



REINSURANCE NEWS

NEWSLETTER OF THE REINSURANCE SECTION

Is Regulation Driving Competition?

by Carolyn Cobb

"Most of the change we think we see in life is due to truths being in and out of favor."

— Robert Frost, *The Black Cottage* (1914)

In the last "Reinsurance News," three prominent life reinsurer CEOs predicted the near-term future of the life reinsurance industry, each from a slightly different perspective. My perspective is a regulatory one. Reinsurance regulation is changing rapidly on every level—internationally, federally and at the NAIC. I see these oncoming changes shaping the future of the industry and determining the migration of capital and talent. In my opinion, now is the time for us to shape that regulation and our own future.

My argument is this: The reinsurance industry competes for capital. To do so effectively, it must pay investors a competitive return. If regulation—national, international or state—imposes frictional costs on reinsurers higher than those imposed on other financial sector participants, reinsurers will find it harder to pay a competitive return to investors and harder to attract capital over the long term. Since reinsurers' product is a form of capital, reinsurers must act forcefully—individually and collectively—to maintain the ability to win that competition by advocating regulation that lowers the frictional costs of regulation.

OVERVIEW

Cost of Capital: The Driver

According to the FDIC, the new Basel II capital requirements would let the most sophisticated banks recognize significant savings over their current capital requirements. Their current capital rules require all banks to hold \$8 in capital for every \$100 of commercial loans, regardless of the credit risk. Under Basel II, banks using the most advanced internal ratings system could hold between \$0.37 and \$4.45 of capital for each \$100 of AAA-rated loans, between \$1 and \$14 for BBB-rated loans and between \$4 and \$42 for B loans. Basel II will be finalized this year and enforced starting in 2007.

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Generalized Mortality Table Analysis

by Larry Warren

Editor's note: This article is a continuation of Larry Warren's previous article, "The Relationship of Mortality Projections and The Underlying Mortality Tables Used" ("Reinsurance News," Number 50, June 2002). If after reading this article, and/or after having reviewed the previous article, if you have any additional thoughts or comments, either in support of or with a differing point of view, no matter how long or short, please respond to me for possible inclusion in the next Reinsurance News. Comments need to be completed and sent to dean_abbott@allianzlife.com by May 31, 2003, to be included in the next newsletter. (The June 2002 newsletter with Larry's previous article may be found in the Reinsurance Section of the Society of Actuaries' Web site, www.soa.org.)

In this article, we discuss the need to search for alternative mortality tables (other than the 1975-80 and 1990-95 tables), which may be more appropriate for a particular company or specific products. It must be recognized that differences or variations from company to company can exist in the following areas which impact future mortality patterns:

A. Underwriting Rules/Guidelines/Practices

Variations in underwriting rules/guidelines/and practices obviously impact future mortality patterns. While underwriting guidelines vary from company to company, the degree to which the underwriters adhere to these guidelines (i.e., are underwriting exceptions often made?) must also be considered.

B. Average Size of Policy (Face Amount)

The average face amount per life insured plays a dramatic role in the overall underwriting screening process. For example, two companies may have identical stringent underwriting guidelines, yet one company (Company A) may be writing policies with average face amounts in excess of \$500,000, while another company (Company B) may be writing policies with face amounts averaging \$100,000. Thus, the actual underwriting requirements being obtained from Company B would be very limited relative to Company A.

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Newsletter Editor/Web Liaison (2003)

Dean S. Abbott, FSA (Web Liaison)

Allianz Life Insurance Company of N. America • 5701 Golden Hill Drive
Minneapolis, Minn. 55416-1297

Phone: (763) 765-6248 • Fax: (763) 765-6203

E-mail: dean_abbott@allianzlife.com

OFFICERS

Chairperson

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Timothy J. Tongson, FSA

SOA Staff

Lois Chinnock, Section Coordinator

Phone: (847) 706-3524 • Fax: (847) 273-8425

E-mail: lchinnock@soa.org

Joe Adduci, DTP Coordinator

Phone: (847) 706-3548 • Fax: (847) 273-8548

E-mail: jadduci@soa.org

Society of Actuaries

475 N. Martingale Road, Suite 800 • Schaumburg, IL 60173

Phone: (847) 706-3500 • Fax: (847) 706-3599 • Web: www.soa.org

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From the Editor's Desk

Looking Ahead...

by Dean S. Abbott

Whew! Another newsletter completed! I want very much to thank the many authors who made this newsletter possible. Some of the articles were submitted purely on the initiative of the authors, while others were initiated with a plea, possibly accompanied with a very rough idea of a topic, from an inquiring editor. The time spent preparing these articles, the experience and hard work poured out across the pages of this newsletter, and the high-quality result of each article is greatly appreciated by the Reinsurance

Section, this editor and presumably, the readership. My hope is that as you read these articles, you will find them interesting, educational, thought-provoking and possibly even entertaining (in an actuarial kind of way). I ask that if you are so inclined, please let the authors know of your appreciation and/or of any thoughts or questions you may have about their articles by sending them a quick e-mail. **AND if *you* feel an article coming on, *let me know as soon as possible!*** ✍



Dean S. Abbott, FSA, MAAA, is vice president, reinsurance actuarial, at Allianz Life in Minneapolis, Minn. He can be reached at dean.abbott@allianzlife.com.

Chairperson's Corner

The Future of Life Insurance...

by James W. Dallas

Our last "Reinsurance News" included some thought-provoking articles on the future of life reinsurance. In this latest issue, by the sheer variety of topics covered, we carry that theme one step further.

Our cover articles are meant to get us thinking about the future with discussions about regulation and mortality. Carolyn Cobb provides a regulatory perspective as a follow up to the articles from our last newsletter. And what could be more important to a life reinsurer's future than mortality? Larry Warren gives us more to chew on as a follow up to his article from our last issue.

And speaking of the possible future of life reinsurance, I must reminisce for a moment. I remember the first time I heard about offshore reinsurance; I was a new FSA, working in my company's individual product development department. Those crazy folks over in our reinsurance department first told me about companies forming offshore in exotic places like Bermuda, Barbados and the Cayman Islands. To be honest, I didn't get it. At the time, I could not understand why companies would consider reinsuring some of their business to such companies, and why those companies could afford to take on certain types of business at a more cost-effective price than my company, and I certainly didn't know what a letter of credit is!

Well, I get it now (at least I think I do!). But, in case you don't, you'll find two great articles. One is penned by Kent Scheiwe and Margaret O'Connor, and the other is by Tim Harris. Kent and Margaret's

article discusses some of the ins and outs of offshore reinsurance, and Tim's is devoted to those actuaries who actually help populate those countries and make those companies happen.

And speaking of offshore actuaries, Ed Betteto took some time whiling away the hours in Bermuda to give us a thought-provoking overview on enterprise risk management.

Gary Corliss gives us some perspectives on a largely untapped reinsurance market, that of long-term-care products, while Richard LeBlanc reminds us to think about capital management early in the calendar year with some perspectives of what a financial reinsurer goes through every year.

To round out the list, we have a contribution from Joe Kolodney on the latest reinsurance arbitration survey, as well as some insightful "state of the industry" comments from Joe. By the way, Joe, Carolyn and Richard are great examples that you don't have to be an actuary to be a contributing member of the Reinsurance Section. Joe and Carolyn are two of the latest to recognize the multitude of advantages that come with forking over the 10 bucks to become a correspondent member of the Reinsurance Section! (Richard has assured me that the application is in the mail!)

Oh, by the way...did anyone notice all the actuarial materials laying around Warren Schmidt's office in the movie "About Schmidt?" I'm sure there had to have been a "Reinsurance News" in there somewhere! ✍



James W. Dallas, FSA, MAAA, is a senior consultant with Tillinghast-Towers Perrin in St. Louis, MO and is chairperson of the Reinsurance Section. He can be reached at jdallas@rgare.com.

The theory behind Basel II is that the current formulaic, one-size-fits-all capital standard in Basel I is insufficiently sensitive to credit-risk differentiation. Banks have assumed increasing credit risks—for example, the notional value of derivatives contracts they hold has risen from \$7 trillion in 1990 to \$45 trillion in 2001—and the blunt instrument of Basel I has allowed banks significant latitude for capital arbitrage. At the same time, the banking industry has consolidated, consolidating growing risks as well. These factors have led the developed world's central bankers to agree to harness two additional tools to assure capital adequacy: risk metrics used by banks themselves and market discipline.

These are the now famous “three pillars” of the new regulatory paradigm:

- I. Minimum capital requirements based on a refined measurement framework;
- II. Supervisory review of the insurer's internal assessment procedures; and
- III. Market discipline through disclosure.

As we will see below, it is apparent that reinsurers will be subject to increasing scrutiny and regulation, perhaps nationally and certainly internationally. Basel II and its three pillars will be the measure of our success in reducing the frictional capital costs of our regulation.

Cost of U.S. Regulation: The Impediment?

By comparison, U.S. insurance regulation for solvency has been a blunt instrument that has driven up the cost of capital for both direct and assuming insurers. As financial products have become more fungible, as financial institutions have consolidated and as global flow of capital and information has accelerated, U.S. statutory accounting has made the life insurance market here into a capital sink. That has benefited the U.S. life reinsurance industry greatly over the last few years, but few think that growth trend can continue.

Meanwhile, the NAIC pushes to limit and segregate the statutory surplus to be gained

from reinsurance. It also continues to oppose any form of federal regulation or licensing of even U.S. life reinsurers. It is also exporting to developing markets the U.S. form of reinsurance regulation, including trusteed assets as collateralization.

Transnational non governmental organizations—such as the World Bank and the International Monetary Fund (IMF)—now view reinsurance as a significant risk to global financial stability. These institutions and other “global guardians” are attempting to apply Basel II-type principles to the global reinsurance industry to control that risk.

While they are more sophisticated in finance and economics than U.S. insurance regulators, they don't know much about reinsurance—and even less about life reinsurance. I recommend that all reinsurers follow this work closely.

How to Measure

You have all heard the fair value debate, no doubt. The proponent of fair-value—the International Accounting Standards Board (IASB)—and the FASB signed an agreement this fall to “make their existing financial reporting standards full compatible as soon as practicable....” Known as the Norwalk Agreement—named after the location of the meeting—it has been widely heralded as a commitment to convergence. Whether and how that will come to pass for insurance contracts—and what that might mean for cost of capital—are unknown and very fluid.

In addition, the IASB has proposed that insurance contracts be “unbundled” if the cash flows from the insurance component do not affect the cash flows from the deposit-like component. It is also considering bifurcating derivatives embedded in insurance contracts without regard to the current “closely related” test. These discussions—together with the SEC's new recommendation to bifurcate the “derivative embedded” in modco contracts—has caused substantial confusion and concern. It's hard to make money when the rules keep changing.

...U.S. statutory accounting has made the life insurance market here into a capital sink.

