

2017 Variable Annuity Guaranteed Benefits Survey

Survey of Assumptions for Policyholder Behavior in the Tail





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Caveat and Disclaimer

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2017 VARIABLE ANNUITY GUARANTEED BENEFITS SURVEY

Survey of Assumptions for Policyholder Behavior in the Tail

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.
- A new question this year regarding utilization rates showed that companies use a variety of drivers,
 but age and tax status were the most commonly cited factors that influence utilization rates (Figure 58). However, not all companies vary utilization rates by tax status.

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).
- Some companies use a floor lapse rate as a percentage of the base and some use a constant 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 similar across benefit types and are also similar to the median base lapse assumptions. Again, the GLWB assumption is somewhat lower (Figure 26).

Lapse Assumptions for an Aggregate Block

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

Income, Withdrawal, and GLWB Utilization Assumptions

 Generally, companies do not vary the assumptions and parameters of these utilization functions between the tail and base scenarios.

Source of Assumptions

- Company experience is relied on much more heavily for base assumptions than for tail assumptions (Figure 54).
- There is a general trend toward a higher percentage of companies using 5+ years of experience in lapse studies (Figure 52).

Distribution System

- Most responding companies sell through multiple distribution systems.
- Of those that sell through multiple distribution systems, about half measure their lapse experience by distribution system and about one-fourth vary their lapse assumptions by distribution system.

Changes in Assumptions

• Most companies changed assumptions since the prior year (Figure 56), typically to update experience, but sometimes to also update dynamic lapse formulas.

Sensitivities

• The most common sensitivity tests performed are relative to base lapse assumptions, equity returns, and utilization assumptions (Figure 57).

General

- The PBITT committee appreciates the 16 usable responses received from 17 participating companies. However, this participation level is lower than in past years, and additional participation is important to enhance the value and quality of information presented and the 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 working group, 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.

Ameritas Life Insurance Corp.

AMPF

Brighthouse Financial

Delaware Life

John Hancock

MetLife

New York Life

Pacific Life Insurance Company

Penn Mutual

Prudential Financial

Securian Financial Group

State Farm Life Insurance Company

Talcott Resolution

The Society of Actuaries' Policyholder Behavior in the Tail (PBITT) working group gratefully acknowledges Jeff Hartman for all his efforts in analyzing the survey data and drafting this report.

The PBITT working group is interested in comments on the survey and results. Please e-mail comments to either Jim Reiskytl, Chair of the PBITT working group, at jimreiskytl@wi.rr.com or Steve Siegel, Society of Actuaries Research Actuary at ssiegel@soa.org.

Background

In 2005, the Society of Actuaries' PBITT working group 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 2017 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 7 respondents also participated in the 2016 survey and 10 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. There was a decrease in the number of mid-size (\$10b - \$40b) companies responding relative to past years.

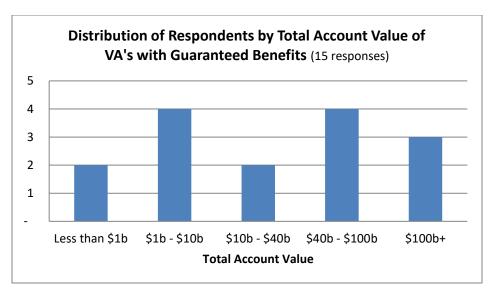


Figure 1

Tail Scenario

As in past years the vast majority of respondents indicated that they used stochastic modeling to set capital levels. In the 2017 survey 14 out of 16 (88%) indicated that they did use stochastic scenarios to set capital levels.

While not all companies answered every question, most of these respondents provided additional details regarding their calculation. In 2017, as in past years, 1,000 scenarios was the predominant response to the number of scenarios modeled (Figure 2).

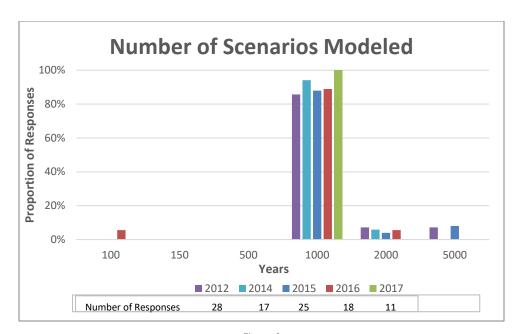


Figure 2

In terms of projection horizon, 30 years was cited most frequently as has been the case in past surveys (Figure 3).

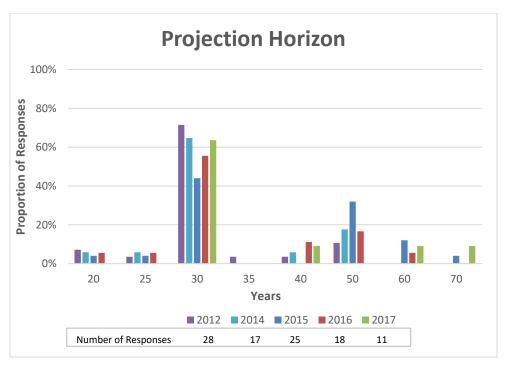


Figure 3

A new question in 2017 asked whether companies' projections used hedges in accordance with a Clearly Defined Hedging Strategy (CDHS). A positive response was given by 10 of the 14 companies that responded to that question (71%).

