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The LTCI Pricing Actuarial Mindset Needs to be Reset

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Actuarial Standards of Practice are the foundation for an actuary to perform work that helps others trust the work. They set the actuary's mind on producing work that is trustworthy.

For many years, LTCI products have faced materially large premium rate increases, shockingly high reserve charges, and even some insolvencies. Consumers, regulators, and investors have come to question the credibility of the actuarial work on these products. In hindsight, the Long-Term Care Actuarial Standard of Practice (ASOP 18) may have unwittingly contributed to this loss of trust.

The writers of the original guideline and those who have reviewed/revised it over the years appear to have intended to place weight on sensitivity testing. However, from a pricing perspective, the standard's "Premium Rate Recommendations" section may have actually restricted the ability of sensitivity testing to effectively contribute real value.

As with many Actuarial Standards of Practice, ASOP 18 intentionally grants a large latitude for performing sensitivity tests. It also states that the range of sensitivity tests should be expanded in cases when the applicability of the underlying assumptions may be less credible. This was often applicable to LTCI pricing in the past, due to the historically necessary reliance on general population noninsured data for pricing.¹ For similar reasons, it still may be applicable for such assumptions as morbidity and mortality improvement or morbidity and mortality at extremely old ages because they are not always measurable from industry data. Improvements or trends are often distorted by changes in distribution of claims over time when evaluating industry data. For just one example, some insurer specific data may be more heavily present in one time period than in another.

ASOP 18 recognizes that, due to the long-expected duration of LTCI policies, changes in actual experience may occur throughout the life of a contract. For example, it states that an actuary should use investment return assumptions "consistent with initial and reinvestment returns on assets," as many of the assets supporting a policy's promises will likely mature before actually needed.

The standard also recognizes the need for a broad range of sensitivity tests because of the large number of assumptions needed when pricing LTC benefits. It identifies mortality, voluntary lapses, expenses, taxes, investment returns, and mix-of-business as material and therefore worthy of consideration for sensitivity analysis in pricing. It also identifies and requires morbidity assumptions, including incidence, continuance, and utilization assumptions as well as numerous influencing factors such as differences arising from the variety of providers of care, nursing home, assisted living facilities, and homecare.

In addition, the standard mentions "change-over-time assumptions" as an LTCI plan "is expected to remain in force for a **very lengthy period of time.**" [boldface added] Sometimes credible supporting data is available for identifying projection assumptions from an earlier issued product for an insured population with similar characteristics. Still, the potentially lengthy duration of the contract warrants sensitivity testing.

Presumably, some variables were considered independent of others while some were seen as dependent or correlated. For example, a pricing actuary might not recognize a correlation between morbidity improvement and active life mortality improvement, and therefore might treat them independently. It may be advisable for the actuary to do a sensitivity test to gauge the impact on pricing if the morbidity and mortality improvement assumptions were actually linked. On the other hand, a pricing actuary might recognize that the benefit utilization rate is correlated to the investment yield rate. In this case it may be advisable to decouple the utilization rate from the investment yield rate in case historical correlations of LTC services inflation changes such that relatively high inflation exists when investment yields are low.

The standard has helped with many projections. Stochastic sensitivity testing, for example, has proven helpful in identifying economic capital that may be required for liabilities or assets. If designed to address misestimation risk (sometimes called parameter risk), stochastic modeling can also help identify the amount of capital required at specified probability levels.

Scenario testing has proven useful as well in identifying and optimizing investment strategies or tactics. This is particularly true when correlation is assumed between liabilities and investment returns. For example, liabilities for expense reimbursement policies may be correlated with automatic increasing maximums because the actual reimbursed expenses will increase in relation to the investment yields.

All of these uses for sensitivity testing can affect how LTCI programs are managed, enabling insurers to plan and prepare for adverse scenarios. They can also help insurers communicate the potential financial impact of various scenarios to regulators and investors.

While ASOP 18 emphasizes the need for sensitivity testing, the “Premium Rate Recommendations” paragraph proposes a balancing act that may seem to minimize the use of the information derived from these tests for pricing.

