Adapting to the New Realities

It’s déjà vu all over again. Like 2012, every survey, list, article and interview identifies the same three scourges for the year ahead: Low interest rates, a slow moving economy and regulatory uncertainty. The difference this time around is a growing sense that these challenges will be here next year, possibly the year after and maybe even beyond that.

As life insurers continue to adapt to the new realities, we are likely to see repeats of things that took place in 2012 – assessing existing products, budgeting for the sources of future growth, and divesting non-performing or non-strategic product lines.

Adapting to address the realities of today and to prepare for the future will be challenging but critical; our hope is that you will allow us to be your reinsurance partner in that process today and the future. We are ready to do so.

For life reinsurers, the reality of lower cession rates means we are focusing on specific products and services that can add value to your company. At SCOR we will be digging deeper to understand your needs. Whether you seek to solve a problem or capitalize on an opportunity, we hope you will turn to us for traditional reinsurance, capital management and value-added solutions.

Velogica will soon underwrite its one millionth policy application, demonstrating our well-tested ability to help insurers sell non-medically underwritten business to the middle market. We intend to increase focus on reinsurance partner activity across product lines. In addition to traditional reinsurance, we are providing financial reinsurance solutions to help companies manage portfolio risk and achieve other financial objectives. We also are aggressively developing longevity expertise to meet market needs.

Due to the acquisition, this past year has been an intense period of transition as we integrated operations and transferred Transamerica business to SCOR entities. The majority of this is behind us and we are eager to turn our full attention to the market and to becoming a better reinsurer.

You deserve more than a reinsurance vendor. You deserve a reinsurance partner you can count on to deliver ideas, solutions and the highest quality of customer service. We will be resolute in our efforts to be your preferred reinsurance partner in 2013 and beyond.

We recognize if we want to be incrementally better in what we do, we need to be more competitive. What we really want to be is exponentially better, which means we need to be much more cooperative with you in all aspects of our partnership.
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.

- 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.

### Table: Relative Mortality Experience by Band

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<tbody>
<tr>
<td>1</td>
<td>&lt;$100,000</td>
<td>215</td>
<td>194</td>
<td>190</td>
</tr>
<tr>
<td>2</td>
<td>$100,000-$249,999</td>
<td>122</td>
<td>126</td>
<td>125</td>
</tr>
<tr>
<td>3</td>
<td>$250,000-$999,999</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>4</td>
<td>$1m+</td>
<td>87</td>
<td>93</td>
<td>95</td>
</tr>
<tr>
<td># of Claims</td>
<td>5,361</td>
<td>12,029</td>
<td>18,119</td>
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</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.)
• 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.

### 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.
In the past year, writing about longevity risk has become increasingly popular, whether an adviser brief about an individual’s longevity risk or industry papers regarding risk exposure inherent in defined benefit pension plans or payout annuity blocks. This article will seek a balanced discussion about longevity risk – why it is of curious interest to US life insurers but not necessarily a priority and what might happen that could change that perspective. We then present an attractive option for managing longevity risk, the longevity swap, and provide real world scenarios illustrating how a longevity swap can help a firm manage their bottom line more effectively.

**Low Priority**

Unlike in Europe where longevity exposure is actively managed, longevity risk has generally been downplayed by US life insurers for three main reasons:

- No statutory requirements
- Low exposure
- Longevity’s role as a mortality hedge

**No statutory capital requirements.** Currently the NAIC RBC formula does not have a C-2 component for mispricing longevity risk. Once a mortality basis has been chosen for annuity and pension statutory reserve assumptions, they are rarely if ever revisited. However, there is no guarantee that this treatment will continue. In Europe, Solvency II has explicit methods for calculating capital for longevity risk. The UK’s Financial Services Authority publishes new mortality improvement assumptions that must be used for pension plan valuation, which can create a material level of volatility on a company’s balance sheet. The NAIC’s recent progress on a principles-based approach to valuation may be the first step towards accounting for longevity risk.