DEVELOPING INTERNATIONAL STANDARDS

Accounting

The IASB is a privately funded, self-appointed international accounting standard setter based in London that cooperates with national standard setters, such as FASB and the SEC. Its efforts became internationally pivotal because the EU, Canada and Australia have announced they will implement the IASB's standards as of 2005. When the IASB proposed to adopt a fair value standard for insurance liabilities as well as assets, a whirlwind of controversy erupted internationally. The IASB then recognized that "it would not be realistic to expect implementation of a full recognition and measurement standard for insurance contracts by 2005." It announced that instead it would complete these parts by 2005:

- Presentation and disclosure, including how insurers might give disclosures about measurement assumptions;
- Application of IAS 39 Financial Instruments: Recognition And Measurement to some contracts issued by insurers that do not qualify as insurance contracts for accounting purposes;
- Elimination of some practices that are incompatible with the IASB's principles, such as the elimination of reserves that do not represent liabilities and the offsetting of reinsurance; and
- A review of how other standards would apply to insurers, absent an insurance-specific pronouncement.

The biggest snag in that timetable to date has been the IASB's proposed revision of IAS 32's and 39's definition of an insurance contract. IASB has proposed that insurance contracts—and therefore reinsurance contracts as well—be "unbundled." It determined that if the cash flows on the insured risk and the investment component do not interact significantly, then the investment component must be "unbundled" and accounted for as a financial instrument. For this and related reasons, the EU has declined to endorse—at least so far—this portion of the project. The German, Japanese and U.S. life

insurance trade associations are also objecting. As of this writing, it's not at all clear what will happen next.

Reinsurance

The Financial Stability Forum (FSF) is one of the "global guardians." It coordinates the central bankers and financial regulators of the developed countries to promote international financial stability, reduce systemic risks and improve market functioning. The U.S. participants are the Treasury, Federal Reserve Board and SEC. The World Bank, IMF and OECD also participate.

The FSF has recently directed the International Association of Insurance Supervisors (IAIS) to create the Task Force on Enhancing Transparency and Disclosure in the Reinsurance Sector and charged it with:

- Defining the aggregated information that would shed light on the structure and resiliency of the global reinsurance market;
- Creating arrangements to produce that data regularly; and
- Stipulating the forward-looking, risk-oriented information that should be made available for insurance and financial risk exposures, for how reinsurers are managing those risks, and for the capital and reserves reinsurers are holding against those risks.

The task force must have recommendations finalized by September 2003, and it plans to meet monthly through June to meet that timetable. One U.S. regulator is on the task force—Superintendent Alessandro Iuppa of Maine. He expects to be accompanied to each meeting by one life and one property/casualty reinsurance executive. The Denmark insurance regulator is chairing the task force, and other members are Bermuda, France, Germany, Netherlands, Switzerland and the United Kingdom.

Supervisory Regimes

The World Bank and the International Monetary Fund (IMF) administer a program to promote minimum standards for macroeconomic financial stability. It is the Financial Sector Assessment Program (FSAP). FSAP's goals are

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to identify the strengths and vulnerabilities of a country's entire financial system; to determine how key sources of systemic risk are being managed; to ascertain the sector's developmental and technical assistance needs; and to help prioritize policy responses.

The IAIS creates the FSAP standards for insurance regulation. This program has benefited both direct and assuming insurers by creating new markets. It bears close watching, however, since the process of creating the standards is neither transparent nor open.

The foundation of the FSAP standards for the insurance sector is the Insurance Core Principles (ICP). They address—at a very high level—fundamental “best practices” that each jurisdiction can implement to meet its own needs. The IAIS is substantially revising the ICP currently to address, among other things, reinsurance, internal controls, derivatives and off-balance-sheet items.

The IAIS added detail to the original ICP in a Methodology that explains each principle and its elements and prescribes over 200 assessment criteria. The IAIS has, in other documents, elaborated on related principles, including supervising international conglomerates and Internet activity and regulating market conduct, capital adequacy and solvency. The IAIS has also authored various standards and guidance papers, each focused on a particular issue and elaborating on best practices with respect to that issue. Some prescribe practices for regulatory authorities, and others describe practices that a well-managed insurer should be expected to follow.

The World Bank and IMF use the IAIS guidance to identify gaps in insurance-sector regulation in their macroeconomic stability assessments. Their assessments—reports known as ROSCs—summarize countries' observance of all international financial standards. They help sharpen regulators' discussions with their own national authorities, assist the private sector to assess risk and reveal potential systemic risks to financial stability.

The World Bank and the IMF staff believe that the importance of the insurance sector will continue to increase and that more work must be

done on “the linkages between the macroeconomy and the insurance sector.” They see the insurance industry changing rapidly, but in their view appropriate regulatory standards have not yet evolved. This lag exposes the entire financial system to systemic risk. They have stressed that the insurance sector's most important potential vulnerabilities are (1) “weakness in the supervisory coordination among insurance, banking and securities supervisors,” and (2) “lack of effective cross-sectoral systems for identifying and managing risks within financial groups.”

Reinsurers' Supervision

An IAIS subcommittee has proposed to accredit reinsurers' supervisors. The proposal is a draft entitled “Standard on Supervision of Reinsurers,” dated December 2002. I expect the IAIS to adopt it or very similar minimum standards for regulat-

ing reinsurers in October 2003. This means that it will become an FSAP standard for new markets and current ones.

The premise of the draft Standard is that non domestic regulators can cede jurisdiction over a multinational reinsurer to its home supervisor only if the domiciliary regulation meets certain minimum standards. This Standard proposes those minimum requirements; they include:

- For the supervisor—“adequate powers and resources” and a mandate to share information with other regulators internationally; and
- For the multinational reinsurer—investment and capital standards, solvency standards and an investment-grade rating.

The IAIS subcommittee has not discussed the many questions about an accreditation program that we've experienced in the U.S. These include who would accredit national supervisors, what would the home jurisdiction of a true multinational be, who would set and maintain the standards for accreditation, what that process would be, who could participate in it, or what would happen if an accreditation were withdrawn. The subcommittee will meet again in February 2003.

The foundation of the FSAP standards for the insurance sector is the Insurance Core Principles (ICP).

Solvency Generally

The IAIS has adopted three papers on solvency. One reviews methods used to quantify insurance liabilities. Another offers guidance on using actuaries as part of a regulatory regime. A third gives guidance on solvency control levels.

The IAIS paper on quantifying liabilities addresses reinsurance particularly, advising that:

- Liabilities should be reported to the regulator on gross and net-of-reinsurance bases;
- Adequacy and extent of risk transfer is material to determining whether allowance should be made for reinsurance arrangements; and
- Alternative risk transfer products involve additional risks, such as legal, documentation and basis risk.

The IAIS paper on requiring insurers to use an actuary with responsibilities to the supervisory authority reviews different countries' practices. From this review, the drafters drew conclusions on how to decide whether to use a responsible actuary in an official capacity as part of the supervisory model and on how to implement that decision. Their conclusions closely track current practice in the United States and U.K.

The IAIS paper on solvency control levels elaborates on two principles already endorsed by IAIS. One principle requires the supervisory regime to set a minimum level of capital. The other requires a regulatory regime to establish one or more levels of capital above the minimum that trigger regulatory intervention when capital drops below that level; these trigger points are called control levels. The guidance paper implies that the supervisor would set each insurer's control levels individually, and it discusses factors the supervisor should consider in doing so. These include the insurance sector's competitive position, the quality of an insurer's management and other operational risk factors, existence of a guaranty fund and the length of time the insurer has been operating or whether it is assuming new types of risks.

The Guidance On Control Levels describes powers that the supervisory authority could exercise once a control level is breached. The powers are similar to those a U.S. regulator has

currently, except that it proposes that supervisory regimes might confer benefits—such as streamlined approvals and reduced reporting—on insurers operating well above the solvency controls. Finally, it discusses, but does not resolve whether each insurer's actual control levels should be disclosed.

The International Actuarial Association (IAA) has formed a Risk-Based Capital Solvency Structure Working Party to prepare a paper on



risk-based capital for consideration by the IAIS. It is expected to complete its report in May 2003. Its current direction is that a “multi-pillar approach” is necessary and that, among other things, solvency assessment should reflect “the specific characteristics of the individual insurer and the markets in which it operates” and be “principles-based.”

Cross-Sectoral Comparisons

The Joint Forum is a multidisciplinary group of technical experts from 13 countries—the United States, the EU and Japan. It develops best practices in areas common to insurance, banking and securities to prevent regulatory arbitrage. In a recent study it found that one of the most significant differences among the sectors was capital treatment of similar risks.

In another recent study it analyzed and compared capital regulation among the three sectors. It concluded that regulators will likely be facing a rising and fundamental tension between sectoral approaches to capital regulation based

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on traditional business activities on the one hand, and consolidations and convergence on the other. "To the extent that ...convergence increases, supervisors [must] re-evaluate their sectoral regimes for capital and [reserves] to ensure that they provide an appropriate means of evaluating the capital held by firms in relation to their activities."

The Joint Forum is continuing its work, focusing on:

- Risk aggregation, by studying approaches that firms use to manage and aggregate risks across multiple businesses and risk categories (e.g., credit, market, insurance and operational risks) and methods that supervisors use to address conglomerates (e.g., capital distribution in groups);
- Operational risk management, by studying how firms address operational risks in their global businesses and how they control transferred operational risks;
- Credit risk management and transfer, by promoting the sharing of supervisory information on credit risk transfer, risk aggregation and regulatory arbitrage;
- Aggregate risk disclosure, by considering how to express vulnerability to risk concentrations and by developing risk assessment concepts and methods; and

- Effective supervision of financial conglomerates, by assessing the appropriateness of group-wide methods of supervision.

This work has increased interest in preventing what is known as "double-gearing," particularly within groups that include a reinsurer and a bank. Double or multiple gearing is the practice of counting the same capital more than once. Japanese banks and life insurance companies, for example, are providing each other reciprocal capital. The work has also concentrated regulatory attention on reinsurers' knowledge and management of their intra-group credit and market risks.

Databases on Reinsurers

Both the Organization for Economic Development and Cooperation (OECD) and the IAIS are compiling databases on reinsurers. Both are populated by regulators and are available only to them. Currently, the databases contain only public information on fraud, insolvency and limitations of activities. Both IAIS and OECD acknowledge that individual regulators can provide that information only subject to confidential restrictions in their own jurisdictions.

IAIS Medium-Term Plan

The IAIS has released its Medium-Term Working Plan, outlining its goals and budgets from 2004 through 2006. Founded in 1994, its projected budget in 2006 is US\$2.134 million. It will fund that with dues from members, to be assessed based on the size of each country's insurance market and its 2001 GDP per capita, and with fees imposed on nonmembers to observe such IAIS activities as may be open. The United States would pay by far the largest amount under that formula and would receive only 15 member votes.

During the period, the IAIS expects to participate in WTO and GATS trade talks and work with the OECD to set standards for insurance, pensions and other "contractual savings." It also plans to:

- Draft a global solvency standard;
- Create a "more effective and coherent approach to reinsurance supervision"
- Adopt standards on acceptable forms of capital; and



- Issue guidance on asset valuation and on asset/liability matching.

The IAIS has solicited comments on its plan by February 28. It expects to adopt it in October 2003.

OPTIONAL FEDERAL CHARTER

No federal legislation proposing an optional federal charter has been introduced yet. It is expected early in this session. The effectiveness and efficiency of state insurance regulation will be debated in several contexts during this session of Congress, as will reinsurance itself.

The perceived effectiveness of state insurance regulation will be front-and-center as the NAIC, the state departments and the U.S. Treasury work to implement the new Terrorism Risk Insurance Act of 2002 (TRIA). Critics of state regulation will argue that it is failing the test that TRIA imposed. Others will view the states' implementation as effective.

