SCOR Completes Generali USA Acquisition

Welcome to the new SCOR Global Life Americas. Our entire team is excited and optimistic about the future and what the new organization means to our clients in the US and to our employees in Charlotte, Kansas City and Minneapolis. We also continue to expand our relationships in Canada and throughout Latin America.

With the completion of the Generali USA acquisition, you will see an organization that has already combined the best attributes of both companies in two major US locations and is well connected to our global infrastructure and resources. SCOR’s recent release of our new three year strategic plan, entitled “Optimal Dynamics,” talks to the diversification benefit we achieve in our internal model by balancing P&C with Life exposures on a worldwide basis. In that regard SCOR will focus on biometric risk (mortality, morbidity and longevity) as well as financial reinsurance solutions.

We have placed client service at the top of our agenda: From sales and marketing to pricing, underwriting, medical research and operations, you will find the professionals at SCOR striving to be the team that you turn to when you need the support of a reinsurer. Facultative underwriting is an essential facility for most of our clients, and with a strong organization to build upon, our underwriters and doctors in Kansas City and Charlotte are working smartly and with urgency to rival the best in the industry and supply innovative solutions to various market segments.

In addition to a keen focus on client service, we now offer a broader set of products, capabilities and technical expertise. Our portfolio includes traditional reinsurance arrangements for individual and group life. Velogica®, our just-in-time underwriting delivery system, is assisting major clients to drive new models of efficient distribution through predictive risk assessment and point-of-sale policyholder capture.

The acquisition of Generali USA positions SCOR as a market leader based on new and inforce business. We now have the largest book of US life reinsurance business in the market. But market share is only one aspect of leadership. A better measure is how well we use our talent and our deep pool of mortality experience for the benefit of our clients and the US life insurance industry. Our goal is to be the best and we are prepared

Continued on Page 8
Policy contestable clauses allow insurers to balance the consumer’s need for quicker policy issue with the insurer’s need to thoroughly assess the applicant’s risk. If a material misrepresentation or fraud is discovered during the contestable period, the insurer can contest any claim and possibly void a policy during the first two policy years. Because this may subsequently result in significantly lower claim incident rates compared to later years, the impact of the clause upon experience study analysis can be significant. The pricing actuary must therefore understand and account for this effect when analyzing early claims experience. I addressed this topic in an earlier issue of The Messenger*. In the following article, I use SCOR’s proprietary experience study database to delve further into claims patterns during the early policy years.

**Experience Database Filters**

To create a fairly homogenous and recently underwritten block of reinsured business, I selected the following exposures:

- Exposure years 1/1/2004 – 6/30/2010
- Policy years 1 – 8
- Original face amounts $100,000 – $9,999,999
- All plans of insurance
- Clients with at least 140 claims spread reasonably through policy years 1 – 8
- Standard issues only (no ratings)
- Automatic issues only (no facultative)
- Expected basis is 100% of SOA 2001 Valuation Basic Tables
- A/E ratios analyzed by face amount of reinsurance

I chose the SOA 2001 VBT standard industry table due to its smooth progression of mortality rates during early policy years – making it easy to highlight the contestable period’s impact on paid claims experience.

**Pattern of Mortality in Early Policy Years**

Figure 1 shows A/E ratios by policy year, revealing the impact of the contestable period. The combined mortality in policy years one and two is 51 percent of the VBT, whereas in years three through eight the combined mortality ratio is noticeably higher at 62 percent of VBT. Despite the drop in policy year four, mortality remains fairly level from year three through year eight.

Thus, an effect of the contestable clause appears to be a relatively sustained upward step in the level of mortality beginning in policy year three.

**Contestable Step by Client Group**

Having determined that the contestable clause has a demonstrably real effect on the pattern of mortality experience in the early policy years, it is reasonable to ask if this phenomenon is similar for all insurers. I analyzed the experience for each individual client within my study by comparing the A/E ratio for policy years one and two combined with the A/E ratio for policy years three through eight. In order to normalize for the impact of differences in the absolute level of A/E ratio by client, I divided each A/E ratio by the client’s prevailing A/E ratio for policy years three through eight. Figure 2 summarizes these results. The clients fell into four distinct groups. Group 1 had a large reduction in mortality in policy years one and two, Group 2 had a medium reduction, and Group 3 had a minimal reduction. Group 4 actually had an increase, implying that insurers are slightly more inclined to contest and void claims in the first policy year. While there is an upward blip in the A/E ratio for policy year three (exaggerated by the downward blip in policy year four), it appears that A/E ratios remain fairly level in policy years three through eight.

