Term Conversions – Balancing Value, Price and Risk

While almost every term carrier offers term-to-perm conversion provisions, individual company strategies drive what is provided in these provisions. Some companies (particularly mutuals) use term as a “foot in the door” to gain clients, selling less expensive term products to young families and then encouraging (and expecting) those consumers to convert to permanent products later. Pricing and producer compensation often reflect this high conversion expectation.

Some companies view conversions as part of their customer retention strategy. The conversion option is priced into the term products as opposed to increased rates on the perm products.

Other companies may offer conversion provisions hoping policyholders don’t exercise them. The provisions are offered only because competitive forces in the market dictate them. In such circumstances, factoring conversion options into term pricing has not been a priority. In any case replacement historically has been a more attractive choice than conversion due to continually dropping rates.

Regardless of strategy, provisions under conversion riders traditionally have been generous, offering long option exercise periods, a menu of permanent products with guaranteed rates, and no re-underwriting.

A Changing Environment

As the market has changed, two major factors have added to the economic value of these conversion options. Recent economic conditions have led consumers and their producers to find ways to maximize value in all existing products. This was perhaps most visible in the financial crisis’s effect on variable annuity living benefits.

Equally important, a pricing “truce” has developed in the term wars. Rates that had been on a steep downward trajectory have flattened out. Replacement for term products reaching the end-of-level-premium period has become much less attractive than it had been in the past, especially for those with impaired health.

By Brian Traxler, ASA, MAAA
Second Vice President and Marketing Actuary

Figure 1: Mortality Experience, Post-Conversion*

<table>
<thead>
<tr>
<th>Company</th>
<th>Term Experience</th>
<th>Converted Policy Experience</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>48.4%</td>
<td>69.2%</td>
<td>143.0%</td>
</tr>
<tr>
<td>B</td>
<td>46.0%</td>
<td>81.6%</td>
<td>177.4%</td>
</tr>
<tr>
<td>C</td>
<td>66.3%</td>
<td>83.1%</td>
<td>125.3%</td>
</tr>
<tr>
<td>D</td>
<td>59.9%</td>
<td>114.0%</td>
<td>190.4%</td>
</tr>
<tr>
<td>E</td>
<td>57.9%</td>
<td>45.5%</td>
<td>78.6%</td>
</tr>
</tbody>
</table>

On a 2001 VBT basis. While not necessarily representative of the industry as a whole, this table represents the experience of five actual companies. Company C is a mutual whose strategy is to sell term with the expectation of future conversion.

* Issue Years: 1995+; Companies with at least 50 conversion claims
Term Conversions – Balancing Value, Price and Risk (cont.)

The underwriting-free nature of conversion provisions also has become increasingly popular. This naturally attracts more adverse risks as the end-of-level-premium period approaches. And the advent of life settlements may exacerbate post-conversion lapse and mortality issues. Figure 1 illustrates that in many cases the mortality experience on converted policies is much greater than the term experience and varies greatly between companies.

Company Responses

Of course, if pricing reflects the anticipated selection issues then many of these products may need only minor adjustments to ensure continued profitability. But when the economic value of a benefit exceeds the cost charged, companies have two options: raise rates or reduce benefits. In a price-elastic market such as the term life market, any substantial rate increase can effectively price a firm out of the market. This means that the primary course of action is to adjust provision guidelines.

As a result, we have seen a number of carriers introduce substitute convertible term products. While each product’s provisions may vary either in features or in magnitude of change, we see several common approaches:

**Closing the Window.** Companies formerly had allowed conversions to take place up to and beyond the end-of-level period. Many companies have shortened this period, requiring conversions, for example, only up to Duration 10. Some companies (particularly mutuals) have pushed the timing even earlier in the policy’s lifetime. Earlier periods aid in both mortality and financial risk selection.

**Limiting Perm Product Options.** New convertible term products may have more limited options on the types of products to which a policyowner may convert. A few of these new permanent products have higher rates to reflect the expected post-conversion mortality. Others have modified the products from level premiums to term-limited guaranteed rates. This change in rate structure may be seen as particularly helpful in dissuading life settlement firms.

**Decrease Producer Incentives.** Many carriers have special commission provisions now for converted policies, including lower renewal commissions (though some companies argue that this is counterbalanced by the higher premiums). Additionally, converted policies may be exempt from bonus or other sales incentive campaigns.

Regardless of conversion strategy, companies that offer the provision will have at least some customers who will choose to switch to permanent coverage. Consequently, they should either factor the higher expected mortality into their pricing and/or try to lessen the anti-selection by controlling the breadth of conversion options. It should be noted that companies replacing their traditional term products with term-on-UL policies have addressed some of the conversion issues discussed above.