The impending sunset of the Fair Credit Reporting Act's preemption of state laws on sharing credit information among affiliates will also trigger debate about whether state insurance regulators have adequately or uniformly protected personal medical and financial information.

Finally the Treasury will be reporting to Congress on its study of the availability of reinsurance for group life.

RECENT NAIC ACTIVITY

Pending

Adjusting TAC for Reinsured Dividend Liability

The AAA has recommended to the NAIC that the dividends used in the total adjusted capital (TAC) calculation should be reduced or increased to the extent that liability for policyholder dividends is

ceded or assumed under modified coinsurance, coinsurance with funds withheld and any other agreements. If the NAIC's Life RBC Working Group adopts this recommendation in March 2003, as expected, it will be effective immediately.

Segregating Surplus Due to 'Retroactive Reinsurance'

The NAIC deferred until March 2003 adoption of a requirement to segregate surplus due to retroactive reinsurance. This "nonsubstantive" interpretation of SSAP No. 72—Surplus and Quasi-reorganizations, would require that "surplus resulting from reinsurance of in-force business of life insurers must be recorded as an appropriation of surplus by the ceding company." The proposal contains no definition of 'retroactive' reinsurance and might also include assumption reinsurance and nonproportional reinsurance. This issue has been referred, only until the March 2003 meeting, to the Reinsurance Subgroup of the Statutory Accounting Principles Working Group. If adopted in March 2003, it would be effective immediately.

If the NAIC's Life RBC Working Group adopts this recommendation in March 2003, as expected, it will be effective immediately.

Definition of 'Existing' or 'In-force' Business

The NAIC is still considering whether to amend Appendix 785 to define all policies or contracts issued prior to the beginning of the quarter in which a binding letter of intent or reinsurance agreement is executed as in-force or existing business. The effect would be to allow gain to be deferred only if clients sign letters of intent for new business in Q1. The issue was deferred in June 2002 pending clarification of the underlying problem by NAIC staff. If staff presents that information in March 2003, the 'non-substantive' interpretation could be adopted at once and might be effective in June 2003.

Workers Comp Carve-Out and RBC Factors

The NAIC will finally adopt its issues paper on workers comp carve-out in March 2003, as well as the RBC factors recommended by the AAA. Those factors closely resemble property casualty RBC factors.

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Follow-up issues will include:

- Requiring an actuarial opinion on the pool's business and giving regulators access to the actuary's work papers, the pool actuary's work papers and the member companies' audits and actuarial reviews.
- Subjecting pools and associations to the Model Audit Rule and requiring them to file an independent statutory audit opinion.
- Amending Schedule S to require comprehensive disclosure of interaffiliate pooling, in compliance with SSAP No. 63.
- Revising the NAIC application process to list pools and associations, to assign identification numbers to pool transactions and to provide due diligence.

Ongoing

Statutory Accounting: Evaluating Inconsistencies Between Life and PC

The Statutory Accounting Principles Working Group formed a reinsurance subgroup in fall 2002. The subgroup has both regulatory and industry members; regulatory members are California, New York and Wisconsin.

The subgroup's generic task is "evaluating the inconsistencies between life and health and property and casualty reinsurance and determining whether those inconsistencies are valid and or [sic] whether the accounting rules should be consistent." These inconsistencies include the 90-day non admission and experience rating refunds.

The subgroup is now also charged with addressing, before March 2003, whether "retroactive" reinsurance must be segregated in surplus. If the NAIC's tentative decision is affirmed at the March 2003 meeting, it will be effective immediately.

RBC: Evaluating Inconsistencies and Effectiveness

The NAIC formed an ad hoc RBC Task Force in late 2002. The task force was originally charged with evaluating the inconsistencies among all three RBC formulas, as had been detailed in a AAA report. The task force has since determined that it will address those issues only as specifically directed by its parent committee and will instead focus on evaluating the effectiveness of the risk-based capital formulas in identifying troubled companies.

This task force is sometimes known as the "Wisconsin Letter" group, since it is following up on a letter from the Wisconsin Department to the NAIC pointing out that the current RBC analysis was not flagging troubled companies. The task force is meeting in closed sessions.

Alien Collateralization

The NAIC continues its consideration of proposals to reduce the collateralization required of alien reinsurers. At present it is studying the regulatory regimes of Bermuda, France, Germany, Switzerland and the UK. Debate is likely to continue for some time.

New Initiatives

Interest Expense on Funds Held Reinsurance

The NAIC has exposed for comment a non substantive interpretation of SSAP 61. The interpretation is that interest credited to the cedent under a funds—held treaty should be reported "a component of aggregate write-ins for miscellaneous income" by both the ceding and assuming insurer. In the health blank, both should report it "as a component of

aggregate write-ins for other income and expense.” If the tentative interpretation is endorsed at the March 2003 meeting, it will be effective immediately.

More Statement Disclosure of ART

The 2003 charges of the Property and Casualty Reinsurance Study Group include monitoring the development of alternative risk transfer mechanisms and considering whether broader annual statement disclosure might be appropriate. The study group’s discussions often affect life reinsurers.

Risk Assessment

The Risk Assessment (E) Working Group is developing a proposed prioritization outline similar to the banking industry’s CAMEL methodology, but is including “items related to reserves and reinsurance.” The 2003 charges to this working group include:

- Enhancing the utilization of risk assessment, including the review of risk management practices used by insurers, in the regulation of financial solvency;
- Addressing the challenges of incorporating the assessment of risk and of risk management in the financial solvency oversight role; and
- Proposing modifications, as appropriate, to the NAIC’s financial examination and financial analysis processes.

[Bank supervisors in the United States rate each bank on its capital adequacy, asset quality, management, earnings, liquidity (hence “CAMEL”) and since 1997, its sensitivity to market risk. Examiners assign a rating for each component on a scale from one to five, with one

being the highest rating, as well as a composite rating for the bank’s overall condition and performance. A bank’s CAMEL rating is highly confidential. Though CAMEL ratings are not a comprehensive indicator of all the supervisory information gathered during a full-scope exam, they serve bank supervisors as a convenient summary analysis. This is analogous to what the Risk Assessment Group is constructing.]

SUMMARY

There’s an old saying that if the only tool you have is a hammer, then everything looks like a nail. I’m an insurance regulatory lawyer—that’s my tool. It’s not really surprising then that I see all these developments and want to hammer these nascent regulatory regimes into ones that will help my clients compete—not just today but long into the future.

Having made full disclosure, here’s what I think. I think that the past few years have been very good for life reinsurers. Everybody’s been very busy, and the future has looked, well, far away. And in all that time, the tide of regulation has been rising for reinsurers. Growth is now slowing, and that tide is rising faster and higher. That tide is the frictional capital cost of regulation compared to institutions with other types of charters.

There are many good effects of that rising tide. The FSAP opens new markets, for example. It is also true that many features of the international regime are sophisticated and thoughtful and will benefit markets and flows of capital.

Just remember the Basel II numbers. ✍



Carolyn Cobb is the principal in Cobb Law Office, which serves life insurance and life reinsurance clients on regulatory issues nationally and internationally. She can be reached at ccobb@cobblawoffice.com.



C. Distribution System

The nature of the distribution system of a company or for a particular product can have a significant impact on the degree of potential anti-selection of the policyholder.

D. Market Segment (Upscale, Middle America, etc.)

It is a well-known fact that the market segment has its own variation in mortality patterns, resulting from social, economic and cultural differences.

Traditionally, actuaries have been recognizing the impact of the above variations by utilizing scaling factors that were applied to the assumed underlying mortality table (i.e. 75-80 select/ultimate, 90-95 select/ultimate, etc.). Higher scaling factors would normally be associated with less rigorous underwriting or higher risk classification (i.e. scaling factors for tobacco users exceed that for non tobacco users which exceeds that for preferreds).

I am proposing that in addition to utilizing scaling factors, we consider shortening the select period. It will be shown that even a modest decrease in the select period (e.g. two years) can have a major impact.

First-year select and ultimate mortality tables have typically been used as the starting point before applying scaling factors. Conceptually, first-year select mortality and the subsequent select mortality rates (e.g. years 2-15 in the 1975-80 select/ultimate table) would be representative of fully underwritten business. Ultimate mortality rates however, would be more reflective of business with minimal or no underwriting. Therefore, to the extent that the variations discussed above (i.e. underwriting, average size, distribution system and market segment) are properly recognized, the appropriate table to use should fall somewhere between a first-year select and ultimate table and a pure ultimate table. For example, the appropriate table may be to use a 13-year select period, thereby the starting point may be deemed the third year of the 15-year select period of the 7580 select/ultimate table. For purposes of analyzing the effect of this concept, we have developed the following new tables.

I am proposing that in addition to utilizing scaling factors, we consider shortening the select period.

Table A was constructed using a 13-year select period by shifting each issue age of our model office back two years and then starting with third-year select mortality of the 75-80 select/ultimate table.

Table B was constructed using an 11-year select period by shifting each issue age of our model office back four years and then starting with fifth-year select mortality of the 75-80 select/ultimate table.

Table C was constructed using a 23-year select period by shifting each issue age of our model office back two years and then starting with third-year select mortality of the 90-95 select/ultimate table.

Table D was constructed using a 21-year select period by shifting each issue age of our model office back four years and then starting with fifth-year select mortality of the 90-95 select/ultimate table.

The results of our analysis are shown in Exhibits 1, 2 and 3.

The relationships shown in Exhibit 1 on page 13 arise from differences in the ratio of the qx 's (mortality rates) in the early years as compared to those in the later years.

For purposes of developing Exhibit 1, we assumed that a company had changed its underwriting guidelines/requirements three years ago. Therefore, we analyzed the mortality experience for all policies in their first, second and third durations. We started with a simple model using the assumption that a \$10,000,000 face amount was issued each year for each issue age (25, 35, 45 and 55) and experiencing Linton "B" lapse rates (20 percent, 12 percent, 10 percent, 8.8 percent, 8 percent, etc.). We also formed a composite issue age by assuming the distribution of face amount by age was 15 percent, 35 percent, 35 percent and 15 percent for male issue ages 25, 35, 45 and 55 respectively.

We used the model to calculate actual to expected mortality ratios (for each mortality

table) for policies in their first three policy years. (Expected mortality was calculated applying lapse rates and multiplying the appropriate qx's to the face amount exposed in durations one through three). Actual mortality was arbitrarily assumed to equal 80 percent of the 1990-95 table. This assumption was totally arbitrary and has no impact on this analysis. Next, we calculated the 20-year present value of future claims (for a single year of issue, representing new business) using the qx's of each mortality table separately. That is, the actual to expected mortality ratio obtained by using the 1975-80

mortality table was applied to the 1975-80 mortality table in calculating the 20-year present value of claims, and analogously for the other mortality tables (i.e. tables A, B, C, D, 90-95 Select and Ultimate).

In Exhibit 1, Scenario 1, we find that for Table A, the present value of future claims is 16.6 percent lower than the 1975-80 Table and for Table B, 21.8 percent lower*.