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 below 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. Focusing on year 10, three companies showed a negative cumulative return of 45% or worse by year 10, three had a cumulative return of 60% or higher, and the other six had returns between -10% and +16%.

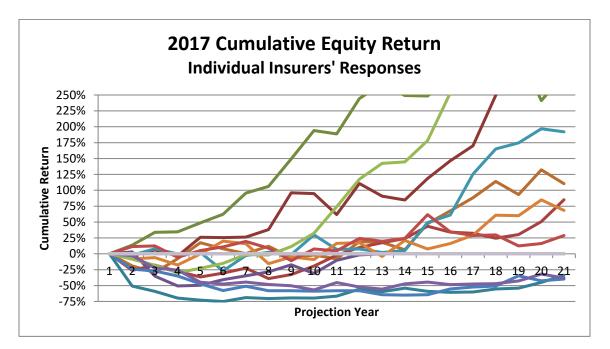


Figure 4

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

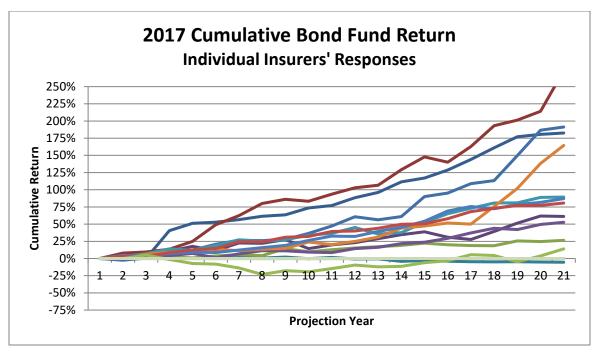


Figure 5

Figure 6 shows the 5-year Treasury interest rate in the tail scenario. The majority of responses had rates that never exceeded 5% in the first 20 years.

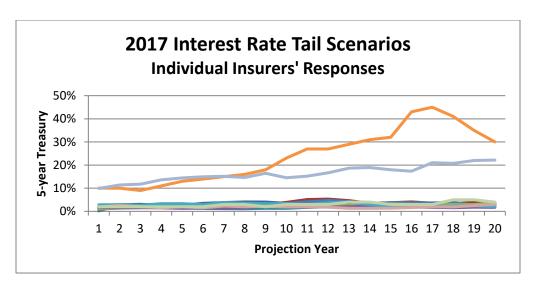


Figure 6

In Figure 7, the median of the 2017 Equity 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 2017 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.

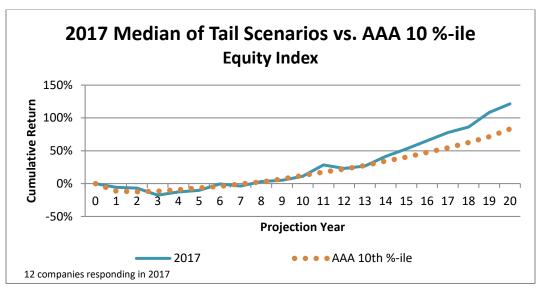


Figure 7

The median equity tail scenario response to the 2017 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.

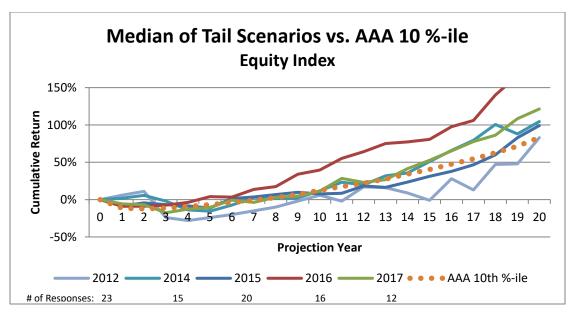


Figure 8

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.

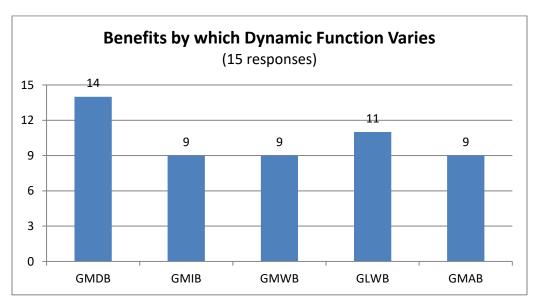


Figure 9

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, 86% of companies (12 of 14) 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 14 responses, 7 use a percent of the base lapse rate and 7 use a constant non-zero floor rate.

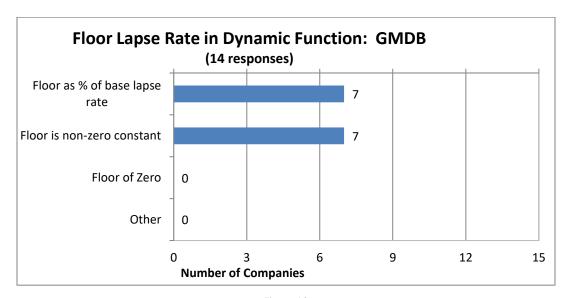


Figure 10

All 14 companies 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.