**Low exposure.** For most life insurers, longevity risk is less a material risk than the mortality, morbidity, equity or credit risk on their balance sheets. There are many reasons for this, but two main drivers. First, immediate annuity sales, while growing, remain a very small percentage of annuity sales and very few deferred annuities get annuitized. Second, defined contribution pension assets almost are never annuitized. For defined benefit plans, lump sums often are the option of choice if offered as a distribution option. While mandatory annuitization is a growing trend in Europe, it is unlikely that similar regulation could pass in the US in the foreseeable future. As a result, most CROs focus on managing the more material risks on a company’s books.

**Longevity may act as a mortality hedge.** Even if a carrier’s exposure to longevity risk could be determined as material, in many cases life insurers may opt to increase their exposure to longevity risk with the thought that it can serve as a hedge against its mortality block. After all, an insurer cannot pay death benefits and annuity income to the same person simultaneously. Solvency II enables an insurer to take diversification credits and thus reduce overall capital levels by spreading risk. While one cannot take explicit credits in the US, companies still may view hedging as favorable for their own internal risk management policies. However, unless an insurer holds both the longevity and mortality risk on the same life, the hedge will be far from perfect. Mortality risk is centered in middle age while longevity risk is focused on older age. Mortality improvement over the last few decades has been dramatically different between the 30-50 and 65+ age groups.

**Why Manage Longevity Risk?**

Given all of the above reasons against actively managing longevity exposure, why may it still be prudent to do so?

**Lack of longevity expertise.** The life insurance industry is expert in mortality risk. That knowledge foundation does not extend as strongly to longevity risk. Experts historically have understated life expectancy. In many countries (the US, Canada, UK, Netherlands), recent annual mortality improvement at older ages is well above levels experienced historically. As a larger percentage of the population reaches older ages, more government and private research dollars will be directed towards addressing longevity, making it difficult to predict what future improvement will be. Best practices promote keeping the risks one understands and minimizing exposure to all others.

**Longevity risk is long-dated.** A single life annuity issued today to a 65 year old likely will pay out on average for 20-25 years. For a joint annuity with a younger spouse, the annuity will stay on an insurer’s books much longer. Demographers’ views on longevity trends – such as changes to ultimate Omega age, impact of future medical breakthroughs, global convergence, etc. – vary widely, with some experts projecting that life expectancy at retirement may reach 100 during our lifetimes. Given the focus on short-term earnings, companies that have
very long-dated liabilities suffer financially.

Options for Managing Longevity Risk
If a carrier chooses to manage their longevity risk, there are three main alternatives:

Buy-Out. Existing pension plan assets or an insured annuity block are transferred to an insurance company. All asset and longevity risk is transferred, including the administration.

Buy-In. Pension plans use the assets backing their defined benefit plan to buy a group annuity from an insurance company. All asset and longevity risk is transferred but administration is not.

Longevity Swap. A carrier pays fixed premium equal to the expected annuity income payments plus a risk fee to a counterparty in exchange for receiving actual annuity income payments paid by the carrier. As a result, the carrier’s payments are fixed and known. Longevity risk is transferred, but carrier keeps asset risk and administration.

The Benefits of a Longevity Swap
Both a Buy-Out and Buy-In require an up-front premium, and thus the immediate recognition of a loss since the premium is likely to be higher than their current reserve. Alternatively, a longevity swap allows one to manage the longevity risk much more efficiently, with no up-front premium and no immediate impact on the balance sheet. A longevity swap can protect the income statement from unexpected costs arising from:

- Mortality improvements at a higher rate than priced
- Errors in the base table
- Basis error if characteristics of annuity block differ from basis used to create the firm’s mortality table
- Volatility associated with a heterogeneous block

If a future statutory regime requires assumptions to be updated to reflect recent mortality improvement experience, a carrier’s balance sheet will be greatly exposed. Even if the current regime remains, the income statement will experience a slow bleed if actual experience deviates from expected. One way to illustrate the impact of assumption deviation is to compare the relative impact on the present value of cash flows under different but reasonable mortality events relative to a common pricing approach.

Let’s assume Company A priced its annuities in 2012 by generationally improving the Annuity 2000 Basic Table by 100% of Male Scale G and 50% of Female Scale G (the basis used to convert Table 1983A to the Annuity 2000 table) to 2012, and then assume the same improvement rates from 2012 and on. Figure 1 shows the ratio of the present value as of January 1, 2012 of cash flows under alternative scenarios relative to the pricing scenario.

