 for those companies that did not cite tax qualified status as a driver of utilization rates.

Twelve (12) companies responded and 9 of the 12 (75%) indicated that utilization rate assumptions are implicitly aggregate assumptions across tax-qualified and non-qualified business for both the base case and tail scenarios. This compares to 9 of the 11 (82%) from 2017.

Other responses included a company that uses an explicit weighted assumption for tax qualified status and two companies that indicated that their experience does not show tax qualified status to have a significant impact on GMIB withdrawals.

Lapses by Distribution Channel

Insurers were asked several questions about their distribution channels. 77% of responses (10 of 13) said that their products were sold through multiple distribution channels.

Of the 10 that use multiple distribution channels, Figure 50 shows the distribution of channels used.

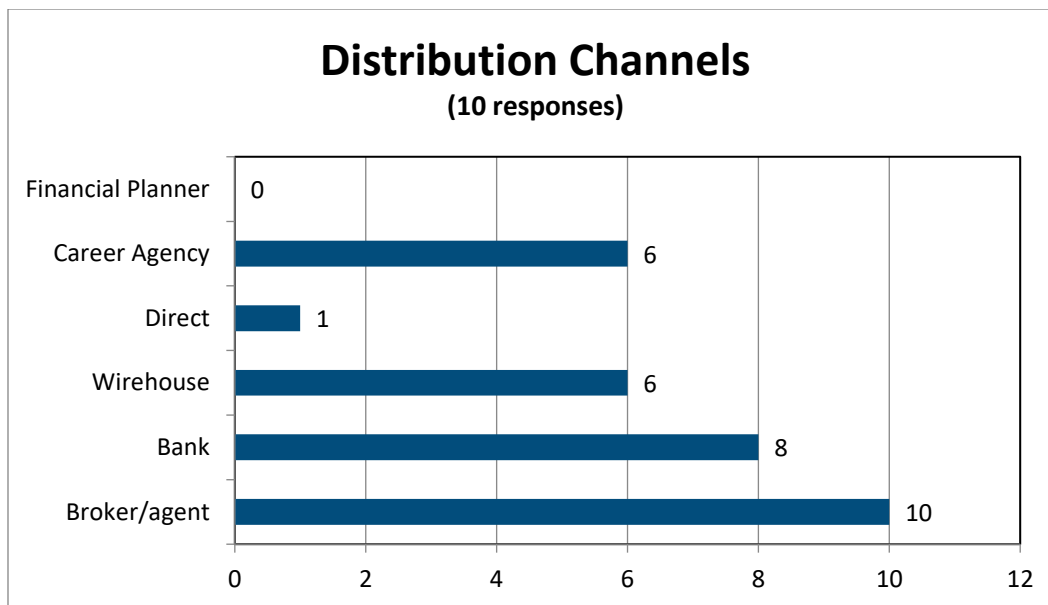


Figure 50

30% of respondents (3 of 10) measure lapse experience by distribution channel. This is a somewhat lower positive response rate compared to past years, although the 2016 survey also showed a significantly lower positive response rate.

20% (2 of 10) indicated that they vary lapse assumptions by distribution channel which is a similar rate as in past surveys. One of these two companies indicated that their direct business had different lapse rates. The other stated that they noticed different lapse rates in their third-party financial advisor distribution.

Source of Assumptions

Insurers were asked to provide the sources they used for their expected lapse assumptions and the frequency of lapse studies performed in the company. “Company experience studies” continue to be the most popular source of base case assumptions (see Figure 51). There has been a trend of increasing responses to “Best Estimate” in recent years, and a decreasing trend in the number of companies who indicated the use of industry experience.

Collection, analysis, and publication of industry experience would be valuable as a supplement to any company’s specific experience. Companies of various sizes can be challenged by the statistical credibility available from only their own data, especially in the rare occurrence of a “tail” situation. Aggregation of data makes it easier to see trends otherwise obscured by statistical fluctuations. As with any aggregate industry study, each company needs to be aware of any inherent reasons why its own results may legitimately vary from that of the aggregate industry.