---

*The Messenger*
indicating anti-selective policyholder behavior during the contestable period.

Next, I wanted to determine whether the normalized A/E ratios in policy years three through eight remained fairly constant. Figure 3 shows these results. While there was much fluctuation in the A/E ratios, the trends (indicated by the dotted lines) for the first three groups were fairly flat. The trend for Group 4 (the anti-selection group) was distinctly downward. I attribute this to the wearing-off of the anti-selective behavior.

Application in Pricing

When SCOR’s pricing actuaries analyze a client’s mortality experience, they make adjustments to the data to recognize the effect of the contestable clause. First, they adjust the overall A/E ratio to correct for any policy year exposure bias – a study with exposures heavily weighted in the first two policy years could result in an artificially low overall ratio. Next, they match the actual pattern of mortality due to the contestable step – decreasing the mortality rates in first two policy years and increasing the rates in policy years three and later. Since the level and pattern of mortality varies from client to client, a customized and unique assumption is required for each pricing exercise.

www.scor.com/contestable_blip.pdf
As the industry continues to progress from a formula-based to a principles-based approach to capital and reserves, companies and their actuaries face mounting challenges to keep pace. Dynamic systems that support stochastic modeling will become requisite tools, and making any modifications to these systems will require a robust set of internal controls. This article considers the importance of the system peer review within the auspices of the larger system change control process and provides clients with suggestions for creating more robust controls.

Overview
Over the past decade, the desire for open-code modeling systems and home-grown actuarial modeling software has guided the evolution of third-party systems and software application tools. Many of these systems provide a clean slate for flexible model development and creativity, allowing the models to be tailored to specific company needs. But such in-house development efforts also raise the possibility of system error. While this remains an ongoing risk, it should be understood that proper system controls are needed to help reduce this risk. A recent Society of Actuaries (SOA) survey indicates that adequate system change controls appear to be a missing link in actuarial modeling evolution.

Is the Industry Ready for the Next Evolutionary Step in Actuarial Modeling?
Recently, the SOA published “Actuarial Modeling Controls: A Survey of Actuarial Modeling Controls in the Context of a Model-Based Valuation Framework.” The intent of this research survey was to compare the current state of industry modeling controls against those expected to be in place for model-based valuation (MBV) approaches. Deloitte Consulting analyzed the survey results and appraised existing control gaps that need to be addressed.

The report rated six governance themes on a scale from 1 to 5 (1 being the best, 5 the worst). And, not surprisingly, the category receiving the worst score of 4 was System Access and Change Control (Figure 1). This reflects the need for improved system change control processes when system code is modified.

This low grade should not come as a complete surprise. Consider that actuaries historically have focused more on checking modeling input and validating modeling output. In fact, these two areas are the focus of most model peer reviews. In contrast, system peer reviews should include a direct evaluation of the code (Figure 2). This situation may reveal a mindset that coding errors will manifest themselves in the output where they can be easily identified. While output evaluation is certainly expected, many coding errors may remain undetected and buried without an adequate evaluation of the coding changes.

In the world of software development, it is well recognized that code analysis helps to root out logic and calculation errors that may otherwise go undetected when evaluating only system inputs and outputs. If industry best practices are the goal, in-house code changes may require a more thorough treatment in System Peer Review: A Missing Link in the Evolution of Actuarial Modeling
By Michael Failor, ASA, MAAA
Modeling Actuary – mfailor@scor.com