---

If you would like more information, you may contact the author at Brian.Traxler@Transamerica.com or 704.344.2734.
A recent Society of Actuaries (SOA) life insurance experience study indicated that from 2003 to 2007, overall mortality for fully underwritten policies improved at about three percent per year\(^1\). During the same time period, US population data from the Centers for Disease Control (CDC) showed improvement of around two percent per year\(^2\). Is the SOA figure an indication of true short term secular improvement in the insured population or is there a better explanation? In this article, I use our proprietary Transamerica Experience Database (TED) to delve deeper into mortality improvement for the insured population and then compare that experience with general population trends.

**Transamerica Reinsurance Experience**

TED covers policies exposed to death from January 1, 2004 through June 30, 2009. One of the concerns when analyzing mortality improvement in an insured population is the ability to differentiate true secular trends from those due solely to demographic changes and evolving underwriting practices over the exposure period. To mitigate the underwriting effect, I filtered the database to include only policies issued since 2000 and limited the analysis to companies with three and four nonsmoker class systems. Finally, I excluded small policies with face amounts under $100,000. This provides a reasonably homogeneous cohort from an underwriting perspective. The demographic profile of the group should not change significantly because of the relatively short exposure period (2004-2009). Nevertheless, I reviewed those statistics as part of my analysis.

**Improvement Rates**

After applying all the data constraints, the TED experience study contains 13,265 claims with an exposure count of nearly 17 million policy years. Figure 1 shows the resulting experience as a percent of the SOA 2001 VBT, along with a linear regression to help smooth year-to-year variations and provide a trendline. Since I have limited the issue years to 2000-2009 the figure illustrates improvement only during the early select period.

Improvement rates can be calculated using the raw and trend line A/E ratios from 2004 and 2009. Assuming that the 2009 ratio approximates that entire year’s experience, then the annualized improvement rate is 2.5 percent (using raw ratios) or 2.6 percent (using trend ratios). In either case, the TED results are certainly in the ballpark of both the SOA and CDC figures. However, does this rate represent true secular improvement, or is it the result of other changes in the underlying policies over time? Demographic data from our TED population can answer this question.

**Checking the Demographics**

Figure 2 shows changes in various demographic metrics from the population over the exposure period, using expected claims as the basis of measurement. Any distribution changes among preferred underwriting class and among amount bands over the exposure period may be important because A/E ratios based upon a standard table tend to be lower for preferred classes (obviously) and higher for smaller face amounts with less rigorous underwriting.

continued on next page.
Insured Mortality Improvement in the 21st Century – Is It Real? (cont.)

Demographics remain very stable from year to year, even though the policyholders are aging through time. The only exception is the percentage of expected claims in policy years 1-2. This metric could be of concern because research has shown that the contestable clause contained in most life insurance policies tends to cause A/E ratios based upon a smoothed industry table such as the 2001 VBT to be lower in policy years 1-2 than in policy years 3 and after. When the data is normalized to compensate for the policy year skewing, the annualized improvement trend actually increases to about three percent per year. This makes intuitive sense since the normalization process lowers the proportion of expected claims in policy years 1-2 for 2004 (increasing the A/E ratio) and raises the proportion in years 1-2 for 2009 (decreasing the A/E ratio).

While changes in demographics are an unlikely cause of the decrease in mortality from 2004 to 2009, it is possible that all other causes have not been factored in. Therefore, it may be prudent to say that the observed improvement rate for this insured population is due to secular and all other unmeasured factors combined.

Improvement by Gender and Attained Age

Figure 3 breaks out five-year annualized improvement trends by gender and attained-age groups. Because of the regression model used to smooth the data, cell values are not necessarily consistent with corresponding totals.

Generally, females are improving at a slightly slower rate than males, and there is not a significant difference between mortality improvement for the 20-49 and 50-89 age groups.

Long-term SOA versus Population Experience

Given increased confidence that recent secular mortality improvement in the insured population is not an illusion, how well does this improvement represent long term trends? Historical general population data is readily available and may be used as a proxy for insured experience. But we need some assurance that this is a reasonable assumption. Relying upon past insured select experience is difficult due to a lack of homogenous underwriting standards, but using SOA ultimate attained-age experience (i.e., mortality after initial underwriting effects have worn off) should mitigate this problem.

Ultimate mortality from the SOA 1957-60 and 1990-95 Basic Tables and corresponding US population mortality from 1958 and 1992 were used to calculate annualized improvement rates over the 34-year period. Figure 4 summarizes male and female combined results by attained age and shows a noteworthy correlation of improvement rates between the insured and general populations.
Therefore any analysis performed on US population historical data can be readily translated to the insured population with some degree of confidence.

