Mortality by Band – An Update

SCOR constantly monitors mortality experience by band. A few years ago we took a close look at mortality by band and summarized that study in an article in The Messenger (“Observations on Mortality by Band,” October 2007). As one would suspect, relative mortality experience at higher face amounts was generally better than experience for mid and lower bands (Figure 1).

Since the 2007 study was conducted the number of reported claims in our experience database has multiplied more than three times. We decided to revisit the previous findings, especially in light of market changes since the study was first conducted.

Overall, we see that two prominent trends have emerged. First, mortality experience has improved generally across all bands through the exposure years. We have discussed mortality improvement in prior issues of this newsletter and will continue to provide observations on this development in future issues.

However, this article reviews the apparent mortality experience compression that is taking place between Bands 3 and 4.

As Figure 2 shows, the relationships between Bands 1, 2 and 3 remain reasonably consistent. Band 1 has crept closer to Band 3 but still has about twice the mortality of that band. Band 2 maintains about a 25 percent spread from Band 3 throughout the study period.

The interesting result is the convergence between Bands 3 and 4. The difference between these two bands has declined significantly, from 13 percent in our 2007 study to only 5 percent today.

What Is Causing This Convergence?

Any number of factors may be causing the developments we are observing, and their effects can range from negligible to significant.

From an actuarial perspective we first need to consider the data used in the study.

<table>
<thead>
<tr>
<th>Band</th>
<th>Face Amount</th>
<th>Relative Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&lt;$100,000</td>
<td>200</td>
</tr>
<tr>
<td>2</td>
<td>$100,000-$249,999</td>
<td>120</td>
</tr>
<tr>
<td>3</td>
<td>$250,000-$999,999</td>
<td>100</td>
</tr>
<tr>
<td>4</td>
<td>$1m+</td>
<td>80</td>
</tr>
</tbody>
</table>

Relative mortality for exposure years 2004-2006 illustrates rapid mortality deterioration as face amounts decline below $100,000.
Some of the change may be due to the smaller sample size for the first analysis. Our current database has more than three times the data points available than in the original study.

Some movement we see in the bands can be attributed to normal year-to-year claims variance. However, as we gain more data points for each band, that variance should decrease closer to the mean. Therefore, as we increase the number of claims in each band, we would expect the change from one study to the next study to decrease.

A small data set was used in the original study. As our claims experience has increased, we have accumulated additional data and analysis related to that experience. Underlying business strategy may impact claims experience.

Nonetheless, we still believe that some mortality convergence has occurred, so let’s turn to changes in underwriting that may help explain what has happened.

Part of the convergence is due to Band 3 mortality improving more than the Band 4. A significant reason for this improvement may be attributable to more rigorous preferred underwriting for mid-face amount applications. Underwriters are just more attuned to monitoring for factors that may cause mortality deterioration, whether the application is for $500,000 or $5 million in coverage.

Similarly, the benefits that rigorous underwriting created in the $1 million-plus policy applications may have plateaued over this period – they have been incorporated fully, and any additional mortality gain is marginal at best.

Sales of $1 million (or larger) policies are more prevalent now than 10 years ago as carriers have become more accustomed to offering higher face amount policies. The mortality experience of policyholders who would have been in Band 3 is now in Band 4, resulting in the mortality of those groups coming closer together.

As carriers continue to pursue higher face amount policies, part of the issue could simply be over-insurance due to relaxed financial underwriting. That is, carriers are offering high-face amount policies to individuals whose insurability cannot justify the higher coverage.

Will Mid- and High-Band Mortality Converge?
While the difference in experience between mid and high bands appears to be lessening, we believe the findings of our 2007 study are still valid. In particular, we believe mortality experience will vary by band, and this fact must be factored into a company’s product design, pricing and underwriting functions. Likewise, producers will continue to identify underwriting inconsistencies among carriers to their clients’ benefit.

SCOR’s Experience Database allows our actuaries to “slice and dice” experience data in a myriad of ways. If your company would like more information or assistance in examining your company’s emerging experience, please contact your account executive to schedule a visit.

<table>
<thead>
<tr>
<th>Band</th>
<th>Face Amount</th>
<th>Exposure Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&lt;$100,000</td>
<td>215</td>
</tr>
<tr>
<td>2</td>
<td>$100,000-$249,999</td>
<td>122</td>
</tr>
<tr>
<td>3</td>
<td>$250,000-$999,999</td>
<td>100</td>
</tr>
<tr>
<td>4</td>
<td>$1m+</td>
<td>87</td>
</tr>
<tr>
<td># of Claims</td>
<td>5,361</td>
<td>12,029</td>
</tr>
</tbody>
</table>

The table illustrates mortality experience over different exposure periods relative to the $250,000-$999,999 band. (Note: Data for issue years for 2001 and beyond.)
Potential Causes of Mortality Divergence by Band

Some variation in mortality by band may be attributed to differences in underwriting requirements. For example, for policies with face amounts less than $100,000, full underwriting may not be cost justifiable and preferred rates may not even be available. Additional factors may include:

Underwriting

- *Less experienced underwriters assigned to low band policies.* Companies generally assign the most experienced underwriters to review higher face amount applications, leaving low band policies to less experienced staff. This practice may compromise the quality of underwriting decisions on low face amount policies.
- *Productivity pressures for low band policies.* An understaffed underwriting shop may limit the amount of time available to review low band applications to allow more time for larger applications.

Anti-Selection

- *Producer behavior.* Producers are aware of pricing and underwriting differentials among carriers and are likely to select coverage for their clients from companies that will result in the best risk class and rate.
- *Policyholder behavior.* Less healthy applicants may selectively seek multiple low band policies to avoid greater underwriting scrutiny. The rate structure may provide incentive for preferred applicants to purchase larger amounts.

Socioeconomic Factors

- *Consumer lifestyles.* Low band policyholders likely have limited disposable income. Income may be correlated with lifestyle habits (e.g., exercise, diet) that influence mortality outcomes.
- *Education and prevention.* Consumers of lower band policies likely have less education and may be less likely to engage in proactive health strategies or prevention or management of health conditions. In contrast, educated consumers may be more proactive in the prevention and management of health conditions.
- *Access to healthcare.* Lower band consumers may have limited access to healthcare. In addition, the quality of healthcare available may be lower than for high band policyholders.