Results can be highly volatile. Using our example, Company A’s present value of cash flows range from meeting expected (A2000 Table w/Scale G) to negative (any cell over 100 percent). Scenarios vary widely, with significant potential losses in the male population if results mirror the A2000+UK average mortality improvement, for example. When these losses are multiplied by potentially tens of thousands of contracts for even average attained-age life expectancy, annual financial losses can become material quickly.

SCOR continues to monitor the longevity market for opportunities to assist our clients in managing potentially adverse financial results. SCOR has concluded a longevity swap in the UK, and we share our experiences with our SCOR colleagues abroad. For more information on how swaps may help your firm manage longevity risk, contact your account executive.

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**Figure 1 – Cash Flow Outcomes Change with Table Basis**

<table>
<thead>
<tr>
<th></th>
<th>MALE</th>
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<th>FEMALE</th>
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<tr>
<td></td>
<td>65</td>
<td>75</td>
<td>85</td>
<td>65</td>
<td>75</td>
<td>85</td>
</tr>
<tr>
<td>A2000 Table w/ Scale G</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>103.7%</td>
<td>104.7%</td>
<td>105.6%</td>
</tr>
<tr>
<td>IAM2012 w/ Scale G2</td>
<td>104.1%</td>
<td>104.7%</td>
<td>98.8%</td>
<td>103.3%</td>
<td>105.7%</td>
<td>106.1%</td>
</tr>
<tr>
<td>A2000 Table with improvement rates = US average 1999-2007 (A2000+US Avg)</td>
<td>105.3%</td>
<td>106.2%</td>
<td>106.7%</td>
<td>103.5%</td>
<td>104.3%</td>
<td>105.5%</td>
</tr>
<tr>
<td>A2000+UK Avg (98 - 06)</td>
<td>107.5%</td>
<td>107.4%</td>
<td>104.6%</td>
<td>104.8%</td>
<td>104.6%</td>
<td>102.7%</td>
</tr>
<tr>
<td>A2000+Canada Avg (99 - 07)</td>
<td>104.5%</td>
<td>104.7%</td>
<td>102.9%</td>
<td>103.0%</td>
<td>103.9%</td>
<td>102.8%</td>
</tr>
</tbody>
</table>

A company using the A2000 Table with Scale G for pricing could experience major losses if annuitants exhibit characteristics more similar to those factored into other pricing tables.
Last November, the medical journal *The Lancet* reported that United States suicide rates increased four times faster between 2008 and 2010 than it did in the eight years preceding the recession (*The Lancet*, Volume 380, Issue 9856, Pages 1813-1814, November 24, 2012). One immediately wonders if this trend is mirrored in the insured population. We reviewed SCOR’s trauma deaths from 2005 through 2012 to shed some light on this remarkable trend from an insurance industry perspective.

**Historical Trauma Claim Counts by Year of Death**

SCOR maintains an historical database of paid reinsurance claims. For calendar years 2005-2011 and the first half of 2012, the database contains more than 115,200 claims having a reported cause of death. Of these, about 12,300 deaths resulted from trauma (e.g., motor vehicle accident, suicide, aviation accident, drowning, etc.) in durations three or later. I excluded the first two durations because suicide claims are typically denied during this period due to the contestability period.

Figure 1 shows claim counts for suicide, motor vehicle accidents, and other trauma (as a percentage of all trauma claims) for 2005 through 2012 to shed some light on this remarkable trend from an insurance industry perspective.

Since 2008, overall incidence of trauma-related claims has remained relatively flat. Interestingly, the sum of suicide and motor vehicle claims, as a percent of all trauma claims, has remained relatively stable.

For a while at a consistent level, then any mortality implications should already be built into the industry’s pricing. However, if anti-selective behavior is on the rise, then this is the time to contemplate possible corrective actions.”

In this issue, David revisits the topic of suicide and trauma claims with updated post-contestible claims data. His conclusions potentially point to insured behavior during the financial crisis, with a rise in aviation accident claims paid. On the other hand, the potential for economic recovery appears to be positively affecting both suicide and aviation claims.

For a count basis, the data from Figure 1 lends additional credence to this belief. Note that I have used the word “misidentified” rather than “disguised” because I eliminated claims during the contestable period. There would be little financial incentive for an insured to hide the fact of a suicide after the second duration.