In Scenario 2, using the 1990-95 table as a base, we find that the corresponding reductions

continued on page 14

Exhibit 1: Relationship of Mortality Projections and the Underlying Mortality Tables For A Single Year of Issue

The relationships shown in Exhibit 1 arise from differences in the ratio of the qx's in the early years as compared to those in the later years.

Scenario 1: Present Value of Future Claims *							
(based on the mortality experience of the first three policy years)							
1	2	3	4=2/1	5=3/1	6	7	
issue	based on	based on	ratio	reduction	reduction	reduction	
age	75-80 table	table A	table A	table B	table A	table B	
		(2-yr shift)	(2-yr shift)	(4-yr shift)	(2-yr shift)	(4-yr shift)	(4-yr shift)
25	\$27,337	\$27,337	99.8%	94.7%	0.2%	5.3%	
35	\$54,334	\$45,375	83.5%	82.3%	16.5%	17.7%	
45	\$123,820	\$100,759	81.4%	79.6%	18.6%	20.4%	
55	\$370,761	\$310,079	83.6%	74.4%	16.4%	25.6%	
comp.**	\$122,069	\$101,753	83.4%	78.2%	16.6%	21.8%	

Scenario 2: Present Value of Future Claims *							
(based on the mortality experience of the first three policy years)							
1	2	3	4=2/1	5=3/1	6	7	
issue	based on	based on	ratio	reduction	reduction	reduction	
age	90-95 table	table C	table C	table D	table C	table D	
		(2 yr-shift)	(2 yr-shift)	(4 yr-shift)	(2 yr-shift)	(4 yr-shift)	(4 yr-shift)
25	\$40,456	\$34,887	86.2%	83.7%	13.8%	16.3%	
35	\$63,082	\$49,418	78.3%	69.3%	21.7%	30.7%	
45	\$158,473	\$125,167	79.0%	70.2%	21.0%	29.8%	
55	\$377,786	\$303,289	80.3%	75.0%	19.7%	25.0%	
comp.**	\$140,281	\$111,831	79.7%	72.6%	20.3%	27.4%	

* Based on a single year of issue of \$10 million face amount for each age assuming Linton B lapses at 6% discount rate over a 20-year period.

** Using the distribution of 15%, 35%, 35%, 15% for ages 25, 35, 45, 55 respectively.

note:

The mortality experience underlying this analysis was arbitrarily chosen to equal 80% of the 90-95 Table. All ratios shown, however, are independent of this assumption.

Table A was constructed by shifting each issue age of our model office back two years and then starting with third-year select mortality of the 75-80 select/ultimate table.

Table B was constructed by shifting each issue age of our model office back four years and then starting with fifth-year select mortality of the 75-80 select/ultimate table.

Table C was constructed by shifting each issue age of our model office back two years and then starting with third-year select mortality of the 90-95 select/ultimate table.

Table D was constructed by shifting each issue age of our model office back four years and then starting with fifth-year select mortality of the 90-95 select/ultimate table.

are 20.3 percent and 27.4 percent for Tables C and D respectively.

It should be noted that all six tables are based on the same actual mortality.

The ranking in order of highest to lowest present value of future claims as follows:

	PV of Future Claims	Reduction in PV in Relation to 9--95 Select/Ultimate
1. 1990-95 Select/Ultimate	140,281	--
2. 1975-80 Select/Ultimate	122,069	13.0%
3. Table C	111,831	20.3%
4. Table D	101,808	27.4%
5. Table A	101,753	27.5%
6. Table B	95,426	32.0%

The vast differences from table to table in projected claims as shown above is extraordinary. It is of utmost importance that the actuary recognize the significant financial impact in his selection of the appropriate mortality table.

** If actual to expected mortality ratios were based on the first five policy years of experience, then the corresponding reductions would be 9.5 percent and 13.2 percent respectively.*

It is not uncommon for actuaries to observe significantly decreasing ratios of actual to expected mortality and then wonder where all the mortality improvement is coming from and how long it will last. In my opinion, while some portion of the mortality improvement may be "legitimate," the other portion (perhaps the greater part) results from using an inappropriate mortality table. Exhibit 2 was therefore developed to display the relationship between the mortality tables and the phenomenon of perceived mortality improvements.

In Exhibit 2 on page 15, we arbitrarily assumed decreasing mortality ratios (100 percent grading down to 70 percent over five years) under the 1975-80 Select/Ultimate table. This assumption is

reflective of what would appear to be an effective annual compounded mortality improvement rate of 8.5 percent as shown in this exhibit. Under Table A, we were able to show that over the same five-year period using the same mortality assumption, that the annual mortality improvement rate was essentially non-existent (.4 percent). Using Table B, the annual mortality improvement rate is -2 percent, reflective of the fact that relative to Table B, the mortality ratios actually increased over this five-year period. It should be noted that similar results would be obtained using the 1990-95 Select/Ultimate table.

Again this Exhibit demonstrates the fact that mortality improvements are related to the underlying mortality table being used. What appear to be significant mortality improvements may in fact be the result of using an inappropriate mortality table.

As we discussed earlier, the relationship of the ratio of the mortality rates in the early years to the mortality rates in the later years, is what gave rise to the great variation in the present value of future claims for each table. The phenomenon we observed, however, in Exhibit 2 relating to perceived mortality improvement is based on another relationship, which is the annual mortality rate increase of each table as shown in Exhibit 3.

Exhibit 3 on page 15 demonstrates this relationship between the mortality tables and perceived mortality improvements as shown in Exhibit 2.

In Exhibit 3, we show a comparison between the composite model office mortality rates using the 1975-80 select/ultimate table, Table A and Table B. The major distinction of interest between these tables however, is not the magnitude of the rates themselves (since this is typically adjusted for by utilizing a scaling factor), but the annual increases from year to year. As can be observed, the 1975-80 Select/Ultimate Table has very high select mortality rate increases for the first two years (34% and 28% for years two and three respectively)

and moderately high mortality rate increases of 19 percent and 15 percent for the next two years

It is not uncommon for actuaries to observe decreasing ratios of actual to expected mortality and then wonder where all the mortality improvement is coming from...

Exhibit 2: Ratio Of Actual To Expected Mortality Based On The Following Tables...

Exhibit 2 displays the phenomenon of the relationship between the mortality table and perceived mortality improvements.

DURATION	75-80 SELECT/ULTIMATE TABLE	TABLE A*	TABLE B*
1	100%	68%	58%
2	90%	70%	63%
3	81%	70%	65%
4	75%	70%	65%
5	70%	67%	63%

* Table A was constructed by shifting each issue age of our model office back two years and then starting with third year select mortality of the 75-80 select/ultimate table.

** Table B was constructed by shifting each issue age of our model office back four years and then starting with fifth year select mortality of the 75-80 select/ultimate table.

note: similar results would be obtained using the 90-95 sel/ult tables.

Annual Mortality Improvements

(relating to the above data)

FROM YEARS	75-80 SELECT/ULTIMATE TABLE	TABLE A	TABLE B
1-2	10%	-2.9%	-8.6%
2-3	10%	-2.9%	-8.6%
3-4	7.4%	0%	0%
4-5	6.7%	4.3%	3.1%
1-5	8.5%*	0.4%*	-2%*

* effective annual compounded mortality improvement rate

note: negative means mortality worsening

(years four and five respectively), before grading down into the 12%-10% range. Table A, however, has only moderately high mortality rate increases of 18 percent and 14 percent for years two and three respectively and then grades down into the 12-10% range, while Table B has relatively low level mortality rate increases generally between 10%-12 percent throughout. The tables show a mortality rate increase of 22 percent at durations 16, 14 and 12 for the 75-80 Table, Table A and Table B respectively, which reflects the grading discontinuity from select mortality to ultimate mortality.

In an earlier article entitled "The Relationship of Mortality Projections and the Underlying Mortality Tables Used," I have shown that the choice in the selection of a mortality table (1975-80 table vs. 1990-95 table)

can have a *major impact* on mortality projections and hence on product pricing and reinsurance premium determination. For example, the present value of future claims was shown to be 13 percent lower for males and 10 percent lower for females, using a projection based on the 1975-80 select and ultimate table (based on a composite model office) as opposed to using the 1990-95 select and ultimate table.

In light of the above discussion, it is my belief that actuaries must begin to ask whether there are other tables as demonstrated in this article, besides the 1975-80 and 1990-95 tables, which may be more appropriate to use and what is the effect of using these other tables?

From a direct writer's perspective, the product actuary should be asking whether the

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Exhibit 3: Comparison Of Mortality Rate Increase By Duration *

Exhibit 3 demonstrates the underlying reason for the relationship between the mortality tables and perceived mortality improvements as shown in exhibit 2.

Duration	QX 75-80	Percent Increase	Table A**	Percent Increase	Table B**	Percent Increase
1	1.1	-	1.61	-	1.88	-
2	1.47	34%	1.9	18%	2.09	11%
3	1.88	28%	2.17	14%	2.33	11%
4	2.23	19%	2.42	12%	2.57	10%
5	2.57	15%	2.7	12%	2.88	12%
6	2.89	12%	3	11%	3.23	12%
7	3.24	12%	3.38	13%	3.72	15%
8	3.62	12%	3.83	13%	4.26	15%
9	4.05	12%	4.47	17%	4.81	13%
10	4.58	13%	5.11	14%	5.37	12%
11	5.34	17%	5.73	12%	5.92	10%
12	6.01	13%	6.36	11%	7.22	10%
13	6.84	14%	7.14	12%	7.96	10%
14	7.76	13%	8.78	22%	8.78	10%
15	8.75	13%	9.69	10%	9.69	10%
16	10.69	22%	10.69	10%	10.69	10%
17	11.79	10%	11.79	10%	11.79	10%
18	12.98	10%	12.98	10%	12.98	10%
19	14.28	10%	14.28	10%	14.28	10%
20	15.69	10%	15.69	10%	15.69	10%

* composite model office mortality rates using the 1975-80 select/ultimate mortality table.

** Table A was constructed by shifting each issue age of our model office back two years and then starting with third-year select mortality of the 75-80 select/ultimate table.

** Table B was constructed by shifting each issue age of our model office back four years and then starting with fifth-year select mortality of the 75-80 select/ultimate table.



Larry Warren FSA, MAAA is senior vice president and chief actuary of National Benefit Life (NBL) and is responsible for NBL/Primerica Life Reinsurance. He can be reached at larry.warren@primerica.com.

mortality table currently being used is possibly overstating or understating future mortality. If it is overstating future mortality, then this could result in a higher premium and a less competitively priced product and possibly result in significantly reduced market share. If, on the other hand, it is understating future mortality, then this could result in lower premium (perhaps a loss leader) and greatly diminished profits, or losses.

From a ceding company’s perspective, if the mortality table being used overstates future mortality, then the ceding company actuary may be more likely to negotiate a reinsurance premium that will prove to be too high (or a coinsurance allowance too low) and in effect pass on too much profit to the reinsurers. If the mortality table understates future mortality, then the reinsurance actuary may have problems obtaining reinsurance on what he believes would be favorable terms.

From a reinsurance company perspective, if the mortality table used overstates future mortality, then they would be more likely to develop a less competitive quote and could lose market share. On the other hand, if the mortality table used understates future mortality, the reinsurer runs the risk of underpricing, resulting in losses.