**US Population History**

So how reliably can the insured-population five-year improvement rate be used as a predictor of the long term trend? Figure 5 plots the history of moving five-year period improvement rates for the US general population ages 35-54 (approximately the bulk of ages in the TED study) beginning with the period 1952-1957 through 2002-07.

The chart shows periods of rapid improvement and periods of slow or even negative improvement for both males and females, but it is clear that the rate for any given five year period is not necessarily a good indicator of the long-term average (about 1.3 percent for males and 1.4 percent for females at the ages selected).

**Conclusion**

Evidence from the 2004-2009 TED study supports the conclusion that the secular mortality improvement being experienced by the life insurance industry during the 21st century is a real phenomenon. However, short term rates have varied dramatically over time so it would not be wise to use current experience as the basis for future mortality projections. The industry should rely on historical US population data as a reasonable substitute for determining long term trends in the insured population.

**References**

Family history has been long recognized as an important factor in risk assessment for life insurance. There are numerous examples of diseases that have very high correlation with family history, based upon the genetic nature of the disease. Those include autosomal (dominant and recessive) disorders and those that are associated with mutations on the X chromosome. These latter are referred to as X-linked diseases, and can be dominant (rare) and recessive.

Autosomal dominant diseases include Huntington’s disease and polycystic kidney disease. In these cases, only one altered gene is necessary for the disease to be transmitted from parent to child. Thus, if one of the individual’s parents has an autosomal dominant disease, each child has a one-in-two chance of inheriting it. Autosomal recessive disorders require mutations in both genes, and an individual must inherit the alteration from both parents. In these cases, there is a one-in-four chance of passing the disorder to the child. In addition, it is likely that neither parent will exhibit the disease. Examples include sickle cell anemia and cystic fibrosis. Finally, for the X-linked disorders, the abnormality is on the X-chromosome. For the recessive disorders, such as hemophilia and Duchesne muscular dystrophy, a male has a 50 percent chance of inheriting the disorder from his mother who is a carrier; he cannot inherit the disease if the father is the carrier. For a female to inherit the disorder, both mother and father must be carriers (with some rare exceptions).

More commonly, diseases fall under the category of polygenic disorders. While these disorders are not completely inherited, there may be a slight familial inheritance. A significant risk factor in such disorders is a family history of disease. However, these diseases are also influenced by environmental factors, such as diet and exposure to toxic materials (e.g., tobacco smoke, asbestos). Examples of these multi-factorial diseases include coronary artery disease, diabetes, breast cancer, obesity and autoimmune diseases. While in some of these disorders family history is the most significant risk factor, in others it is only a minor contributor to the risk.

Figure 1: Causes of Breast Cancer in Women

Three of every four cases of breast cancer in women results from non-genetic factors not from direct or slight familial inheritance.

Family History and Cancer

In life insurance, a great deal of emphasis has been placed upon the family history of cancer in determining if an individual qualifies for the best available rates. I believe this emphasis has been misplaced.

As physicians, we do not dispute that all cancer is due to genetic abnormalities. However, there is a significant difference between hereditary disorders and genetic disorders. All hereditary disorders have one or more genetic mutations. What makes hereditary disorders different from “acquired” genetic disorders is that in the former the genetic mutation is in all cells in the body since it is obtained from one or both parents from conception. In cancers that are due to acquired genetic mutations the defect is only in the affected cells.

The BRCA1 gene, which has a strong association with breast cancer, is present in all cells in the body. That is why BRCA mutations are associated with other malignancies such as ovarian and gastrointestinal cancers. For non-hereditary breast cancer the genetic mutation occurs only in the breast tissue, and if the body is unable to eradicate the cells with the mutation, then uncontrolled growth occurs
in the breast tissue leading to the detectable malignancy. The risk of second malignancies is much lower in these individuals than in individuals who acquire the cancer through hereditary disorders.

In addition, while hereditary cancer is associated with a high likelihood of developing a malignancy in the offspring, these account for a very small percentage of all cancer-related mortality. For example, while a woman with the BRCA1 mutation has an 85 percent lifetime risk for developing breast cancer, the likelihood that a woman with breast cancer will have this mutation is less than 10 percent. The single greatest risk factor for breast cancer is simply being a woman, with a lifetime risk of one in eight.