<table>
<thead>
<tr>
<th>Modeling Governance Theme</th>
<th>Score</th>
<th>Current State Synopsis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governance Standards</td>
<td>3</td>
<td>While many companies employ a variety of model governance policies, few companies have a holistic, formal and documented model governance structure.</td>
</tr>
<tr>
<td>General Modeling Process</td>
<td>3</td>
<td>Many companies have multiple models and modeling platforms and few companies incorporate a model steward role in the modeling processes.</td>
</tr>
<tr>
<td>System Access and Change Control</td>
<td>4</td>
<td>Model changes are not generally governed by a formal change process.</td>
</tr>
<tr>
<td>Model Assumption Management</td>
<td>3</td>
<td>Assumptions are regularly reviewed and updated, but with few controls in place to ensure assumptions are approved and input appropriately.</td>
</tr>
<tr>
<td>Model Input Management</td>
<td>2</td>
<td>Many companies use automated feeds from admin systems for model inputs of liabilities. Other model inputs are often less automated.</td>
</tr>
<tr>
<td>Model Output Management</td>
<td>2</td>
<td>Model output used for financial reporting purposes is generally well controlled, while model output for analysis and other purposes is generally less controlled.</td>
</tr>
</tbody>
</table>

Peer review of coding changes falls under the governance theme of System Access and Change Control. This category rated the worst of all governance themes. (Source: “Actuarial Modeling Controls: A Survey of Actuarial Modeling Controls in the Context of a Model-Based Valuation Framework.” SOA, December 2012.)
the system control process. Software vendors already institute these best practices. Carriers that either modify open-code systems or create in-house applications should implement their own formal system change controls.

Inheritance of System Control Traits
Code management and corresponding system change controls require a high level of due diligence that is currently a trait of the software vendors. When the software vendor modifies the code in their maintained systems, they follow a robust change control process. Without such control processes, their software would quickly get out of hand and result in potentially disastrous error levels. No vendor has perfect code, but third-party software providers know the value of a formal control process.

The robust system control traits of the software vendor should be passed down to those who continue to modify their system code. Carriers will benefit from similar control processes when they modify their modeling software. Proper consideration and care should be reflected in the company’s system change controls to assure that their modeling applications remain accurate and viable. One important feature of any system control process is the system peer review.

Peer Review Objectives
As system complexity increases, so does the risk of system errors. Consider also that system errors, by their very nature, can be “systemic” in their effect as they may impact each model that is built on the affected platform. It may not be possible to identify and remedy all weaknesses before a system change goes into production, but peer reviews help identify errors that otherwise may go undetected.

A system peer review should attempt to identify:
- Technical Errors – Does the coding have any mistakes (logic loops, wrong formulas, etc.)?
- Consistency – Does the code reflect the desired options and feature specifications?
- Technical Documentation – Are requirements for user documentation and tutorials satisfied?
- Assumptions – Does the system accommodate the full range of required modeling assumptions?
- List of Features – Is it up to date?

Note that an important step in a system peer review is the assurance that the system is properly documented. Also, the peer review process itself should be well documented. As the system continues to be modified and evolves over time, system change requests should be managed and documented to reflect the purpose and specifics of each modification. Whether the changes are due to error corrections or added features/functionality, documentation should accompany each modification. Maintaining a well-documented version history aids in the reconciliation of modeling results among different system versions.

The Review Team
Not all actuaries are expert programmers, and the inverse is also true. Thus, it is highly desirable for the peer reviewer to be an amalgam of the two – an actuarial developer. This person may be hard to find, especially when considering the required knowledge of the products and features that the system supports. The ideal system peer review team should include both programmers and actuaries. Additionally, it is called peer review for a reason. Teams should include seasoned experts at the same level as those initiating and implementing the system change. To ensure the most candid and unbiased assessments, reviewers should be selected from outside of the designers’ reporting hierarchy. In some cases it may be recommendable to engage an outside consultant to participate in the review.

Implications for the Near Future
Formal system peer reviews may currently be treated as a luxury, but that status may not last long. The introduction of VM-20 raises the bar for system change controls. A formal peer review process, not only of models, but also of underlying systems, should become standard practice. Companies employing a robust formal system peer review process will have a competitive advantage over many companies that have yet to identify this missing link in modeling evolution.

