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CREDIBILITY CONCEPTS APPLIED TO REINSURER-CEDANT MORTALITY ANALYSIS

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Life insurers are changing underwriting classifications and underwriting requirements more and more frequently and a big challenge for companies and reinsurers alike is to correctly analyze small blocks of business with limited durational experience where credibility issues come into play.

The American Academy of Actuaries (the Academy) recently came out with a Credibility Practice Note that highlighted reinsurer-cedant related claims analysis. They laid out the theory and practical applications of credibility theory as it relates to life insurance and how credibility theory can help to analyze historical claims experience.

In my experience with mortality studies, there is often more variance in the mortality study calculations than there is in the claims underlying the mortality study. Most companies can achieve greater credibility with their mortality study results by supplementing their mortality study with an enthusiastic review of the company's operational efficiencies and a thorough review of their mortality study black box calculations.

A Framework for Working With Non-Credible Mortality Study Results

Reinsurers often use a combination of company assessments, underwriting class requirement assessments and industry mortality experience to assist them in forming an expectation of future mortality for a particular company. Although the best source of information for a company's future mortality is a company's credible mortality study, reinsurers are accustomed to adjusting industry mortality experience to fit a company's particular market niche based on years of experience monitoring mortality from a broad variety of direct insurance companies.

Reinsurers need to accurately assess mortality. Always take their quote and mortality assessment of the prospective client as helpful advice as to how its mortality experience looks relative to other companies with the basic market, underwriting philosophy and underwriting classifications.

The most effective way to reach a consensus mortality assumption between reinsurer and cedant is to accept

that mortality study results are only part of the equation and focus on marketing to the reinsurer's mortality assessment methodology. This will provide the reinsurer with the comfort that you understand your mortality experience and that you have adjusted your practices in order to increase the certainty of achieving your expected mortality results.

Ten Reasons Your Mortality IS Better Than Expected

Things to consider when sharing non-credible mortality experience with a reinsurer:

1. Show copies of claims registers. Show that the number of deaths in the study match the number of deaths in the company's accounting journals.
2. Compare mortality study in-force with annual statement line-of-business in-force.
3. Document the number of business decisions moving lives into preferred classes. If the number is low or zero, flaunt those results. If you don't make business decisions and don't document that fact, how does a reinsurer know?
4. Share mortality study results on other blocks of business. Show that other blocks of business are also exceeding expectations.
5. Analyze trends in policy size and policyholder affluence. If a higher percentage of your insureds are undergoing more stringent underwriting due to higher policy sizes, document the trends.
6. Audit the mortality study calculations. Show that you are not accepting good fortune without making sure it's real.
7. Provide a summary document that describes how substandard lives, group conversions, special underwriting programs, contested claims, rescissions and other items are handled in the mortality study.
8. Provide a summary document that describes the known inconsistencies or known flaws of the mortality study and provide brief analyses estimating their impact on mortality study results.
9. Document recent changes to underwriting, claims and sales procedures. Estimate the

theoretical impact on claims levels and compare the emerging experience with the historic experience.

10. Believe in the mortality results. Nothing says you believe more than adjusting your own mortality expectations based on your mortality study results. If you don't believe the results indicate a real trend, why should a reinsurer?

Ten Reasons Your Mortality Is NOT as Good as You Think

Mortality study calculations are prone to being a black box; their inner workings understood by the very few. The following are fond recollections of circumstances that distorted the results of mortality studies and are a good reminder that mortality study results should ALWAYS be checked for reasonableness:

1. Programming errors in the mortality study calculations.
2. Administrative status code interpretations that don't match reality.
3. Incorrectly attributing table extras and flat extras in the expected mortality.
4. Replacement programs that automatically upgrade eligible insureds to new and better underwriting classes within 18 months of underwriting while retaining the original issue date. Dead people are not upgraded and are left in the original underwriting class and hence the programs contribute to understated mortality for the new underwriting class (and overstated mortality for the old class).
5. Super-Select lives. The slope in early durations, especially at older ages, may not match the underlying mortality table due to more effective underwriting tools in use today. Early duration mortality multiples may not equal later duration mortality multiples.
6. Reverse and re-computes and other manual overrides are the bane of actuaries everywhere. History is overridden and rewritten with retroactive adjustments to face amounts, underwriting classes and plan codes.

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7. Misused or incorrect date fields. It is not easy to keep track of Issue Dates, Application Dates, Effective Dates, Paid Dates, Paid-to Dates, and System Entry Dates.
8. Inclusion of underwriting classifications, policies or policy forms that do not belong in the mortality study.
9. Hard-coded dates in the mortality study programming that are not correctly updated.
10. Typographical errors transferring mortality study results to mortality study summary documents.

Figure Out Your Own Credibility

There is only a 38 percent chance that actual mortality is within plus or minus 5 percent of mortality study results with 100 observed claims. The Academy Credibility Practice Note makes reference to the fact that to be 90 percent sure of being within 3 percent of the actual mortality, you need 3,000 claims.

This highlights the fact that almost all company mortality studies are not fully-credible and reinsurers basing a mortality assumption on mortality studies with more variability than the underlying reinsured product profitability margin are undertaking a scary task for any pricing actuary.

As mentioned earlier, general statistical fluctuation is a very convincing internal argument for not embracing a more aggressive mortality assumption based on non-credible data. (Unless you're in sales, of course.) And many times the most valuable tool in assessing the credibility of a particular mortality study is not some mathematical formulaic measurement, but a qualitative management report evaluating the mortality study results.

Find out the Results

Reinsurers want to accurately assess mortality. Always take their quote and mortality assessment as helpful advice as to how your mortality experience looks relative to other companies out there with your basic market, underwriting philosophy and underwriting classifications.

It is important when sharing mortality information with reinsurers to understand how your mortality assumption and mortality experience line up with reinsurer expectation.

It is not an efficient use of time to rely on mortality study results to debate a 10 percent differential in mortality estimate between ceding company and reinsurer when the mortality study supporting the ceding company point of view has a 30 percent mortality estimate range and the reinsurer is entrenched in its mortality estimation mechanism based on hundreds of individual company assessments and billions of life insurance in-force data. Always keep in mind that the reinsurer's mortality estimates are based on more data than your mortality study results.

What is an efficient use of time is recognizing when mortality experience is running outside of expectations and addressing the natural human risk-adverse behavior of assigning a lower reliance on data when non-credible results are better than expected and a higher reliance on data when non-credible results are worse. ✱