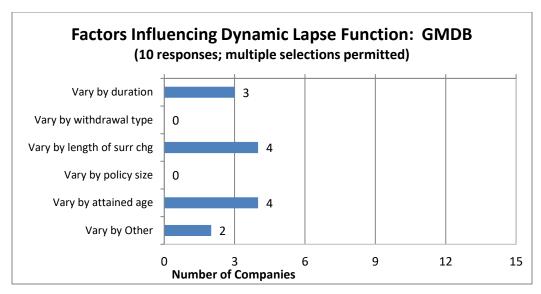


Figure 11

GMIB

For dynamic lapse functions related to guaranteed minimum income benefits, 75% of companies (6 of 8) 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 8 responses, three use a percent of the base lapse rate and five use a non-zero constant floor rate.

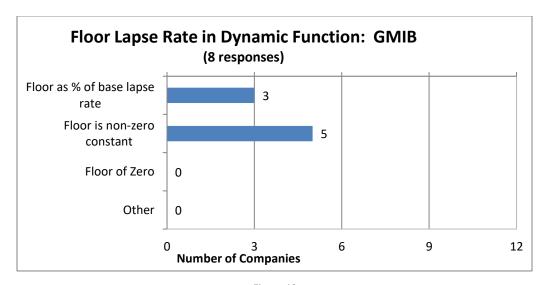


Figure 12

All eight 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. Varying by length of surrender charge was the only factor cited more than twice. It was cited three times as seen in Figure 13. The "other" responses were further described as varying by the base lapse rate.

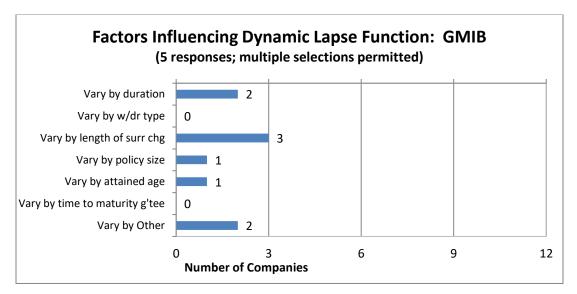


Figure 13

GMWB

For dynamic lapse functions related to guaranteed minimum withdrawal benefits, 56% of companies (5 of 9) 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. Of the nine responses, three use a percent of the base lapse rate and five use a non-zero constant floor rate. The "other" response further described their floor rate as zero during the surrender charge period, a non-zero constant during the spike year, and another non-zero constant thereafter.

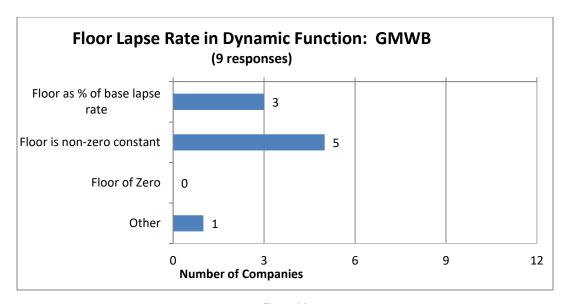


Figure 14

All nine 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 were further described as a function of the base lapse rate (2) and whether the policyholder was currently taking withdrawals.

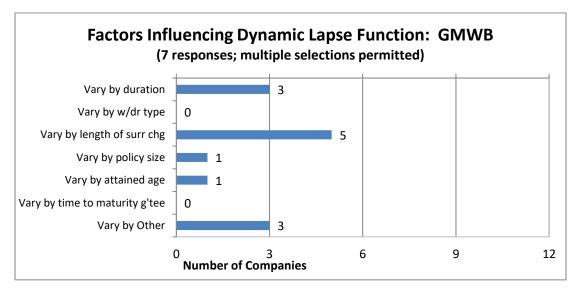


Figure 15

GLWB

For dynamic lapse functions related to guaranteed living withdrawal benefits, 64% of companies (7 of 11) use a one-sided dynamic formula.

Figure 16 shows the distribution of responses regarding the floor lapse rate. Of the 11 responses, five use a percent of the base lapse rate and five use a non-zero constant floor rate. The "other" response further described their floor rate as zero during the surrender charge period, a non-zero constant during the spike year, and another non-zero constant thereafter.

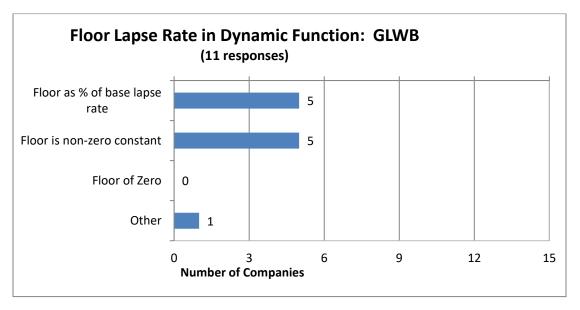


Figure 16

All 11 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 and whether the policyholder was taking withdrawals.

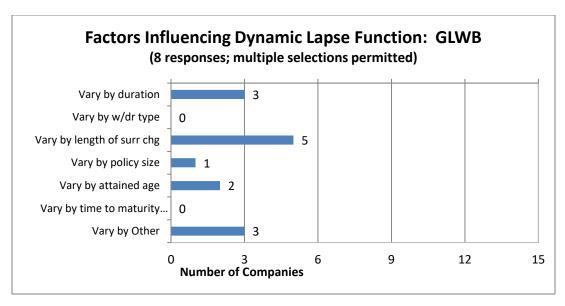


Figure 17

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 nine responses, five use a percent of the base lapse rate and three use a constant non-zero floor rate.