SCOR has implemented system peer reviews for its newer endeavors. We still have room for continued improvement, but the lessons learned are already paying dividends. If you would like to discuss ideas for establishing your own peer review process, please contact your account executive to schedule a meeting.
The Evolution of Living Benefits Riders
By George Hrischenko, FSA, MAAA
Vice President, Marketing Actuary Lead – ghrischenko@scor.com

The concept of accelerated death benefits (ADB) for life insurance is not new. ADB riders have been available on the market since the late 1980s. However, the triggers for these benefits generally were very limited with early payout only available to insureds diagnosed with a terminal illness with no more than 12 months to live.

Now carriers are loosening the qualifications needed to receive accelerated benefit payouts. Benefit triggers are attached not only to imminent death but also to financial need due to chronic illness. This trend is driven in part by growing interest and demand among Baby Boomers for living benefits riders to provide financial protection against illness and the cost of care while surviving to an older age.

To address these needs more life insurers are adding riders to their existing products, usually permanent products. In previous issues of The Messenger we have discussed the evolution of life/long-term-care (LTC) “combo” products. In this article we examine two living benefits riders, particularly features of the chronic illness riders, and the role reinsurers can play in helping carriers manage the emerging risk.

Critical Illness Riders
Critical illness (CI) risk is familiar territory for many life insurers, though demand for standalone policies in the US remains low. Freestanding CI policies pay a stipulated benefit if the insured is diagnosed with a covered illness, such as stroke, cancer or heart attack. The risk of imminent death need not be present.

The critical illness rider behaves like a standalone CI product. If the insured is diagnosed with a covered ailment, they can claim a portion of the life insurance policy’s death benefits. The insured need not be diagnosed as terminal. Underwriting for such a rider follows similar processes and procedures as those used to assess risk for critical illness policies.

Filing a claim is fairly cut and dried: a licensed physician presents the diagnosis, which the insured then files with the insurer to claim the benefit. Risks of moral hazard or fraud are therefore controlled.

Chronic Illness Riders
We typically define “chronic illness” in terms of the insured’s inability to perform activities of daily living (ADLs). If the insured is unable to perform two or more ADLs, they are considered as chronically ill. In this sense, the chronic illness rider resembles an LTC rider.

However, prominent differences exist between chronic illness and LTC riders. LTC usually requires proof of assisted living care (inhouse or an institution). Chronic illness riders do not require any administration of care. Additionally, LTC products and riders generally contain reimbursement provisions tied directly to care costs.

In contrast, once the insured satisfies the conditions of the chronic illness rider, they may claim the benefit. The rider benefit is not dependent on the cost of care, but rather is a stated amount up to the total death benefit. Even if the insured qualifies, they may choose not to receive the living benefit, especially if the death benefit

Figure 1 - Benefits Structure

<table>
<thead>
<tr>
<th>John Smith, a 70 y/o N/S Male, applies for $1 million of permanent life insurance with a chronic illness rider. John’s chronic illness benefits provide for 2.5% of the face amount per month. Subsequent obligations are dependent on the type of rider he chooses. At age 83, John suffers a stroke and is unable to perform two ADLs, qualifying for the chronic illness benefit. (Note: for illustrative purposes only)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Discounted Death Benefit</strong></td>
</tr>
<tr>
<td><strong>Premium</strong></td>
</tr>
<tr>
<td><strong>Rider Benefit at Time of Claim (Age 83)</strong></td>
</tr>
<tr>
<td><strong>Repayment schedule</strong></td>
</tr>
<tr>
<td><strong>Resulting Death Benefits</strong></td>
</tr>
</tbody>
</table>
is important in the insured’s financial planning and they have other sources of funding.

**Key Design Considerations**

Companies are responding to consumer needs through these riders by offering features that provide consumer flexibility, while implementing tools to manage the risk.

**Benefits structure.** Carriers are structuring chronic illness living benefits in three ways:

- **Discounted death benefit.** The rider may stipulate that the chronic illness benefit is equal to the policy death benefit, discounted for time-value of money and forfeited future premiums.
- **Policy lien.** The insurer may treat the benefit paid as a loan against the policy’s underlying death benefit. In addition to paying premiums for the underlying policy, the insurer expects the insured to begin repayment of the loan similar to a standard policy loan provision. The carrier discounts any outstanding principal from the policy’s death benefits if the insured dies before the loan is repaid.
- **Rider premium.** The policyowner pays an additional premium for the chronic illness rider to accelerate the death benefits payment.