To my knowledge there are no actuarial or clinical studies that strongly associate the simple family history of cancer with increased mortality. Using early death (below age 60) in a parent due to cancer as a mortality risk factor fails to take into account a variety of external factors, including smoking status and medical care. Could we be insuring more of these individuals without adversely affecting our mortality results? The evidence appears to support it.

If you would like more information, you may contact Dr. Zimmerman at Steve.Zimmerman@Transamerica.com or 704 344.4275.

Term/UL Cuts into Traditional Term Life Sales

Term life insurers have been looking for signs of recovery in sales; instead, last year's new premium volume saw the largest decline ever reported: a 12 percent drop. The still-sluggish overall economy hasn't helped, and policy replacement as a source of new premium has been down since the end of the term price wars. Finally, term carriers overall raised prices in 2010. These factors, however, pale in comparison to the impact of the new term-on-a-UL-chassis (or term/UL) designs that began appearing in late 2009.

LIMRA’s 4th Quarter U.S. Individual Life Sales data recorded a 12 percent decrease in term sales; however, this figure excludes new term/UL premiums. If new premium for traditional term and “UL/other” (which includes term/UL) is summarized, new premiums are down about six percent – halving the reported decline in traditional term life sales.

So what’s driving the term/UL movement? For consumers, term/UL offers level premium coverage at attractive prices with added flexibility. Compulife’s April 2011 rates for key pricing cells reveals that three of the top six rate quotes shown are actually term/UL designs.

Some carriers have interpreted the letter of AG 38 (AXXX) regulation as allowing them to hold lower reserves using a term/UL chassis. While this interpretation is still in dispute, the consensus at this time is that term/UL is here to stay. For the time being, most life insurers are waiting on regulators and existing term/UL carriers to finish discussions on how to calculate term/UL reserves before moving forward.

Term writers in general have been looking for ways to make the most efficient use of capital on hand. XXX reserves are expensive in the best of financial climates; the current environment of low interest rate yields, low statutory discount rates and low lapse rates are raising reserving costs at the same time that capital remains hard to acquire and expensive relative to the prices available before the financial crisis. Some direct writers maintain that the multiple shadow account design of term/UL allows them to use the letter of AXXX regulation to support lower reserves for these new product designs.

Continued on next page.
Term/UL Cuts into Term Life Sales (cont.)

Have these cost savings been passed to consumers? A sampling of term/UL pricing cells suggests that the new designs are being priced generally at or below the premium rates on traditional term offerings recently marketed by these companies, with the biggest differences occurring in 30-year business (Figure 1).

The potential reduced reserving costs for term/UL could enable carriers to afford some reduction in prices and increase their returns. Term/UL also provides additional flexibility to the policyholder. But for some companies the costs may outweigh the benefits. For one thing, term/UL can incur higher administrative costs and more complex compliance requirements than traditional term. For example, term/UL writers must keep ledgers of guaranteed values, issue annual reports and manage cash flows among multiple shadow accounts – additional complexities that carriers will have to manage for a very long time. The added flexibility may also be difficult for agents and consumers to understand.

Many state insurance commissioners have approved the new term/UL designs but some regulators are now raising concerns over reserving approaches. For example, the New York State Insurance Department is currently in discussions with term/UL writers over which of the multiple sets of interest rates and charges should be used in determining the minimum premiums for reserving calculations. The ongoing question-and-answer process between term/UL carriers and regulators is likely to continue for some time. In the meantime, some companies are holding off moving into term/UL until these regulatory issues are cleared up.

While term/UL is now being thoroughly vetted by regulators, the current sentiment is that it’s here to stay. We will keep our clients apprised of regulatory developments and other news. If you have further questions about this emerging product segment please contact us.

Figure 1: Ratio of Average Term/UL premium to Traditional Term Offering

<table>
<thead>
<tr>
<th>Cell</th>
<th>10 Year</th>
<th>20 Year</th>
<th>30 Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male - Age 35 - Pref Plus NT $500,000</td>
<td>99.4%</td>
<td>99.4%</td>
<td>95.2%</td>
</tr>
<tr>
<td>Male - Age 35 - Pref Plus NT $1,000,000</td>
<td>98.9%</td>
<td>99.4%</td>
<td>95.2%</td>
</tr>
<tr>
<td>Male - Age 45 - Pref Plus NT $500,000</td>
<td>100.6%</td>
<td>100.1%</td>
<td>96.4%</td>
</tr>
<tr>
<td>Male - Age 45 - Pref Plus NT $1,000,000</td>
<td>99.1%</td>
<td>100.2%</td>
<td>96.5%</td>
</tr>
</tbody>
</table>

The move to term/UL has solidified competitiveness for carriers that were already price leaders in the traditional term segment.