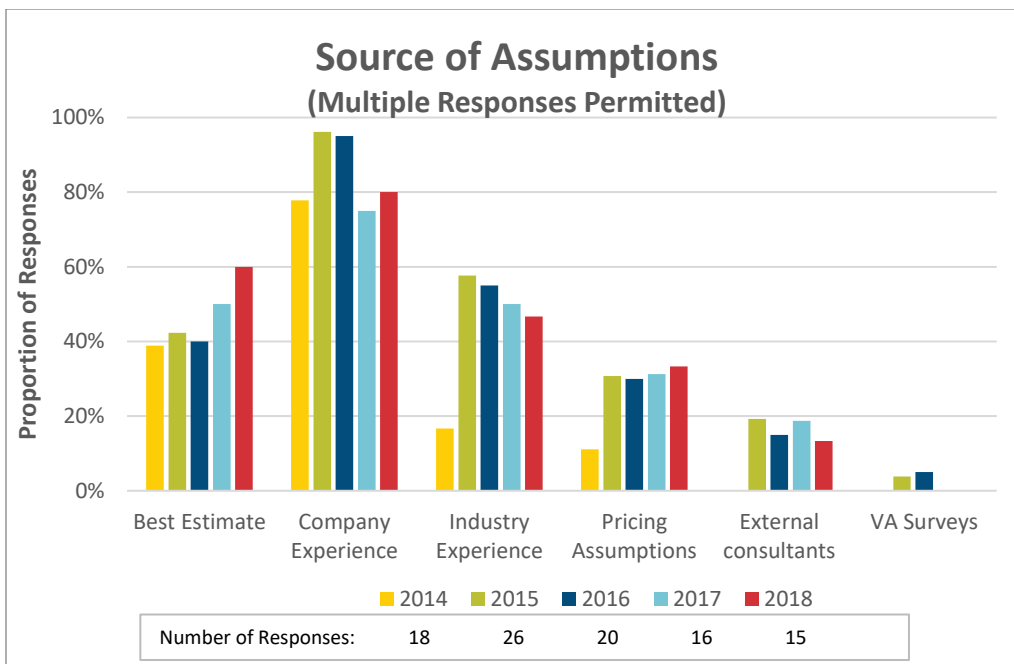


Figure 51

The most common frequency to perform experience studies is “Annually” (see Figure 52). In 2018, 67% (10 of 15) of respondents reported performing annual experience studies and 87% (13 of 15) perform experience studies on an annual or more frequent basis.

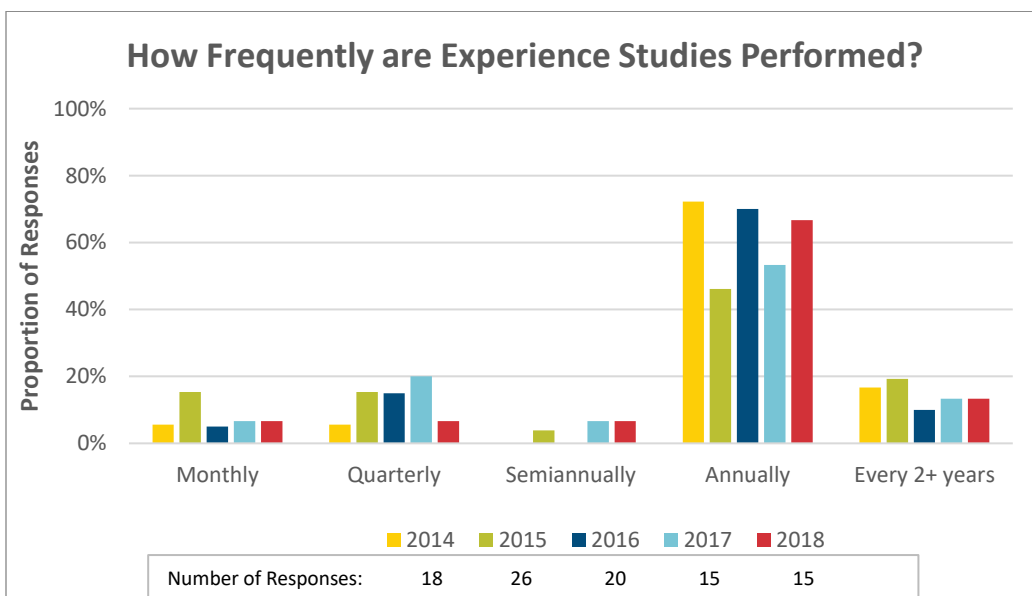


Figure 52

Insurers were asked how many years of data were used in their latest lapse study (Figure 53). Results were similar to past surveys, although a significantly higher percentage of companies indicating that they use 10+ years of experience as seen in Figure 53.