Each actuary must develop a tailor-made mortality table, which he believes is most appropriate for his company’s business. Sensitivity tests should be done using two or more tables routinely as a matter of practice.

In conclusion, it is almost naïve to believe that different companies with vastly different underwriting rules, average policy sizes, distribution systems and market segments would use the same mortality table with only a difference in scaling factors. This “one-shoe-fits-all” philosophy currently being used in this industry should be re-evaluated. ✍

Year-End Capital Management Using Financial Reinsurance

by Richard Leblanc

Another December 31 has passed and I'm pleased to report that financial reinsurance continues to thrive. In fact, by most accounts 2002 will be remembered as both one of the most successful and challenging years for this specialized field of reinsurance. A multitude of economic factors converged to increase the demand for financial reinsurance to levels not seen for many years. Those insurers who were proactive and sought out solutions early in the year generally found their needs met while many who followed the usual solicitation of offers late in the fourth quarter were disappointed.

While financial reinsurance can be structured to address an almost endless array of objectives, the more common year-end applications include: i) accelerating the recognition of statutory earnings from current-year issues; ii) reducing the risk-based capital requirements associated with a significant in-force block; and iii) improving the tax efficiency of reserves by reinsuring non-deductible deficiency reserves. While sound financial management principles suggest that these are worthwhile objectives throughout the year, experience has shown that many firms, large and small, turn to financial reinsurance as year-end approaches

when they can better estimate the gap that will result between their desired and actual financial position at year end from their core business strategies.

Factors Leading to Increased Demand

One could easily write several books on the financial challenges faced by North American life insurers during 2002. A preponderance of rating and equity analysts further downgraded their negative outlook on the industry as a whole. While competition remained as intense as ever, many firms struggled to keep pace as their financial flexibility was diminished as a result of:

1. **Low interest rates:** interest-sensitive and spread-based products have largely seen their profitability erode due to a combination of significantly lower new money rates and contractually or statutorily mandated minimum crediting rates.
2. **High credit default rates:** many of history's largest bankruptcies have occurred in the past 12 months. While few were immune to the impact of "fallen angels" such as WorldCom and Enron, many insurers suffered losses from a succession of their holdings. Predictions are that the bottom of the credit cycle has not quite been reached.
3. **Guideline XXX:** most insurers continue to struggle to reduce the strain associated with no-lapse guarantees on their UL products, and reinsurers in particular experienced a greater burden to collateralize reserves that they have reinsured out of the United States as the cost of LOCs rise and the volumes quickly grow as reserves climb the "hump back".
4. **GMDB strain:** the reinsurance market for such risks has largely disappeared. Many of these benefits are currently "in the money" resulting in increased benefit costs.



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- 5. Horrible equity market performance:** this reduced the fees earned on wealth accumulation products such as variable annuities. Some insurers with a higher than average asset allocation to equities have seen their surplus depleted by unrealized losses, and many with European parents have found it more difficult to secure additional capital because the parent's surplus has either been eroded or because the capital markets were flooded with, and not overly receptive to, new debt or equity issues.
- 6. Growth in fixed-rate products:** bear equity markets have caused a much greater than anticipated shift of consumers' investments into guaranteed investment products resulting in very substantial increases in required capital for many fixed annuity writers.

Combined, the above factors resulted in deterioration in many of the financial measures prevalent in the industry to measure financial strength and success. Most notably, the risk-based-capital ratio for certain insurers was projected to be unacceptably low unless some of the business was sold or reinsured.

Supply of Financial Reinsurance Somewhat Constrained

Almost unanimously, peers within organizations that either structure or provide financial reinsurance, concede that many of these same factors that caused demand to surge also created significant stress for certain in-force transactions. While most wanted to write as much new business as was available, the deterioration in the level of collateralization of existing deals caused them, as well as their executive management, to question whether or not the level of risk inherent in these structures was significantly greater than anticipated and by extension rethink their continued participation in the market.

For some, transactions that were substantially overcollateralized at the start of 2002 had either deteriorated to a reasonable possibility of significant loss or revised projections suggested a much extended payback period. As a result, many of the limited resources in this niche market were re-allocated to in-force management in an effort to restore the intended risk profile to such deals

and to identify what further deterioration might occur under continued adverse scenarios.

Counterparty credit risk has become a more important consideration for cedants as the "flight to quality" continued. However, during 2002, financial reinsurance providers also were much more conscious in selecting insurers, which they would finance. While insolvency risk has always been a concern, as a result of recent press reports in the UK and Australia there is a greater awareness of the risk of tarnishing one's reputation by being associated with a client who might experience serious financial difficulties. Furthermore, from a practical perspective, it is prudent to minimize the time and effort in developing a solution with a prospective counterparty that has significant risk of being downgraded below your organization's minimum counterparty rating.

While the overwhelming majority of in-force transactions remain structurally sound, speculation exists within the industry as to whether some of the more occasional, less disciplined providers of financial solutions will join the growing list of reinsurers that have permanently exited this niche. Users of financial reinsurance understand that it is in their and the industry's best interest that they continue to work with their financial reinsurer to minimize the risk of ultimate loss under the arrangement. Rough parallels can be drawn with a borrower who defaults on a loan or a successful retailer who turns away from a manufacturer that has significantly helped them grow. In both cases, not only is trust destroyed between the two parties, but it will be much more difficult to secure future financial partners. While we may have observed 99th percentile events during 2002, indications are that financial reinsurance will continue, in adequate supply, to provide the most flexible financial management tool available to address insurers ever changing needs.

However, coupled with the heightened sensitivity to risk management in a post September 11 world, the general response was a more cautious approach to new business. Generally this has translated into higher prices, greater collateralization requirements and more restrictive treaty wording.

Helpful Hints for 2003

Here are some final suggestions for those organizations that may wish to explore financial reinsurance during 2003:

1. **Be prepared:** know your needs, understand your constraints, involve all key stakeholders within your organization and compile comprehensive information to facilitate the reinsurer's understanding of your business.
2. **Be realistic:** many organizations value their in-force business using best estimates and slightly optimistic assumptions; financial reinsurers will be much more conservative and interested in how the business will perform under various protracted adverse scenarios to be assured that the block can support the financing to be provided.
3. **Be committed:** be open if your intentions are to "kick the tires." Most providers view educating the clientele as one of the most important aspects of their business. However, during the fourth quarter, financial reinsurers need to focus on deals that parties intend to close by year end.
4. **Be selective:** unlike other reinsurance products, financial reinsurance is not a

commodity; a "mass mailing" approach to the market will likely not entice the leading providers to dedicate the time needed to implement the best solution.

5. **Allow time to implement the optimal solution:** inadequate due diligence by either party (i.e. last-minute modeling requirements, incomplete answers) will likely result in either an overly restrictive transaction or no solution.

Financial reinsurance is a very powerful, low cost financial management technique that all should investigate. Many of the largest and most sophisticated insurers in the United States and Europe are significant and increasing users of these solutions. While on the surface the structures may appear complicated, this is not rocket science and is easily entered into for most financially sound organizations—especially those who adopt the preceding helpful hints. ✍



Richard Leblanc is vice president of structured reinsurance at Manufacturers Life in Toronto. He can be reached at Richard_Leblanc@manulife.com.

Reinsurance Section Photos

Council members gathered in Boston to plan the 2002–2003 activities of the Reinsurance Section

Left to right—Leigh Harrington, Mel Young, Tim Tongson, Bob Reale, Mike Gabon, Ronnie Klein, Jay Biehl, Dean Abbott (newsletter editor), Tim Alford, Jeff Katz, Jim Dallas.



Thanks, Jeff!

Jim Dallas (left) incoming section chairperson, presenting retiring chairperson, Jeff Katz, a gift of appreciation for a job well done.

How to Prevent the Big Mistake

by Ed Betteto

Recent surveys by Tillinghast and Milliman USA have indicated that senior insurance executives are increasingly interested in adopting a holistic approach to managing risks. Tillinghast reports that 38 percent of companies responding have created the position of chief risk officer (CRO), which is up from 20 percent two years earlier. Notwithstanding the increased emphasis in risk management, the executives are far from satisfied by their organizations' abilities to measure and then defuse or otherwise manage their wide range of risks. This last observation is not surprising given that enterprise risk management (ERM) involves a set of processes that do not lend themselves easily to the current pricing,

making decisions as to which businesses to enter and which to exit and at what prices. Of course, if over time ERM becomes the established norm in the industry, then its adoption may well become the price of admission to the business.

Contributing to the increasing interest in risk management have been several recent financial hiccups in the life industry in both the primary and reinsurance markets. The cyclical nature of the property and casualty industry has been long understood and accepted, while the life industry had been regarded as much more stable. In fact, the lower volatility expected in the life industry has been the justification for ROEs lower than that in other industries. Current talk among analysts is that this expectation may have been reasonable in the past when products were simple in design and easier to understand and insurer balance sheets were comprised of conservative assets.

However, given the complexity and opacity of current balance sheets and today's product offerings, insurers and reinsurers may need to demonstrate to various stakeholders that their risks are being measured according to the standards established in other industries such as the banking business.

Risk management practices within the banking industry are generally regarded as being superior to those in the insurance and reinsurance industries, perhaps because banking risks are regarded as more complex or perhaps because banks are more leveraged than most insurance entities. Certainly banks have a head start of many years in implementing sophisticated means of measuring their risks, partially due to regulatory attention caused by banking failures. One might reasonably contend that such attention is required, given the leverage contained on the balance sheet of a major bank, and may be overkill within an insurance company. In this article I am going to put forth arguments that the risks within an insurance company balance sheet have grown to be as potentially volatile as those contained within a bank balance sheet, albeit composed of a different set of characteristics.

There are many recent events and pieces of research (in no particular order) that can be put forward as evidence that insurance entities need to apply more attention and resources towards risk management:



reserving, accounting and monitoring practices that have been imbued in insurance company cultures over the years.

Despite the formidable challenges associated with implementing ERM, many senior executives have decided that the benefits significantly outweigh the costs. The original motivation began with regulatory and rating agency pressures for management to demonstrate that they are masters of their domain. However, as executives began to understand what was involved, they realized that a successful ERM program would provide a competitive advantage. The same techniques and disciplines that are required to measure and monitor existing businesses and products lend themselves well to

- Insurers and reinsurers have reported significant losses writing credit derivatives wherein they accepted credit risk sold by a bank. Respected and well-informed analysts have recently written that insurers provided naïve and cheap capacity to the banks who are much more sophisticated in the credit marketplace, and several carriers have exited this market during the past few weeks.

**Insurance
companies often
do not explicitly
price for the cost
of some customer
options...**

- The recent troubles of those entities that possess guaranteed mortality death benefit (GMDB) risk have been well documented; this product deserves a little history as the industry over time turned a benign risk into a dangerous one unbeknownst to senior management. Variable annuities used to be sold in the United States with a death benefit equal to the account value. In some countries (e.g. Canada) a minimum benefit such as 75 percent of deposits is a regulatory requirement. It can be argued that the U.S. industry's troubles with GMDB started with enterprising reinsurers who began to accept minimum death benefits from insurers who wanted to differentiate their products to boost sales from the major broker dealers. Then a product leapfrog game began whereby the GMDB benefits became ever more generous. There are two stories here—the reinsurers sold their GMDB product within their life reinsurance lines of business on the basis that the claim payments were death benefits. The line of business managers had the authority to write this business according to their mandates. Lost in the company's overall risk management process was the fact while the claim payments were upon death, the contingency of mortality was a very small element of the overall risk compared to the exposure to the performance of the equity markets. Furthermore, there was no diversification—the more one wrote, the more exposure and volatility. Eventually senior management noticed a large product line and upon investigation were surprised at what they found—and quickly exited the market. Today the market for GMDB reinsurance is virtually non-existent, causing a problem for

insurers. What at first seemed like a panacea became a big problem when the choice was between withdrawing a benefit that was popular and widely available or retaining a big risk.