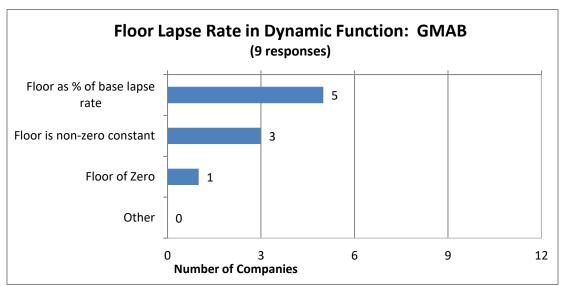


Figure 18

All nine 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 five times, as seen in Figure 19. The "other" responses were further described as a function of the base lapse rate.

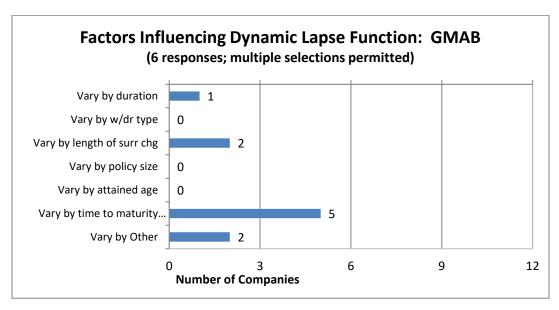


Figure 19

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 vast majority of responses indicated that year eight was the first year without surrender charge. Other responses indicated that years 4 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.

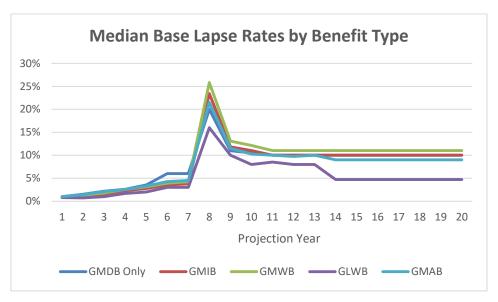


Figure 20

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.

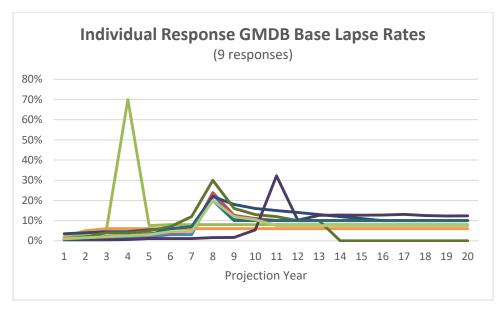


Figure 21

Individual Response GMIB Base Lapse Rates

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

Figure 22

Individual Response GMWB Base Lapse Rates

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

Figure 23

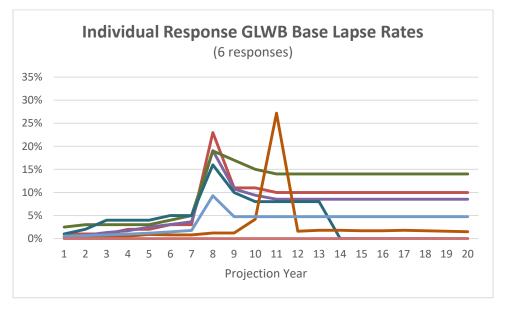


Figure 24

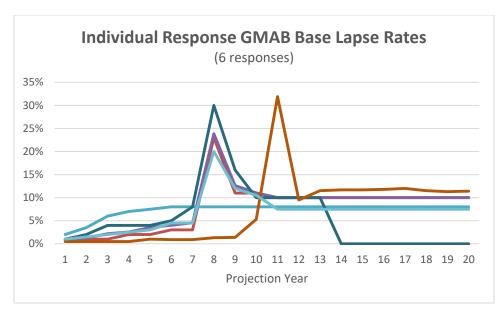


Figure 25

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. There is a little more disparity in the median tail lapse rate by benefit type relative to the base lapse rates and relative to past surveys. This could be a function of the specific companies responding or could indicate a trend.

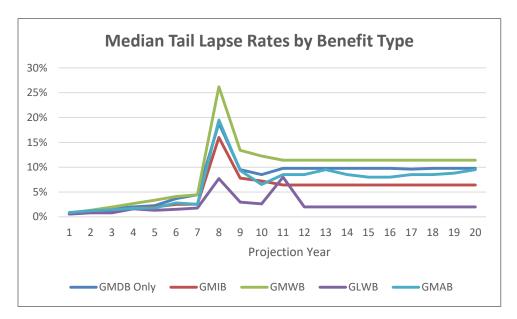


Figure 26

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.