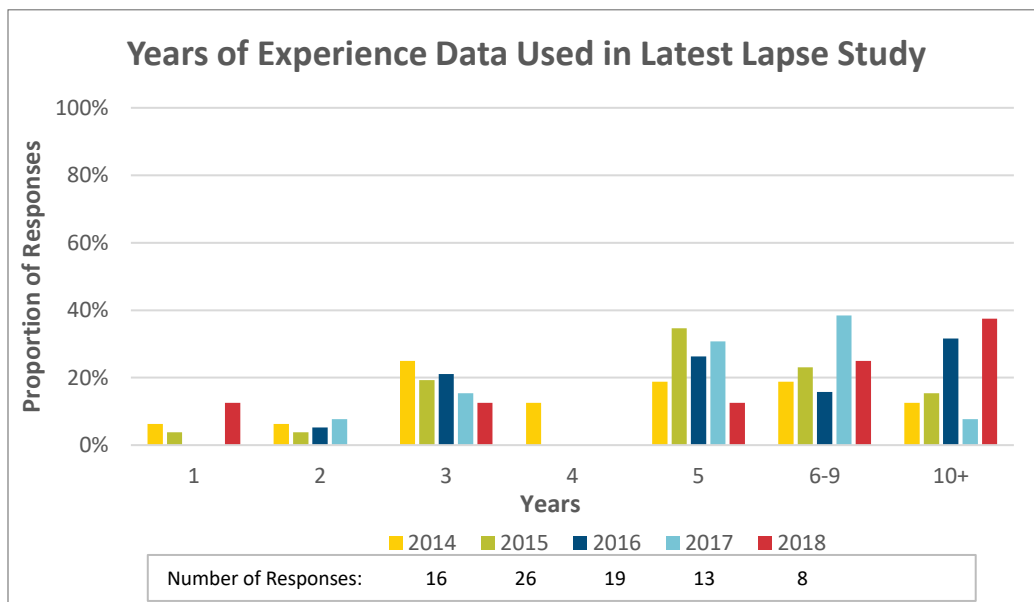


Figure 53

Companies were also asked about the sources of assumptions for “in the tail” lapsation with responses summarized in Figure 54. Responses were generally similar to those from the last couple of years.

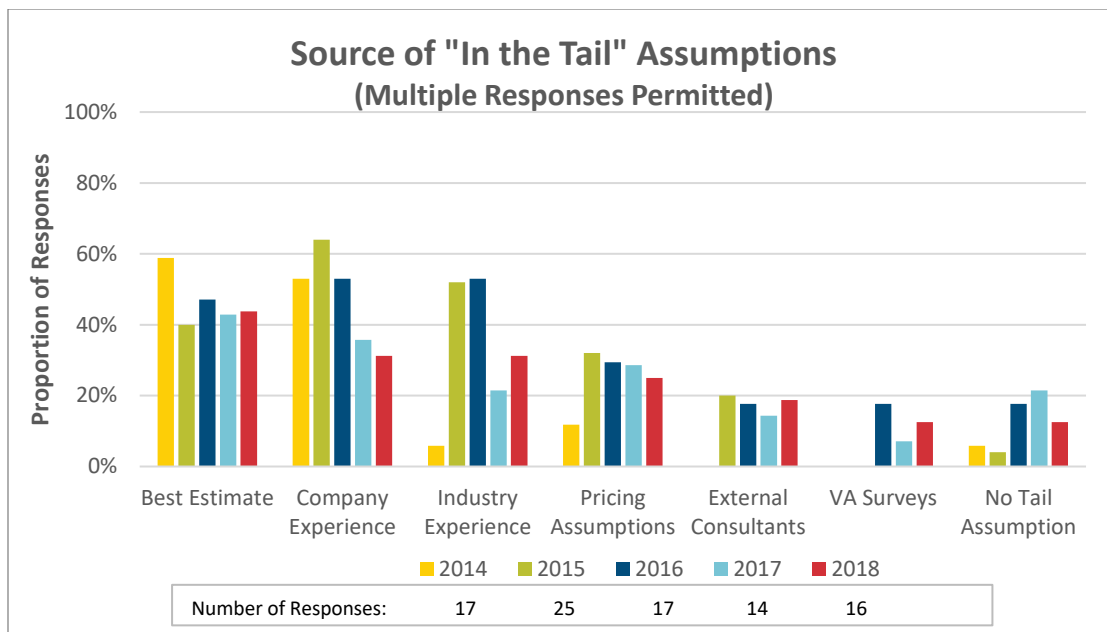


Figure 54

When asked about the years of experience considered in studies for lapses in the tail, almost all companies indicated the same time periods as in the base lapse study. Two indicated that they extended the years of the study for the tail assumptions.