From a count perspective, it does not appear that the 2008 economic meltdown caused an increase in the relative number of suicides experienced by SCOR’s insured population. However, the actual financial impact of a change in the suicide rate is better measured by paid claim benefits rather than claim counts. Fortunately, SCOR’s database also contains benefit amounts reimbursed to our reinsurance clients on each death.

**Historical Trauma Claim Amounts by Year of Death**

When looking at the trend in trauma paid benefit...
amounts, there is definitely a spike in the relative percentage attributable to suicide beginning in 2008, as shown in Figure 2. While it appears that the suicide trend reversed itself in 2011, a closer review of “Other trauma” claims points to a different possibility.

As it turns out, claim amounts in both 2011 and 2012 were skewed by large-face-amount private aviation accidents. Figure 3 compares the distribution of suicide, aviation, motor vehicle, and other trauma claim benefits for calendar years 2008 through 2012. While the percentage of trauma claims due to suicides drops in 2011 and 2012, there is a counteracting increase in the percentage due to private aviation. Notice that the sum of the suicide and aviation percentages remains fairly stable at around 50-55 percent throughout the period.

Is it possible that during the latter part of the recession aviation “accidents” become an instrument of choice for suicides among the very wealthy? Figure 4 provides some additional evidence that this might be the case. It shows the average reinsurance benefit amount (not the original policy amount) for private aviation accident claims in Durations Three and later as compared to reported suicide claims.

The sharp increase in 2008 in both aviation and suicide benefit amounts may indicate anti-selective behavior on the part of claimants due to the recession. There was not an unusual increase in the number of claims in that period, but the average size of those claims increased quite dramatically.

**Summary**

Even though the general US population recently experienced a four-fold increase in the suicide death rate, it does not appear that the number of insurance claims from suicides (both reported and “misidentified”) is on the rise. What we have seen instead is an increase in the average benefit size paid on suicide and private aviation claims in 2008-2012 compared to 2005-2007. Now that the economy is apparently on the mend, time will tell whether this trend reverses itself.

Contrary to the frequency of suicide-related claims in Figure 1, total reinsured claims paid due to suicide increased drastically starting in 2008.
Toledo to Lead SCOR Life Brazil

SCOR Global Life Americas is pleased to announce that Francisco de Toledo Neto has joined the company as President, SCOR Life Brazil.

Mr. Toledo brings extensive experience and market knowledge to SCOR. He comes to the company from the Chubb Group, where he served as Vice President of Chubb’s Life, Health & Accident division in Brazil, Chubb’s largest life operation in the world. Over the past few years, he has supervised double-digit growth within the division.

“We are delighted that Francisco will be leading our Brazilian life reinsurance operations,” said Michael Colannino, Executive Vice President of International for SCOR Global Life Americas. “SCOR is committed to the life-health reinsurance market in Brazil. We are actively working to pursue a local license which will give us more flexibility and enable us to work more effectively with our clients. Francisco’s understanding of and reputation in the direct market is a tremendous asset to us,” Colannino said.

SCOR’s provides traditional reinsurance as well as value added solutions such as product development, mass marketing and capital management solutions to the life-health insurance industry.

“I am excited to be joining SCOR Global Life at this important time in the development of the Brazilian life and health insurance industry,” said Mr. Toledo. “The Brazil market offers immense opportunity for primary insurers and reinsurers to work in partnership. This is especially true for product development solutions that enable direct writing companies to reach new markets with innovative products.”

Maurice Piault, Managing Director of SCOR’s Life operations in Latin America, said, “We look forward to utilizing Francisco’s great wealth of industry knowledge and experience as we expand our presence in Brazil. Our team there and our SCOR clients have much to gain from the leadership that Francisco brings to our business.”

Mr. Toledo brings almost 20 years of direct life insurance experience in Brazil to SCOR Global Life Brazil. In addition to his role at the Chubb Group, Mr. Toledo has held management positions in Icatu Seguros, Sul América and Marsh. He earned a bachelor’s degree in Business Management from Escola Superior de Administração de Negócios, São Paulo, and an IAG Master of Insurance from Pontifica Universidade Católica, Rio de Janeiro.

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