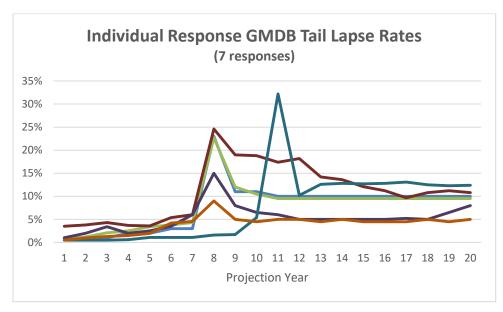


Figure 27

Individual Response GMIB Tail Lapse Rates

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

Figure 28

Individual Response GMWB Tail Lapse Rates

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

Figure 29

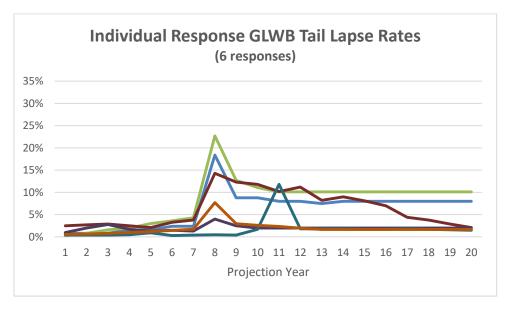


Figure 30

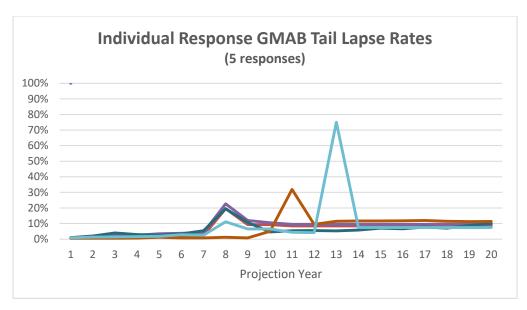


Figure 31

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. GMAB is noticeably higher than the other benefit types.

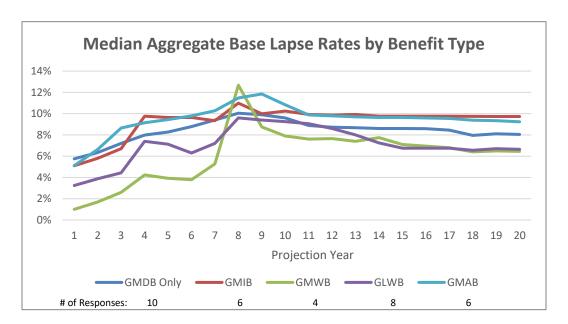


Figure 32

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

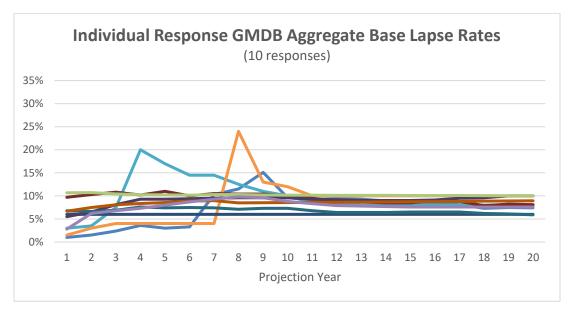


Figure 33

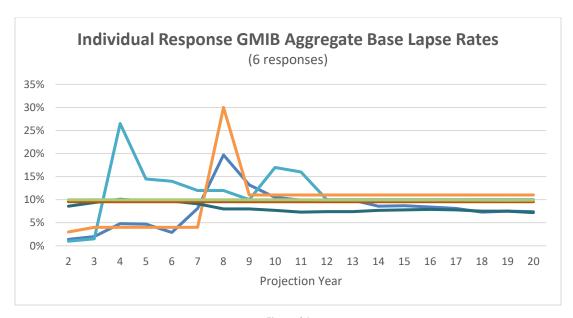


Figure 34

Individual Response GMWB Aggregate Base Lapse Rates

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

Figure 35

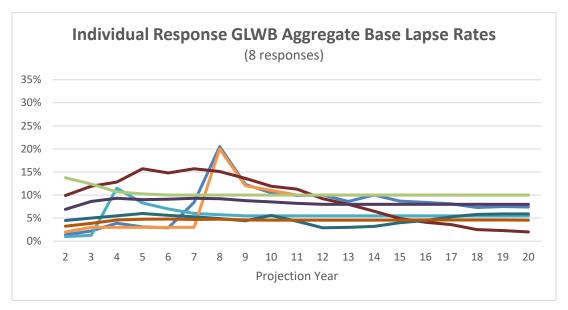


Figure 36

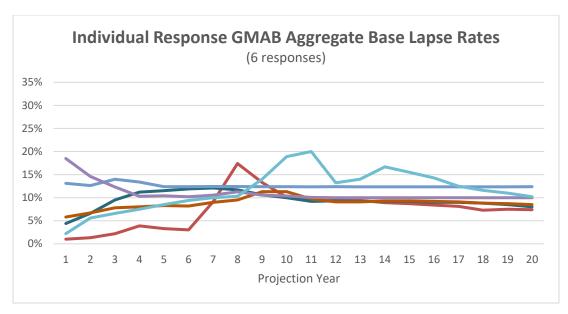


Figure 37

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. GMAB is noticeably higher than the other benefit types.