Figure 55 compares the source of base assumptions with the source of "In the Tail" assumptions for this year's survey, comparing the 2018 data from Figure 51 and Figure 54. This shows that more reliance is placed on company experience for base assumptions than for assumptions "In the tail." This is not unexpected since most actual experience is not in a tail scenario. Lapse assumptions "In the tail" require more judgement.

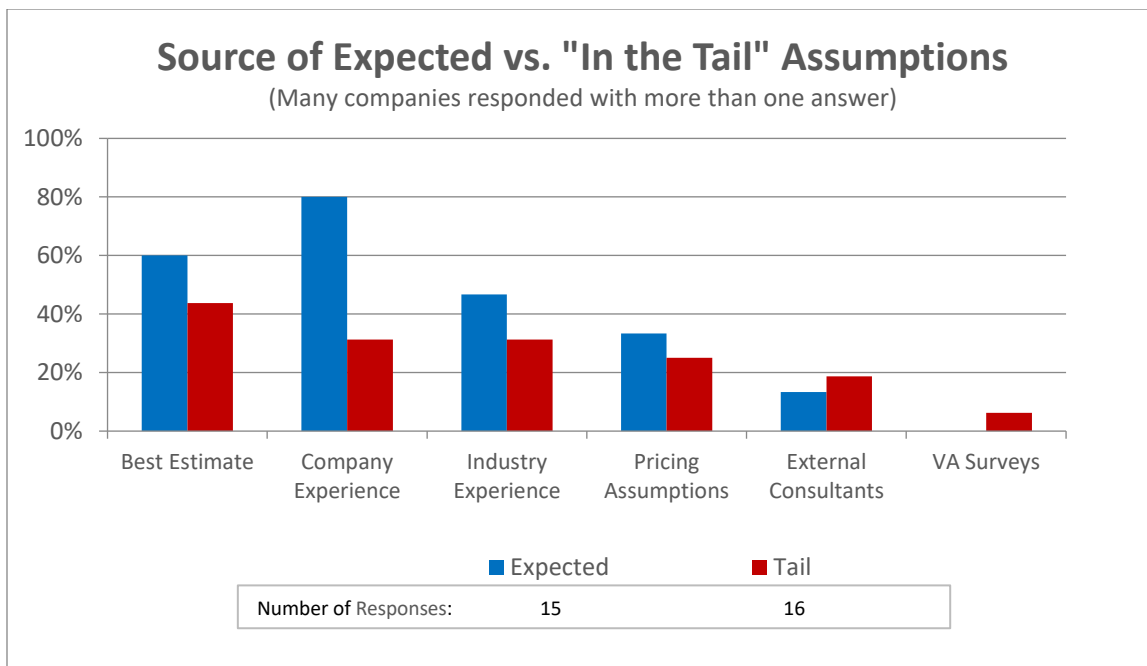


Figure 55

The survey asked companies if emerging policyholder behavior experience since 2008 (for many, a “tail” environment) caused a revision in policyholder behavior assumptions in the tail. Figure 56 shows that 73% (11 of 15) made changes following the crisis with the vast majority of those (91%; 10 of 11) revising assumptions further since then.

