On August 9, 2011, SCOR SE, a global reinsurer with offices in more than 31 countries, acquired substantially all of the life reinsurance business, operations and staff of Transamerica Reinsurance, the life reinsurance division of the AEGON companies. The business of Transamerica Reinsurance will now be conducted through the SCOR Global Life companies, and Transamerica Reinsurance is no longer affiliated with the AEGON companies.

While articles, treaties and some historic materials may continue to bear the name Transamerica, AEGON is no longer producing new reinsurance business.

Archive Materials

Assessing Impaired Risks: Methodology Matters
Reprinted from the December 2008 Messenger newsletter

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Life insurance underwriters are frequently faced with assessing the mortality of an impaired risk. There are two primary ways by which this increased mortality can manifest itself: as a multiple of standard mortality or as a constant addition to standard mortality.

Typically, the multiple is called a table rating, where each incremental table represents 25 percent additional mortality over a standard risk. The constant addition is called a flat extra, where each unit represents one extra death per 1000 per year.

The choice of table rating or flat extra depends heavily upon the impairment. For example, cancers are typically rated with a flat extra, whereas diabetes is best reflected with a table rating.

These two methods have very different effects upon the pattern of claims. Chart 1 shows mortality rates for a male nonsmoker, issue age 40, based on the Society of Actuaries 2008 VBT table. In terms of absolute rates, a flat extra approach heaps the additional mortality in the early policy years, whereas a table rating magnifies the mortality in the later years.
Figure 1 - Comparison of Impaired Risk Mortality
A flat extra approach heaps the additional mortality in the early policy years, whereas a table rating magnifies the mortality in the later years.

Converting Between Flat Extra and Table Rating
Due to either market demands or other business-related reasons, underwriters are oftentimes asked to convert one form of impairment rating method into another. Usually, underwriters need to convert flat extras to table ratings and accomplish this by calculating an equivalent life expectancy. That is, they calculate the expected future lifetime of the applicant using a flat extra rating. Then, they remove the flat extra and determine the table rating that produces the same life expectancy.

We can use the example in the chart above to demonstrate this method. Using the 2008 VBT, the future life expectancy of a 40-year old male nonsmoker is 43.3 years. If we add a permanent flat extra rating of $9 to mortality, the future life expectancy drops to 35.5 years. We determine that a table 6 rating (or 150 percent extra mortality) is needed to produce this same future lifetime.

Therefore, a group of insureds assigned with table 6 mortality have the same modeled life expectancy as a group assigned with an extra nine deaths per 1000 every year. However, as demonstrated in the chart, the timing of these additional claims differs dramatically.

The Problem With Using Life Expectancy
While the “equivalent life expectancy” conversion method seems logical and straight-forward, it fails to reflect the financial consequences of the conversion. Actuaries rely upon the time value of money and the influence of policyholder lapsation in pricing insurance products. Life expectancy calculations ignore both of these vital components.

For our example, let’s calculate the present values of future claims based upon the two different rating schemes. In terms of pricing, present values represent the initial funds needed today to pay for all future claims arising from our group of impaired risks. We will assume a lapse rate of 4 percent and an interest rate of 5.50 percent.
For the $9 flat extra, the present value of future claims is approximately $110, while the present value using the table 6 rating is about $61. Since flat extra mortality is heaped into the early years, interest discounting and policy lapsation will have a lesser impact on the financials compared to the table rating method, which adds most of its mortality in later years.

Since impairment ratings are ultimately translated into higher policyholder premium charges, the process of converting flat extras into table ratings should consider the impact on profitability. If the underwriter believes that $110 is needed to pay for flat extra mortality, then collecting only $61 by offering a table rating loses the company $49.

**A Better Conversion Method**

Instead of relying upon life expectancy alone to equate rating methods, we should incorporate both lapse and interest into the equation. Rather than computing equivalent future lifetimes, we can calculate equivalent present values of future claims.

In our example, a table rating of 21.2 would be needed to increase the present value of claims to $110. This very large jump in the table rating clearly shows the financial significance that timing has in the payment of claims. Chart 2 presents some additional examples of the difference between the life expectancy and present value of claims methods.

![Figure 2- Comparing the Methods](image)

At young ages even a fairly modest flat extra translates to a high table rating when using the present value of claims method. This is due to the fact that a flat extra amount of just a few dollars is large relative to the base mortality of a newly underwritten 30-year-old.

**Summation**

Insurance professionals need to consider the financial impact of converting flat extras to table ratings, particularly at younger ages. While there may be good business reasons to offer alternative ratings for impaired risks, the traditional method of using equivalent life expectancies may not be in the best economic interest of the company.