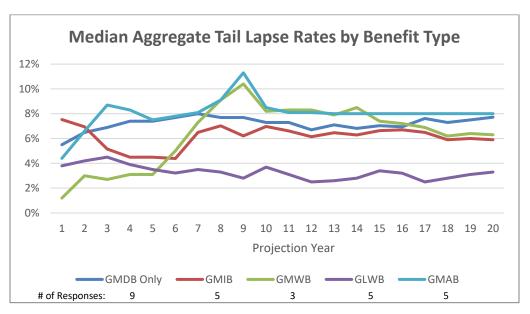


Figure 38

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

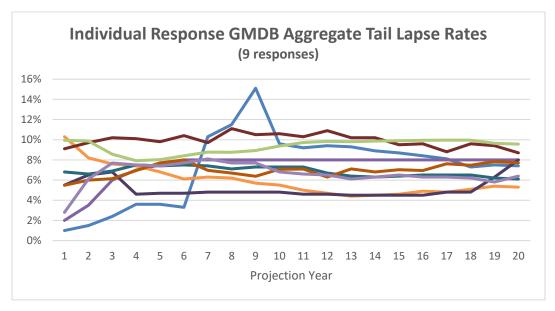


Figure 39

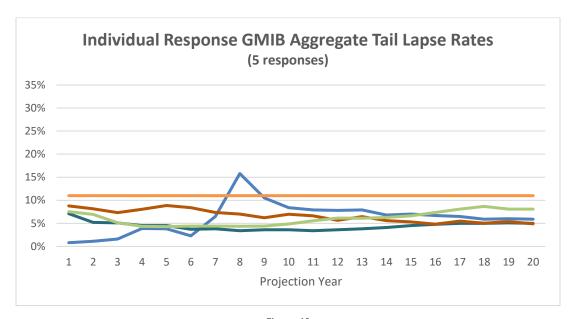


Figure 40

Individual Response GMWB Aggregate Tail Lapse Rates

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

Figure 41

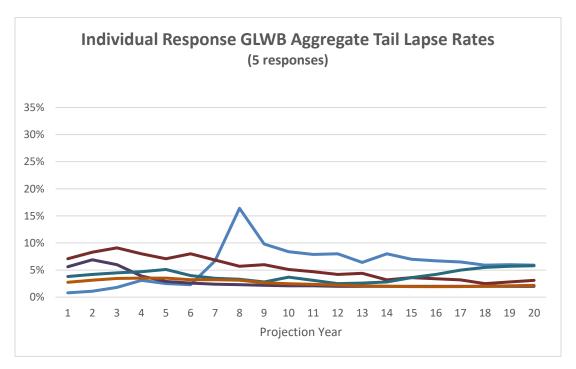


Figure 42

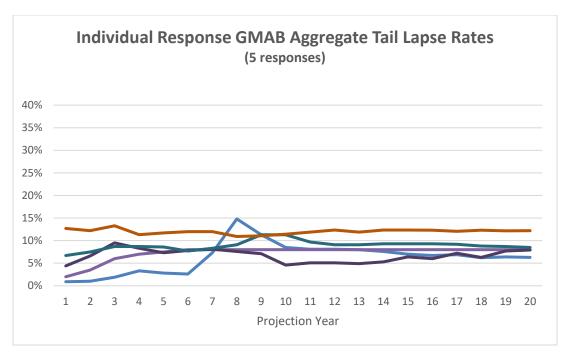


Figure 43

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.

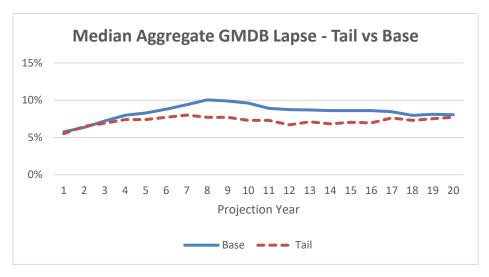


Figure 44

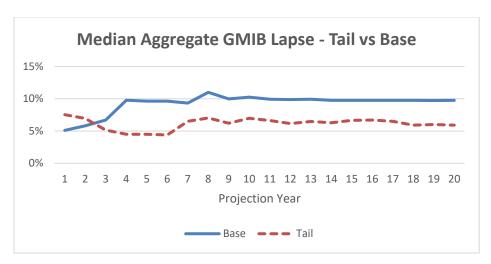


Figure 45

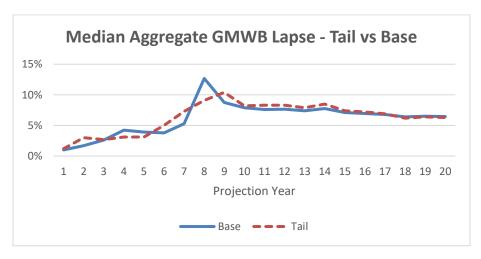


Figure 46

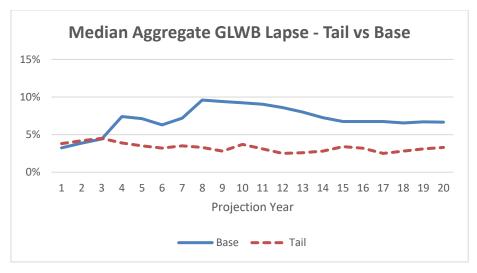


Figure 47

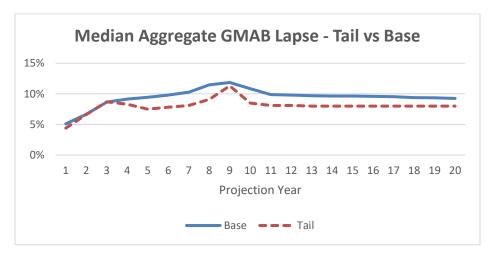


Figure 48

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.