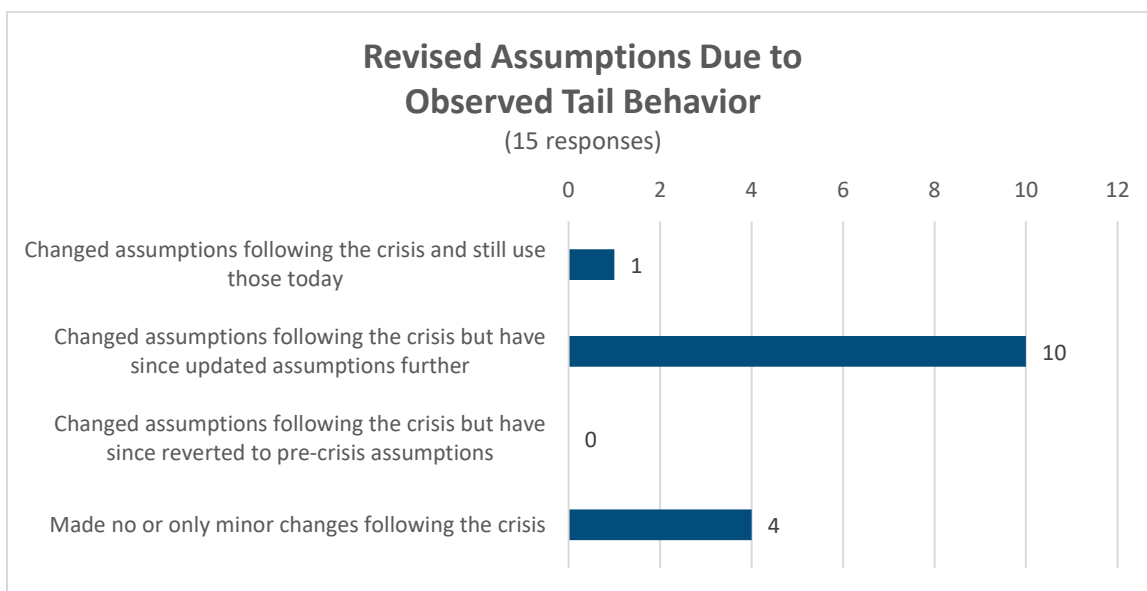


Figure 56

Changes in Assumptions

Insurers were asked if any of the assumptions previously discussed in the survey were changed from the previous year's analysis. The percentage of respondents indicating that some assumptions were changed in this year's survey was 47% (7 of 15) which is significantly lower than prior surveys (Figure 57).

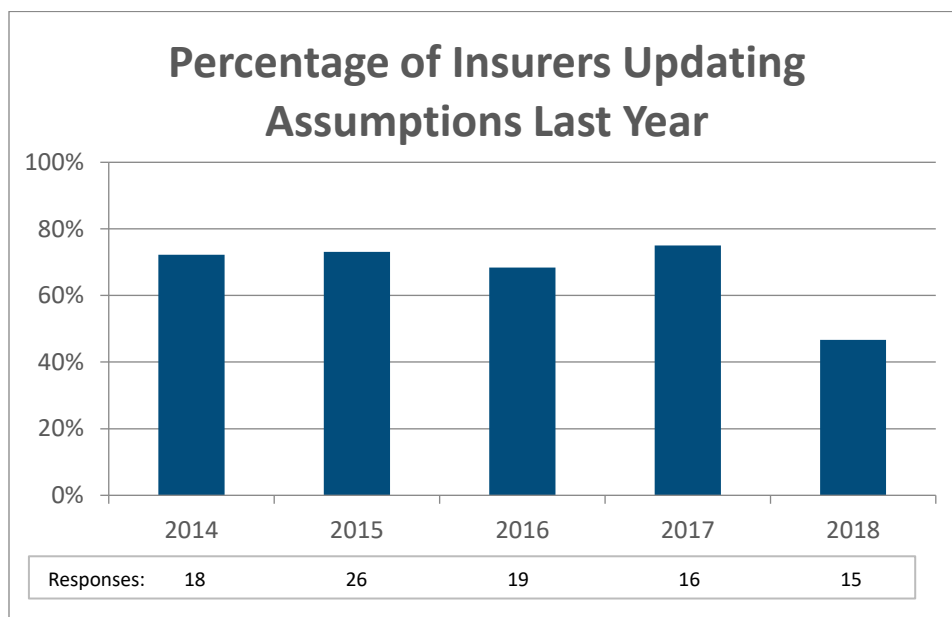


Figure 57

The question further sought open-ended responses describing what was changed for each of the five benefit types. The responses are summarized here, with the number of companies citing a particular response, if more than one.

GMDB

- Updated dynamic lapse formula (2)

GMIB

- Updated base lapse experience (2)

GMWB

- Updated dynamic lapse (2)

GLWB

- Updated base lapse experience (4)
- Updated dynamic lapse (3)

GMAB

- Updated base lapse experience (3)

Sensitivities

All 16 companies responding indicated that they are performing sensitivity analyses related to assumptions that impact policyholder behavior. The types of sensitivities performed are summarized in Figure 58. Sensitivity to the base lapse rate, equity scenario, and utilization assumption were the most common types of analyses performed. The “Other” response was further described as testing the sensitivity of the dynamic factors on lapse rates.