The specific language reads as follows:

Premium Rate Recommendations

Any premium rates recommended by the actuary should conform with statutory requirements, including those for loss ratios. Such recommended rates should reflect any premium guarantees of the contract. **In developing such recommendations, the actuary should not use assumptions that are unreasonably optimistic.** If a premium rate schedule is described by the actuary as applicable for the lifetime of the insured, the actuary should use assumptions that are consistent with that description and that have a reasonable probability of being achieved. In particular, the actuary should not rely on anticipated future premium rate increases to justify the selection of unreasonably optimistic assumptions when recommending premium rates. **On the other hand, the actuary should not use assumptions that are unreasonably pessimistic. It may be appropriate, however, to include provision for adverse deviation in assumptions.**

In the paragraph’s third sentence, the pricing actuary is told not to “use assumptions that are unreasonably optimistic.” Then, in the same paragraph, the actuary is told, “On the other hand, the actuary should not use assumptions that are unreasonably pessimistic.” In other words: sensitivity testing is needed, but the full breadth of assumptions used in the testing cannot be applied because the pricing actuary may view them as either “unreasonably optimistic” or “unreasonably pessimistic.” Indeed, nothing in the Standard’s language suggests that “unreasonably” may be measured differently when modifying optimism and pessimism until the end of the paragraph, which states that it may be “appropriate to include provision for adverse deviation in assumptions.”

Apart from that provision, the standard’s language seems to restrict the application of the sensitivity tests when choosing scenarios for pricing of long-duration products with rate stability in view. The pricing actuary needs to limit the scenarios to something that is not unreasonable either from an optimistic or a pessimistic perspective. The paragraph does not allow a pricing actuary to move at will from a central position between optimism and pessimism, and the final statement allowing provision for adverse deviation in assumptions did not take away the strong impression that the assumptions must be balanced between optimism and pessimism.

The commentary around the added final statement, found in the ASOP appendix, rendered any perceived freedom from that statement even less clear. Essentially, ASOP 18’s authors believed that “the subjects of loss ratios and state regulations should not

be addressed in this ASOP.” Meanwhile, the Standard’s essential requirement of a balance between optimism and pessimism remained. The pricing actuary still had to consider whether assumptions shifted for adverse experience were not unreasonably pessimistic. The size of the margin itself became the focus for setting premium rates.

For illustration, a pricing actuary may have judged that a product’s ultimate lapse rate could reasonably be set at 1.25 percent per year without any margin for adverse experience. The actuary may have thought the 1.25 percent ultimate lapse assumption neither unreasonably optimistic nor pessimistic, but rather, was a good midpoint position between those two poles. If the actuary wanted to add some margin for moderately adverse experience, he/she may have initially considered cutting the 1.25 percent to 0.50 percent. However, after reading the ASOP 18 pricing paragraph again along with the commentary around it to make sure the interpretation was correct, he/she may have decided the 0.50 percent assumption was unreasonably pessimistic, and changed it to 1.00 percent, based on the size of the margin for moderately adverse experience the assumption produced. The focus on balancing optimism and pessimism, and thus on the size of the margin, shifted the pricing actuary away from the potential financial impact of adverse events.

This is important, as LTCI has faced many large financial shocks over the years. Balancing pessimism with optimism has been less than helpful to a product designed to have stable premium rates over many years. The standard might serve the industry better if it eliminated its insistence on balancing unreasonably optimistic and unreasonably pessimistic assumptions for pricing.

Historically, ASOP 18 has served asset-liability management and valuation actuaries well. Still, many stakeholders today may wish LTCI’s earliest pricing actuaries had been able to place more weight on pessimistic scenarios by including more sensitivity testing information directly into the premium rate recommendations. Now may be the time to reset this mindset. ■



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ENDNOTES

- 1 Section 3.2.1 of ASOP 18 states “Specific data from the entity to which the actuary’s calculations apply generally are preferable to data from other sources. Where such data are not adequately credible, industry data should be considered next in setting assumptions. As a last but sometimes necessary source, general population noninsured data may be utilized.”