Figure 1 presents an example of a male policyowner-insured, aged 70, under each of the scenarios.

**Tax Considerations for Benefits.** Living benefits from a chronic illness rider are tax-free, up to a limit stipulated by Internal Revenue Code (IRC) (Figure 2). Benefits in excess of this amount are treated as ordinary income. IRC 101(g) defines accelerated benefits for the purpose of favorable tax treatment. This section defers to IRC 7702B (which covers long-term care insurance) to determine events which may trigger a claim.

**Controlling for Selection.** Product features that provide access to funds before death introduce the risk of adverse consumer behavior. Carriers can take steps in structuring the rider to help mitigate some of these risks. Some of these features include:

- Developing a separate application for the rider to address morbidity-related adverse selection
- Requiring documented proof from a licensed care practitioner before benefits will be paid
- Using the lien or rider premium versus discounted death benefit approach to delivering benefits
- Specifying maximum benefits and/or minimum age for benefits to be released
- Itemizing and disqualifying specific factors contributing to the impairment (e.g., self-inflicted injuries, alcohol/drug abuse, etc.)
- Requiring documentation that the inability to perform an ADL is deemed permanent
- Requiring annual recertification of impairment, possibly at the policyowner’s expense

**The Role of Reinsurers**

As primary life insurers continue to develop living benefit riders, reinsurers can be a valuable source of feedback in product design, pricing and ultimately participation on the risk.

At SCOR, we have conducted substantial research, on our own and with major actuarial consultants, to develop our understanding of these new accelerated death benefit riders. We have participated on the risk on a number of these products. We have reviewed policies from each of the funding methods (discounted death benefit, lien, rider). Depending on the client’s request, we reinsure the underlying policy death benefit, the rider benefit or both.

If you would like to know more about how to approach this growing market, please contact your account executive.
SCOR Completes Generali USA Acquisition (con’t)

to go the extra mile to earn a reputation for excellence.

We are convinced that the only way to be successful is to build long-lasting partnerships with our clients. This requires good, two-way communication. Even before the sale transaction was finalized, we began listening to clients about what we need to focus on going forward. Many of you provided thoughtful and valuable feedback about our strengths and areas to improve as well as what you need and expect of a reinsurer. We are taking this advice very seriously as we craft a new organization around the best attributes of Generali USA and SCOR.

But actions speak louder than words. We will follow through on our commitments and promises. The values message that you see below serves as our guide.

Please do not hesitate to call either of us, your account executive or your regular contact person if you have any questions or would like to discuss any aspect of the transaction or other business issues.

Combining the Best Attributes for a New and Better SCOR

In line with SCOR’s “Optimal Dynamics” strategic plan, SCOR Global Life unveils a new organization in the Americas which will:

- **S**trive to actively listen to our clients’ needs to build strong and lasting partnerships
- **C**ommunicate clearly and regularly to clients and employees to build trust and respect
- **O**ffer best-in-class value added solutions including facultative underwriting, automated underwriting solutions (Velogica) as well as offerings in group life, financial solutions and longevity protections
- **R**emain committed to higher service standards
- **G**o the extra mile to earn a reputation for excellence
- **L**everage the largest book of US life reinsurance business in the market to provide mortality expertise you expect from a market leader

SCOR Global Life Americas

Charlotte
101 South Tryon Street
Suite 3200
Charlotte, NC 28280

Kansas City
11625 Rosewood Street
Suite 300
Leawood, KS 66211

Minneapolis
45 South Seventh Street
Suite 1850
Minneapolis, MN 55402

The information conveyed and the views expressed in this newsletter are provided for informational purposes only and are based on opinions and interpretations made by SCOR Global Life Americas (formerly SCOR Global Life US Re Insurance Company). The opinions and interpretations expressed by SCOR Global Life Americas may not be the only interpretation available. This publication should not be copied or shared with any other company, reinsurer or consultant without obtaining prior approval from SCOR Global Life Americas.

SCOR Global Life Americas Reinsurance Company, a division of SCOR.

Printed in USA © 2012 SCOR Global Life Americas