- Some insurers developed quasi-variable annuities that provided customers with the safety of guaranteed rates of return while enjoying the possibility of higher investment returns in certain asset classes such as convertible bonds. On the surface these were fixed annuities; however, since the asset performance of modern convertible bonds are highly correlated to the performance of the underlying equities, the insurer bore much more risk than was expected.

- Insurance companies often do not explicitly price for the cost of some customer options. This may make sense in protection products like whole life wherein the savings elements embedded in the product are tax advantaged and have shown to be relatively insensitive to interest rate and economic cycles. For fixed annuities like SPDAs and especially FPDAs, a few analysts have recently cited serious concerns as interest rates drop out of the “sweet spot,” whereby rates are high enough to stay above the rate guarantees and low enough whereby customers are not financially motivated to pay the surrender charges (if any) to invest elsewhere at a higher rate leaving the insurer to incur significant disintermediation charges. While the current problem is low interest rates rather than high interest rates, insurers have taken heavy losses in past high interest rate environments. It is interesting to note that the reinsurance market for SPDAs has been very quiet. This may pick up when rates increase, but it is much more likely than in the past that potential purchasers of SPDA blocks of business will explicitly charge for customer optionality. While some disciplined insurers carefully considered all of the “moving parts,” such discipline is not yet widespread
- In the UK several insurers are on their back foot due to overexposure to certain risks. Some insurers had too heavy an asset

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concentration in equities, up to 70 percent of total assets. When the market value of their equities dropped precipitately, their surplus ratios dropped to unacceptable levels. Other insurers provided very high long-term interest rate guarantees to customers during a short period of historically high investment returns. Given the significant mismatch of cash flows between assets and liabilities, such insurers did not have the means of achieving the promised investment returns and paid the price as interest rates dropped.

- A major Canadian insurance company became insolvent several years ago through an over-concentration in real estate, missing the fact that their exposure was the sum of their actual real estate property and the real estate property that served as collateral to their commercial mortgages
- There has been no shortage of reinsurance company losses reported recently that may have been prevented/mitigated by ERM. Some of these have been well-documented including Unicover, the Lloyds spiral, the medical excess market and the general operational risk associated from granting MGUs with the authority to accept risk on the reinsurer's behalf

Some of these problems may well have been prevented/mitigated through the employment of ERM. However, as a minimum ERM would have eliminated the element of management surprise.

Large organizations involved in numerous product lines over several generations of products face a challenge in evolving their risk management processes toward what is required in today's climate. Newer organizations have had the advantage of incorporating sophisticated risk management processes from the ground up and hiring senior officers steeped in thinking within the environment of strong risk controls. These companies have a chief risk officer who reports directly to the Audit and Risk Management Committee of the Board of Directors and to the CEO. The CRO is a very senior officer and sits on the Executive Credit and New Product Committees. For new companies it is much easier to implement and execute such a structure than would be the case for a large, well-established company. Having said this, however, some aspects of ERM could

perhaps be incorporated without dramatic change. I'd like to spend some time on one critical aspect of ERM, namely stochastic modeling and cash flow sensitivity testing.

Stochastic modeling/cash flow sensitivity testing involves the projection of future cash flows over numerous scenarios that incorporate all plausible sets of events. These sets of results can then be used to set prices, reserves, capital levels, risk aggregation limits, etc. The discipline of stochastic modeling/cash flow sensitivity testing within a well-designed ERM program gives management the tools to make critical decisions including:

- Measuring how much risk to take in a particular risk category given the current premium levels and profitability margins available to carry the risk. This tool, within a well-designed risk management program, also allows management to make decisions on similar risks across all product lines rather than merely on a product-by-product basis
- If the market will bear a higher price for a particular risk in one product category than that for a similar risk in another product category, to direct resources to the former and away from the latter.
- Consider risk mitigation tools and approaches that are more cost effective on a risk category basis in lieu of a product basis.
- Ensure that risk aggregation limits are within the mandates provided to the Board.
- Be in an advantageous position in an M&A situation if the counterparty and/or competitors use traditional pricing techniques based on deterministic methods.
- Demonstrate to rating agencies and other stakeholders that the company tightly controls its risks.

Executing strategies without an ERM structure runs the risk of exposing an organization to unseen and potentially franchise threatening events. Within an organization utilizing ERM, decisions are made in a calculated, well-understood and widely communicated manner.

Stochastic modeling/cash flow sensitivity testing and ERM are certainly no substitute for professional skills, management vision and

experience. However, in the right hands, the necessary disciplines instilled through their use cannot help but create decision-making processes that are directed at increasing shareholder value in a controlled manner. In this system, for example, a decision to underprice customer optionality in a product manufactured by a primary company carrying high fixed distribution costs may make economic sense but would only be made consciously by specifically empowered senior decision makers who are provided with a full financial picture. In contrast, organizations that currently price products using primarily deterministic methods rarely consider what are regarded as outlier scenarios. Sometimes the important decision as to which assumptions are most likely and which lie in the outlier scenarios can be made at a surprisingly low level.

I recently attended an industry conference whose featured speaker was a prominent economic historian. His main message was that the organizations that survive and thrive are those that are aware of the financial consequences of the outlier scenarios, because they do happen. They don't happen often, but they do happen. An organization should not plan for such events as a main scenario, but rather should be aware of the possibility—and price properly for the risk. The event may have a small chance of occurrence as gauged by the recent historical past, but the risk is rarely zero. Furthermore, when the occurrence of the outlier scenario threatens the franchise, carefully consider how much of the risk to incur. This message sinks in when one thinks about the strong former franchises that were destroyed or seriously damaged by disregarding this simple point.

It may be instructive to use a hypothetical example to illustrate how stochastic modeling/cash flow sensitivity testing can be used to avoid the big mistake. Say a writer of universal life finds itself in a sustained high interest rate environment wherein historically high minimum crediting rates are required. Sales are booming and the product line now represents a high percentage of the company's business measured by assets and liabilities. By all of the company's financial measurements, this is a successful time. The existing requirements for cash flow testing and interest rate scenario testing demonstrate that the risks are manageable. Many organizations would be very satisfied with this situation. An organization

with a disciplined ERM culture, however, would continue to carefully examine what could go wrong, even under scenarios deemed highly improbable. In the above situation, for example, the product design likely allows customers to pay premiums into their accounts that are multiples of their initial premium levels. If interest rates were to drop to levels several hundred basis points below the minimum guarantee, how much more premium might customers start to pour into their accounts? What if premiums doubled or tripled during this period, leaving the company with a gross investment yield on the large flow of excess premiums well below the minimum crediting rate? While recent history



suggests that customers treat their universal life plans as protection products rather than investment products, the disciplined organization does not dismiss this scenario but rather examines the financial outcomes through stochastic modeling/cash flow sensitivity testing and then attempts to estimate the probability of its occurrence. During this exercise, a lot of thought naturally takes place into what could lead to the feared scenario. During a prolonged low-interest-rate environment, could something cause a change in behavior from past practices? Might the independent field force increase their advice to high-net-worth customers to move their premium payments to the maximum allowed in the contract? Is there any possibility of the development of a secondary market that may change behavior patterns? The likelihood of any

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Ed Betteto is Senior Vice President and Chief Actuary, Life and Annuity at Max. He is located in Bermuda. He can be reached at EdB@maxre.bm.

such scenario occurring may be judged to be near zero. Nonetheless, if management were aware that the financial projection under the scenario demonstrates that the survival of the company would be in jeopardy, wouldn't they expend the resources to go through the exercise?

A stochastic analysis produces various financial outcomes at several points in the confidence curve—say at each of 70 percent, 90 percent, 95 percent, 99 percent and 99.9 percent levels of confidence. Management may be content to make many decisions with only a 70 percent degree of confidence, judging that the winning decisions will more than make up for the losing decisions. In order to make informed decisions, however, management needs enough information to weigh the possible range of financial outcomes. When presented with a decision on a very large risk, management is likely to want a very high degree of confidence in the outcome. A 99 percent degree of confidence may sound very high. But would management really want to take a one in 100 chance of endangering the company? In such a situation, an informed management may well seek to limit the risk, even if it meant some restrictions in the

company's core product line. Perhaps a tightening of the contract terms may work. Perhaps some macro interest rate hedges purchased cheaply when rates are high could mitigate the risk. Perhaps the reinsurance markets or the capital markets may offer solutions.

Outside of an ERM culture, it is quite easy to miss a big problem within the increasingly complex insurance and reinsurance markets. Some decisions made within the organization can have unforeseen consequences unless the time and effort expended on a disciplined stochastic analysis is directed by experienced professionals. It is fair to say that the management of most of the companies that have recently experienced a major financial accident were surprised not only that an event of such magnitude had occurred, but also that it was within the realm of possibility. A well-run enterprise risk management program would have flagged the risk. Furthermore, the analytical exercise involved in the identification of the risk itself may well have led to a risk mitigating solution so the opportunity could have been pursued within acceptable risk parameters. ✍

Press Release

SOA Names New Insurance Administrator—Marsh Affinity Group Services

We are pleased to announce that the Society of Actuaries (SOA) has appointed Marsh Affinity Group Services to administer insurance programs for Society members.

Marsh is a full-service insurance broker and administrator for affinity groups. A pioneer in the concept of association-sponsored insurance plans since 1949, Marsh Affinity Group Services has earned a reputation for the innovative design and administration of a wide range of insurance and financial products, and has become a leading provider of insurance program management and underwriting services in North America. Marsh Affinity Group Services is a part of Marsh & McLennan Companies, a multinational corporation and one of the world's foremost leaders in insurance administration.

By purchasing insurance programs through SOA, members can take advantage of a wide variety of

benefits. These programs have been researched by the SOA and have been proven to be an excellent source of protection for members. Also, with the mass-purchasing power of the SOA, members can benefit from the group rates offered.

Insurance plans currently being made available to SOA members include:

- Professional liability insurance
- Disability income insurance
- Term life insurance
- 10-year term life insurance
- Catastrophe major medical insurance
- Major medical market basket

Members who have any questions, or who would like more information, may contact the insurance administrator:

Marsh Affinity Group Services

a service of Seabury & Smith

1-800-503-9230 • www.seaburychicago.com

Reinsurance Arbitration Survey - 1998-2001

Future Trends in a Shrinking Marketplace

presented by Joseph F. Kolodney

The following survey was done in the middle of 2002 and reflected arbitration activity in the period from 1998 through 2001. As you will note, the last survey on this topic covered the years 1994 through 1997. The amount of reinsurers responding to the survey questions have steadily diminished. There were 26 respondents in the 1990-1993 and 24 in the 1994-1997 survey. For the 1998-2001 survey, 21 reinsurers were approached and 15 responded.