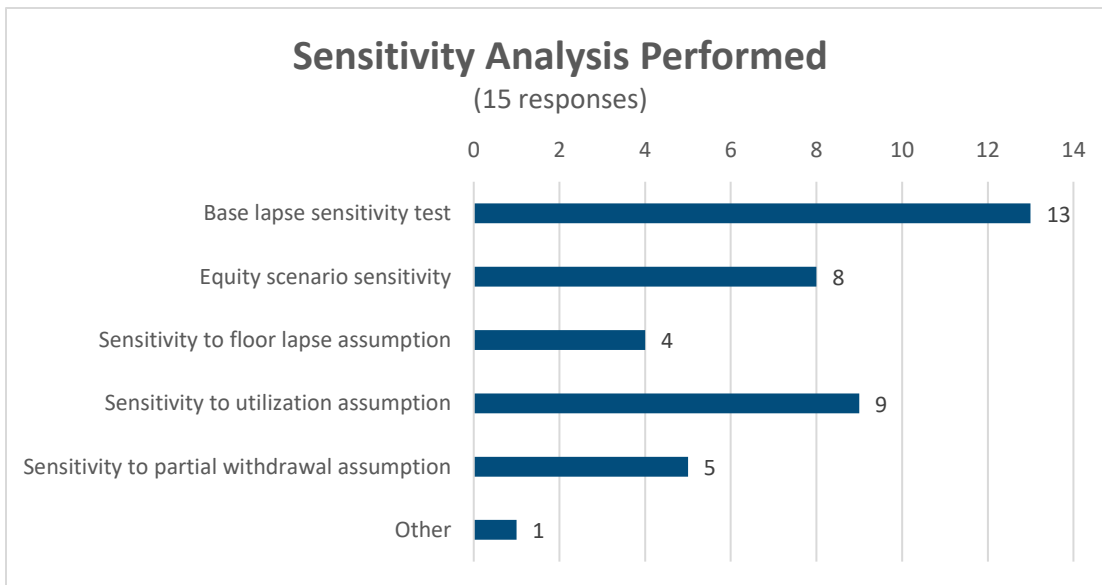


Figure 58

About The Society of Actuaries

The Society of Actuaries (SOA), formed in 1949, is one of the largest actuarial professional organizations in the world dedicated to serving more than 32,000 actuarial members and the public in the United States, Canada and worldwide. In line with the SOA Vision Statement, actuaries act as business leaders who develop and use mathematical models to measure and manage risk in support of financial security for individuals, organizations and the public.

The SOA supports actuaries and advances knowledge through research and education. As part of its work, the SOA seeks to inform public policy development and public understanding through research. The SOA aspires to be a trusted source of objective, data-driven research and analysis with an actuarial perspective for its members, industry, policymakers and the public. This distinct perspective comes from the SOA as an association of actuaries, who have a rigorous formal education and direct experience as practitioners as they perform applied research. The SOA also welcomes the opportunity to partner with other organizations in our work where appropriate.

The SOA has a history of working with public policymakers and regulators in developing historical experience studies and projection techniques as well as individual reports on health care, retirement and other topics. The SOA's research is intended to aid the work of policymakers and regulators and follow certain core principles:

Objectivity: The SOA's research informs and provides analysis that can be relied upon by other individuals or organizations involved in public policy discussions. The SOA does not take advocacy positions or lobby specific policy proposals.

Quality: The SOA aspires to the highest ethical and quality standards in all of its research and analysis. Our research process is overseen by experienced actuaries and nonactuaries from a range of industry sectors and organizations. A rigorous peer-review process ensures the quality and integrity of our work.

Relevance: The SOA provides timely research on public policy issues. Our research advances actuarial knowledge while providing critical insights on key policy issues, and thereby provides value to stakeholders and decision makers.

Quantification: The SOA leverages the diverse skill sets of actuaries to provide research and findings that are driven by the best available data and methods. Actuaries use detailed modeling to analyze financial risk and provide distinct insight and quantification. Further, actuarial standards require transparency and the disclosure of the assumptions and analytic approach underlying the work.

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