Seven companies responded to this question. In general, respondents agreed that the tail scenario for GMIB utilization uses the same assumptions and parameters as the base scenario.

Companies' GMIB utilization rates vary by in-the-moneyness, age, and duration. Six companies cited in-the-moneyness, five cited age, and three cited duration.

Although the survey prompted companies to consider tax qualified status in their response, no company indicated any difference in GMIB utilization rates between tax qualified and non-tax qualified statuses.

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.

Seven companies responded to this question. All seven indicated that the utilization rates used in the tail scenario are substantially the same as those used in the base scenario.

Three companies also stated that although the utilization rates do not vary by scenario, the utilization rates for GMWB are dependent on tax qualification status.

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.

Twelve companies responded to this question. Those twelve companies generally agreed that the utilization rates used in the tail scenario are the same as in the base scenario.

Additional comments indicated that age and duration are key factors influencing the GLWB utilization rates, regardless of scenario. One company also mentioned distribution system as a factor impacting GLWB utilization rates.

In addition, three companies cited tax qualification status as an influence on the GLWB utilization rates.

Tax Qualification Status

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

Eleven companies responded and nine of the 11 (82%) indicated that utilization rate assumptions are implicitly aggregate assumptions across tax-qualified and non-qualified business for both the base case and tail scenarios.

The other two companies indicated that their experience studies do not show a material difference by tax qualification status.

Lapses by Distribution Channel

Insurers were asked several questions about their distribution channels. Seventy-nine percent of responses (11 of 14) said that their products were sold through multiple distribution channels.

Of the 11 that use multiple distribution channels, Figure 49 shows the distribution of channels used.

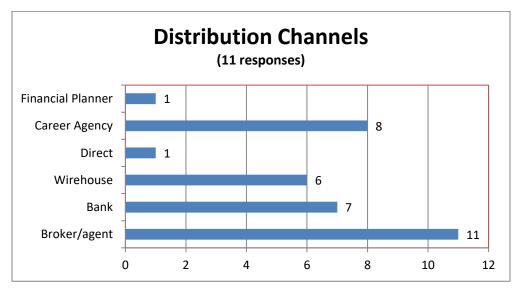


Figure 49

Forty-six percent of respondents (5 of 11) measure lapse experience by distribution channel. This is a similar positive response rate to past years, although the 2016 survey showed a significantly lower positive response rate.

Twenty-seven percent (3 of 11) indicated that they vary lapse assumptions by distribution channel which is a similar rate as in past surveys. One of these three companies indicated that their direct business had different lapse rates. The other two companies stated that they noticed higher 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 50). In 2015 there was a significant increase in the number of companies who indicated the use of industry experience, pricing assumptions, and external consultants in setting assumptions and those trends continued in 2016 and 2017.

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.

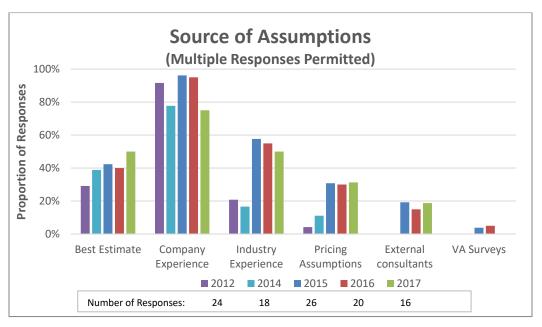


Figure 50

The most common frequency to perform experience studies is annual (see Figure 51). In 2017, 53% (8 of 15) of respondents reported performing annual experience studies and 87% (13 of 15) perform experience studies on an annual or more frequent basis.

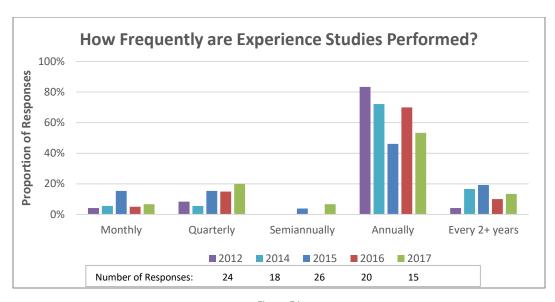


Figure 51

Insurers were asked how many years of data were used in their latest lapse study (Figure 52). Relative to past surveys, a significantly higher percentage of companies indicated that they use 6-9 years of experience as seen in Figure 52. This contrasts to last year's survey when a higher percentage said 10+ years. This could be a result of a change in the mix of companies participating in the survey.

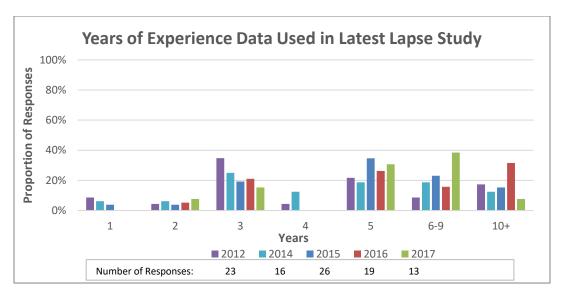


Figure 52

Companies were also asked about the sources of assumptions for "in the tail" lapsation with responses summarized in Figure 53. As was the case with base lapses, in 2015 there was a significant increase in the

number of companies who indicated the use of industry experience, pricing assumptions, and external consultants in setting tail assumptions and those trends continued in 2016 and 2017.