The diminution of participating reinsurers can be attributed to two things; first the wave of acquisitions of reinsurance companies/divisions by other reinsurers, and second, the hesitancy of some reinsurers to even acknowledge that they may be involved in any arbitration. To those reinsurers who have responded, we are appreciative of the effort they made, especially those who elaborated on the reasons and outcomes of the arbitrations.

As a matter of information, we thought it might be interesting for you to see which reinsurers have “disappeared” from the scene, thus eliminating capital and capacity to support primary companies’ new business and financial management practices, and who their acquirers were. This is important inasmuch as the current climates, both economic and risk, has been driving regulators to more closely scrutinize the recoverability of reinsurance ceded, security of reinsurers and, a trend which has become more prevalent in the United Kingdom, of encouraging strategic diversification so that no ceding company will be overly dependent on any one reinsurer from both a credit and risk aggregation point of view. We suspect that at some point, this could also evolve into an audit comment as well.

1. Swiss Re’s acquisition and/or consolidation of the following companies: Mercantile & General, Life Reassurance Corp., Lincoln National Life Re, Union Re, Unione Italiana Riassicurazione, and Bavarian (Bayerische) Re.
2. Munich Re’s acquisition of CNA Life Re’s operation.

3. ERC’s acquisition of both American United Life’s and Phoenix Mutual Life’s Life Re operation.
4. AXA Corporate Solutions Life Reinsurance is, as we understand, now in “run-off” and is no longer accepting new treaties.

So, in total, ten reinsurance “players” of varying capacity and economic strength no longer exist. Both the Gerling Life Re companies and Annuity & Life Re have recently had to deal with capital issues in order to maintain their presence in the life reinsurance market.

Who is there to fill the void? In addition to the remaining life reinsurers, two non-U.S. companies, XL Ltd. and Ace Tempest, have started life reinsurance operations as niche players without offering the plethora of services or range of support that multi-function reinsurance providers such as Swiss, Munich, GeneralCologne Re, RGA, Transamerica and ERC (whose owners, GE, announced their intent to dispose of GE’s reinsurance operations and have formally put the life re company up for sale) are used to providing on both a national and international basis. In addition, Allianz, Hannover, ING Re, SCOR, BMA, Scottish Re, Optimum Re and specialist financial reinsurers (other than their role of retrocessionaires) such as London Life, ManuLife and Sun Life are still very much in business. Bermuda companies, e.g., XL, Ace, Hampton and Max Re are focusing on specialist areas as are certain banking institutions that have their own reinsurance operations.

The very diminution of the “professional” life reinsurance marketplace and the nature of the business segments pursued by some of the new players is creating an environment that is now breaking down into service providers and non-service providers. Ceding companies will have to recognize that (to paraphrase Alan Greenspan), the “irrational exuberance” in the life reinsurance market in the ‘90s is being dampened by the economic realities manifested in 2000, 2001 and 2002. There is an infinitesimal market, compared to what existed in the past, for certain kinds of accident & health business. Benefit

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Joseph F. Kolodney is managing director at Aon Worldwide in Stamford, Conn. He can be reached at joseph_kolodney@arw.aon.com.

enhancements such as GMDB, GMIB, etc., are realistically no longer available both from a capacity point of view as well as price. Reinsurance support for XXX issues and UL secondary guarantees to age 100 has narrowed to the point of almost lack of availability. Reinsurer pricing is reflecting a more realistic cost for providing services many ceding companies have heretofore taken for granted and on which they have not placed as big an economic value.

On an anecdotal basis, we believe there appears to be an increase in reinsurance arbitrations, which are not truly reflected in the survey. Many of these were entered into in the second-half of 2002, indicating an increasing willingness of both ceding companies and reinsurers to pursue their remedies under the arbitration provision as disputes emerge that have potential negative economic consequences for both parties. The old “Gentleman’s Agreement,” which encouraged dialog among

the parties and helped to avoid a formal arbitration process has become the first casualty on the road to resolution—a road that is definitely not a super highway that will expedite the time to get to a destination—or solution—but a road of heavy traffic, lots of stop and go and some detours.

We believe that with a shrinking market, perceived insufficiency of ROE, continued bifurcation between service and non-service providers, the industry is being confronted with a “new world” as to how life reinsurance will be bought, sold and priced with many more transactions taking on a totally commercial aspect involving hard bargaining and use of leverage by both parties to achieve optimal economic results.

The questionnaire reproduced below follows the format of previous questionnaires. ✍

REINSURANCE ARBITRATION SURVEY

The last survey on the topic was done covering the years 1994 through 1997. Twenty-four reinsurers responded to that survey. In the 1990-1993 survey, 26 reinsurers responded. In the interim period between surveys, several participating reinsurers/reinsurance operations have been acquired. Twenty-one reinsurers were approached to contribute to this current study and 15 responded. The results are recorded below with Column 2 representing current responses and Columns 3 and 4 representing previous responses.

1a. How many times in the past four years (1998-2001) have you demanded arbitration pursuant to a treaty provision?

	1998-2001	1994-1997	1990-1993
Zero	10	20*	21
One	1	2	3
Two		1	2
Three	1	-	-
Four	2	1	-
Nine	1	-	-

*One company resolved through mediation.

1b. How many times in the last four years has the other party to the treaty made a demand on your company for arbitration of a dispute?

Zero	11	12	18
One	1	8	2
Two	2	4	3
Four	1	-	-

2a. How many times in the last four years have you actually arbitrated a matter? That is, how many times have you concluded the arbitration process, complete with a formal decision rendered by the arbitration panel?

Zero	11	20	20
One	2	3	5
Two	2	1	1

2b. How many arbitration proceedings are you currently involved in (as of April, 2002)?

Zero	11	15	18
One	-	7	6
Two	-	2	2
Three	2	-	-
Six	1	-	-
Nine	1	-	-

3. For those cases decided in 2a above, please provide the following information:*

- a) Primary issue
- b) Amount in dispute
- c) Resolution
- d) Whether the solution was satisfactory, very satisfactory or unsatisfactory.

4. For those cases described in 2a above, please provide the following information:**

- e) Primary issue being arbitrated
- f) Amount in dispute

Four reinsurers responded to Questions 3. and 4. The following references the questions and the subset responses for each reinsurer:

- 3a) Reinsurer A. Default in payment of amounts due.
Failure to underwrite/price A&H business.
- Reinsurer B. Recision/Misrepresentation/Nondisclosure.
- Reinsurer C. Treaty interpretation and intent.
- Reinsurer D. (A&H Issue). Was pool manager an agent of fronting company?
What duties did fronting company owe to its retros (i.e., the pool members)?

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3b)	Reinsurer A.	Over \$1 million Over \$10 million
	Reinsurer B.	\$1 million / \$62 million
	Reinsurer C.	\$300,000
	Reinsurer D.	\$10 million (Reinsurer's share)
3c)	Reinsurer A.	Favorable decision to obtain payment of amounts due: rescision of disputed treaty and commutation payment
	Reinsurer B.	Reinsurer ordered to pay: \$96,000 \$46,000,000
	Reinsurer C.	Judgment in reinsurer's favour.
	Reinsurer D.	Pool manager not agent of fronting company Fronting company did not owe duties to pool members (all were equal).
3d)	Reinsurer A.	Satisfactory. Reinsurer satisfied with the decisions. However, the problem arose post-arbitration in enforcing it as a judgment. Opposing side challenged the validity of the award and it is now tied up in litigation.
	Reinsurer B.	Satisfactory, considering facts of dispute and amounts at issue.
	Reinsurer C.	N/A
	Reinsurer D.	Unsatisfactory. Fronting company not liable for underwriting results of Pool manager.
4a)	Reinsurer A.	See answer to 3a.
	Reinsurer B.	N/A
	Reinsurer C.	N/A
	Reinsurer D.	Note the following responses: 1. Number of "occurrences" on September 11. 2. Share of pool. 3. Failure to underwrite and administer claims properly.
4b)	Reinsurer A.	See answer to 3b.
	Reinsurer B.	N/A
	Reinsurer C.	N/A
	Reinsurer D.	Note the following responses: 1) \$15 million 2) \$20 million (Pool) 3) \$10 million (Pool)

The author is the Global Life Reinsurance product group leader for Aon Re Worldwide, the largest reinsurance broker in the world. The life reinsurance Intermediary operation does business in North America and the UK and Europe, having consummated transactions in the United States, England, France, Italy, Spain and the Netherlands.

Long-Term Care Reinsurance: The Need Continues; The Need Changes

by Gary L. Corliss

Reinsurance for long-term-care insurance has been around since the mid 1980s. At that time, the number of insurers and the number of reinsurers was small. By the early 1990s, the number of insurers had grown to about 150. An article in the "Reinsurance News" of the SOA in September 1991 reported that 15 reinsurers revealed that they were in the LTC reinsurance business. As of July 2002, three reinsurers had almost 100 percent of the reinsurance market in the United States. Doesn't that sound familiar? The primary writers of LTC insurance in the United States, have been reduced from 150 down to about 120. Within this group of 120 primary writers, almost 90 percent of the total production of LTC premium is coming from the top 20 organizations. This has created a large concentration of expertise, knowledge and data in a small number of insurance organizations. How can the large number of smaller insurers or any new entrants compete effectively and competitively when they are at such a disadvantage in expertise, knowledge and data? The answer is LTC reinsurance.

Reinsurance was created centuries ago to reduce concentration of risk. Secondly it has more recently become known as conduit or access to expertise, knowledge and data. Obviously, the need is there for LTC reinsurance and reinsurance services. So what are the types of reinsurance and reinsurance-related services available for LTC insurers and how do these apply to the needs of today's business environment?

Types Of Reinsurance

Although many reinsurance arrangements are possible, four types that are commonly used. These four types may be used singularly or in combination with each other.

Proportional quota-share (PQS) is the most widely offered form of LTC reinsurance. In this arrangement, the insurer and reinsurer share in all the risks of the product. This includes all the morbidity, mortality, persistency, investment and expense risks. A reinsurer also shares in risks that may arise after issue, including the impact

of mandated benefits and state regulation on the profitability of the reinsured policy forms. The extent of the risk sharing is proportional to the percentage of the reinsurance ceded. For example, in a 60/40 relationship, the insurer retains 60 percent of the risk and cedes 40 percent of the risk, from the first dollar expended.

PQS reinsurance serves an insurance company best when there is uncertainty of events or a real possibility of deviation in results, particularly of an unknown or not easily quantifiable magnitude.



There is uncertainty when innovative product features or benefits are being offered to the public by either large, small or new companies in the market. LTCI is still in its infancy. This suggests that there should be new benefit designs coming to market regularly that can benefit from reinsurance.

In the early days of LTC insurance and reinsurance, PQS reinsurance was considered an aid in supporting growth of the writing company by providing expense dollars to write new business due to the initial surplus strain. More recently, in addition to the initial surplus strain, it has been recognized that the high persistency under LTCI also requires additional investment after the first policy year as the build up of significant active life reserves necessitates a commitment of further capital due to

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risk-based capital requirements. Now there are two strong reasons to use PQS reinsurance to support growth.