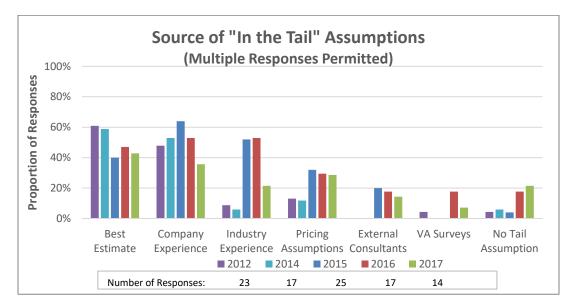


Figure 53

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. One extended the years considered to include the financial crisis.

Figure 54 compares the source of base assumptions with the source of "In the Tail" assumptions for this year's survey, comparing the 2017 data from Figure 50 and Figure 53. 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 from the actuary.

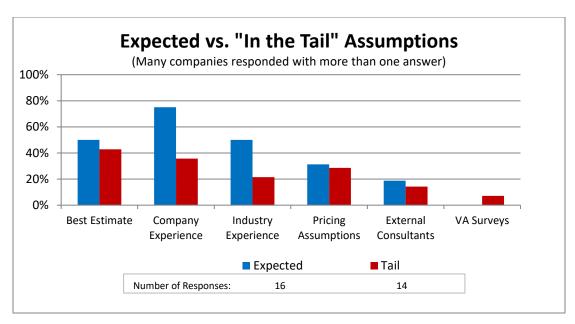


Figure 54

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 55 shows that 71% (10 of 14) made changes following the crisis with the vast majority of those (90%; 9 of 10) revising assumptions further since then.

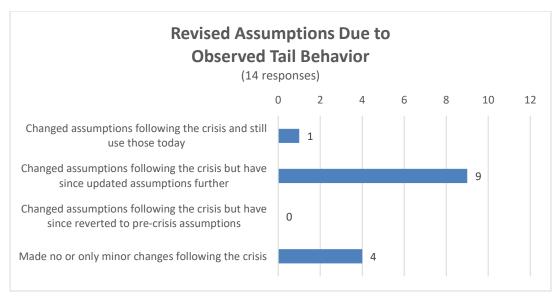


Figure 55

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 75% (12 of 16) which is similar to prior surveys (Figure 56).

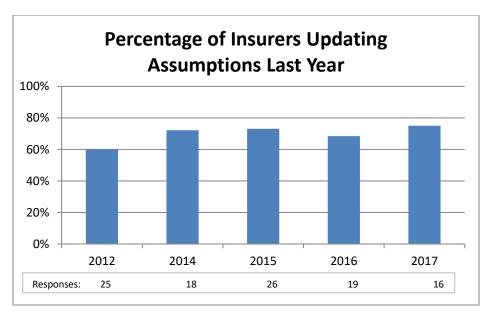


Figure 56

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 base lapse experience (8)
- Updated dynamic lapse formula (4)

GMIB

- Updated base lapse experience (4)
- Updated dynamic lapse and dynamic utilization (4)

GMWB

- Updated base lapse experience (6)
- Updated dynamic lapse (4)

GLWB

- Updated base lapse experience (7)
- Updated dynamic lapse (4)

GMAB

• Updated base lapse experience (4)

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 57. Sensitivity to the base lapse rate, equity scenario, and utilization assumption were the most common types of analyses performed. "Other" responses included sensitivity to mortality, expenses, and the dynamic lapse assumption.

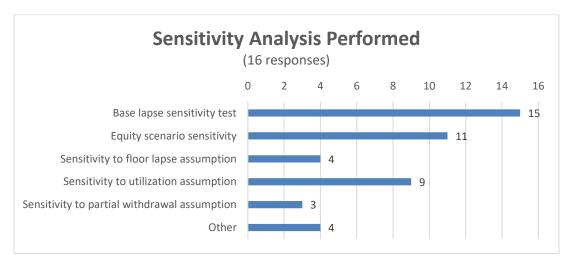


Figure 57

Factors Influencing Income Utilization Rates

A new question this year explores the complexity of income utilization rate assumptions being used. 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 58. Additional comments from companies that selected "other" included a spike in the bonus year and duration since the first withdrawal.

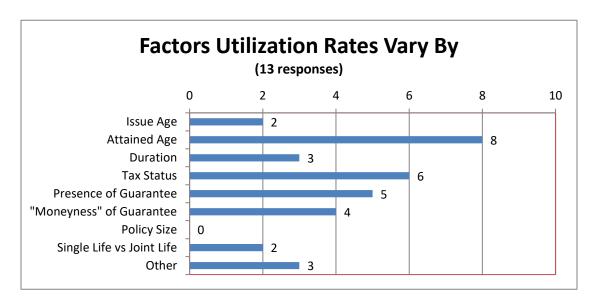


Figure 58

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 27,000 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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