Also in the early days of LTCI, there was concern because LTCI was a lapse-supported product. Should expected lapses fail to occur, larger reserves would be required and larger future claims would be greater than originally assumed. History has shown us that lower voluntary lapses did occur. Current pricing is reacting by using more appropriate and lower lapse rates thus leaving the product with much less risk and sensitivity due to deviations in voluntary lapse. However, there has been an improvement in the mortality rates from those originally used such as the 1983 GAM mortality table. Recent publications and tables are suggesting that it could improve further. This causes concern of this lapse-supported product to sway away from the voluntary lapse rates toward the involuntary mortality rate.

Early LTCI policies (1980s) were priced expecting that invested funds could yield as much as 9 percent annually. We have seen that expectation steadily change downward to the 6 percent range with some individuals suggesting that a "safe" yield rate may be more in the area of 4 percent. PQS protects a ceding company from this result.

Recently there have been several legal situations involving LTCI. The net result of these cases has restricted the writing company from unlimited rate increases. The protection and comfort that a writing company may feel due to the guaranteed renewable language of their policy has been weakened by the outcome of these situations. PQS provides protection under these types of originally unanticipated actions.

Regulatory changes are impacting future premium changes in other ways. Rate stability regulation places caps on the size of rate increase that a writing company may be able to achieve. Again, the PQS reinsurer shares in this result.

Proportional claim-only (PCO) reinsurance protects the insurer from adverse experience due to the morbidity risk only. This protects the

insurer from the risks of higher claim frequency and longer claim duration than expected in pricing. As with proportional quota-share, the extent of the risk sharing is relative to the reinsurance percentage. While PCO reinsurance provides much less protection and does not cover many of the risks mentioned above for PQS, it can provide important protection for an insurer who is concerned about claim variability.

This is probably a better approach for smaller rather than very large writers of LTCI because the smaller writer has more of a chance of variability in results due to less exposure.

PCO will help protect against early claims that are greater than anticipated in pricing from the select and ultimate factors.

It can help a company that is concerned about anti-selection in the early years if it has an inexperienced underwriting staff that may miss some important information and issue some policies that it should have avoided.

It can also help a company that has an inexperienced claim organization or one that is new to the business. A claim department that has few policies in force likely does not have sufficient expertise due to handling few claims and thus may accept some claims inappropriately while its learning curve is being ascended.

An inexperienced claim staff may not have enough knowledge and ability to limit claims to their appropriate levels, thus causing longer

and larger benefit payments than necessary.

Excess-of-loss reinsurance (EOL) is a subset of proportional claims-only reinsurance. This protects the insurer from large claims. A large claim may be defined in terms of a long benefit period or it may apply to a large benefit amount. For example, an insurer may want to avoid all claims payable after the expiry of both the waiting period and two years worth of benefit days or after \$50,000 of benefit payments have been incurred. With this form of reinsurance an insurer is unconcerned with the number or frequency of claims that occur but is concerned with the length of claims they receive.

EOL reinsurance may help a company with inexperienced underwriters who are not

PCO will help protect against early claims that are greater than anticipated in pricing from the select and ultimate factors.

successful in avoiding long claims such as those derived from individuals with Alzheimer's, senility, dementia, central nervous system disorders or mental and nervous disorders.

This reinsurance may also help a company that has claim staff inexperienced in handling, coordinating and limiting claims whether they should be of a short nature or of the lengthy type as mentioned above.

There is some indication that at least with older issues, the underwriting may be too good! This is being played out in an adverse consequence. Some applicants who are insured at ages above 80 may have longer incurred claims than expected because they are so healthy from a mortality perspective. EOL reinsurance may minimize the negative financial impact.

Portfolio aggregate stop-loss (ASL) reinsurance provides potentially high reimbursement with a low probability of collection. Under this arrangement, the insurer's incurred claims are evaluated on a calendar year basis. This reinsurance pays when the total paid claims (whether large or small in nature) from a particular policy form or forms (ie. portfolio) for a specific covered calendar year exceed a specific amount. The stop-loss point is typically a percentage of expected claims. For example, if incurred claims for a calendar year exceed 150 percent of those anticipated, the reinsurer pays all the benefits becoming payable after the 150 percent point (often referred to as the attachment point).

ASL reinsurance arrangement is suited for those companies with a more-than-adequate surplus to cover both the original expenses and the risk-based-capital requirements, but is concerned with large deviations in claim results for specific calendar or financial reporting years. This form of coverage is more appropriate either alone or in combination with other forms of reinsurance for those companies that have a large exposure of in-force business.

Types of Services

The section above described the types of reinsurance that are available from reinsurers. Other than surplus relief, these reinsurance forms may be considered as devices to "pass off a share of the bad results." They are ways to lessen the adverse financial results from generally unanticipated circumstances or deviations

from pricing assumptions. That can be considered a negative approach to using reinsurers.

That is not the only way a reinsurer can help. There are positive ways to work with a reinsurer to secure better results for the ceding company on its portion of the business retained.

Under a special form of PQS called modified coinsurance, the reinsurer may be able to increase investment yield for the writing company by investing the writing company's LTCI funds.

A well-staffed reinsurer can improve a ceding company's daily operation through a business evaluation that audits, examines and analyzes a company's internal structure and operation through an extensive evaluation of financial controls, reserve adequacy, underwriting and claim guidelines and processes. With the developments in the business community over the past year, management must take extra steps to ensure that operations are functioning as cleanly as possible.

Overall risk management review takes the Business Evaluation one step further by reviewing not only the daily operations but also by examining how an LTC insurer is addressing all of the risk elements within the product and within its organization in total.

Lastly, an insurer may be able to benefit from a reinsurer who can actually perform many of the risk related services such as contract drafting, underwriting and claim adjudication. The reinsurer should be current with the latest of best practices in each of these areas and may be able to perform them with better results both on the reinsured and the retained business.

Summary

The LTCI marketplace has been changing over the last 20 years. The LTCI products being offered have changed. The number and size of the insurers and reinsurers has changed. Knowledge of the business has grown. The reasons that a writing company may believe it needs or wants reinsurance have changed. The four major types of reinsurance, especially proportional quota-share, have provided valuable protection in ways that the original purchasers of reinsurance did not anticipate. While the reasons to reinsure have changed, the need continues. ✍

Gary L. Corliss is
CEO of Avon Long
Term Care Leaders
located in Avon,
Conn. He can be
reached at gcorliss@
avontcl.com.

Economic Advantages of Offshore Life Reinsurance

by Kent Scheiwe and Margaret O'Connor

The press and the United States government have paid attention to the negative connotations of “offshore,” particularly regarding tax avoidance and money-laundering schemes. There are, however, legitimate means of conducting reinsurance business offshore, and there are often cost savings in doing so. In fact, most of the large reinsurers have their own offshore companies, and much of the reinsurance obtained from U.S. reinsurers is retroceded offshore.

Legal, financial and tax advisors should be consulted regarding the issues discussed here. This article is meant to be general in nature and is not meant to replace such consultation.

This article discusses some of the economic advantages of reinsuring life insurance offshore whether it is with your own captive company, a “rent-a-captive” or an existing offshore reinsurer. It is based on information gathered regarding life reinsurance in the Bahamas, Barbados, Bermuda, the British Virgin Islands and the Cayman Islands. These are the primary locations of interest to U.S. insurers because they are well



established with respect to “exempt” insurance companies. Other locations, such as Panama, Belize and other Caribbean islands, are developing the laws and expertise needed to attract insurance companies. European insurers have shown interest in Guernsey, Isle of Man,

Luxembourg, Ireland and other locations for offshore reinsurance, which are not addressed here.

Exempt insurance companies are insurance companies incorporated in one of these offshore jurisdictions for the purpose of insuring non-domestic risks. These companies are exempt from some of the local requirements for domestic insurers and are exempt from local taxation for at least 15 years from the date of incorporation.

Some of the differences in United States and offshore life reinsurance are listed, then discussed, below:

1. Reserve standards and compliance
2. Actuarial testing and certifications
3. Taxation
4. Investment restrictions
5. Solvency requirements

Reserve Standards and Compliance

United States

The US has a proliferation of laws, regulations and guidelines that the actuary must follow when setting statutory reserves for U.S. domiciled companies. These regulations and guidelines often change and are inconsistent among states. Triple X, “The Valuation of Life Insurance Policies Model Regulation,” is an example of a regulation that quickly changed the rules for reserving for many life insurance products. Actuarial guidelines have further complicated the reserving arena with their various requirements. Use of conservative mortality and interest assumptions is also mandated.

Offshore

Offshore life insurers are required to calculate statutory reserves and other financial items according to “generally accepted accounting principles.” These principles may be those defined in the International Accounting Standards, in Canadian standards or elsewhere. U.S. GAAP-like reserves are often acceptable, as are reserves calculated according to other methods approved by the company’s independent auditor and the Supervisor of Insurance. The international and Canadian standards generally demand the use of best-estimate assumptions, possibly with some

margins for adverse deviation. The international standards for life insurance are in the development stage.

For the most part, offshore jurisdictions allow much more flexibility and reliance on actuarial judgment than found in the U.S. jurisdictions. Rather than establishing many laws, regulations and guidelines, their goal for exempt insurance company legislation is to promote business and minimize red tape while ensuring the solvency of the companies.

Actuarial Testing and Certifications

United States

Once the revised Actuarial Opinion and Memorandum Regulation (AOMR) is approved, all U.S.-domiciled life insurers must perform cash flow testing annually and must have an actuary sign a certification annually with respect to asset adequacy.

Offshore

Offshore actuarial certifications, when required, are often simply worded documents that certify that the policy liabilities make appropriate provision for obligations or that the actual company liabilities are correctly reflected on the financial statements. In many jurisdictions these certifications may be only a few sentences in length.

Taxation

United States

U.S. insurers incur federal income tax, including equity tax for mutual companies, DAC tax, state premium tax and Guarantee Association fees. With respect to offshore reinsurance, there is an excise tax of 1 percent of gross life insurance premiums paid to foreign entities (i.e. those not electing to be taxed as a U.S. tax entity). Repatriation of profits to the United States from offshore reinsurers is taxable.

Offshore

Offshore exempt companies incur no domestic income, capital gains or premium taxes, but there are government registration fees, stamp duties and other indirect taxes. The other fees and taxes generally do not exceed \$10,000 per year, but may increase with company size. If the

exemption from taxes is not guaranteed to be permanent, the government may guarantee such exemption for 15 to 20 years from the date of incorporation. The duration of the tax exemption varies by jurisdiction, and the guarantees may sometimes be renewed. Offshore tax savings may flow to the U.S. insurer through reduced reinsurance premiums.

Offshore insurance companies, particularly those owned by U.S. companies, may elect to be taxed as U.S. tax entities under Internal Revenue Code 953(d). Under this section, a foreign company may enter into an agreement with the

U.S. Internal Revenue Service to be taxed as if it is a domestic U.S. corporation, and it may be required to post a letter of credit securing the prompt payment of applicable U.S. taxes. The company would then be taxed by the United States on its worldwide income. The premium excise tax would not apply, and there is no "repatriation" of profits to be taxed.

Investment Restrictions

United States

State laws restrict U.S. insurers as to how much they may own of particular investments. For example, the amount of common stock owned is limited. Furthermore, companies are restricted indirectly through the risk-based capital formulas. These formulas assign large amounts of required capital to certain asset classes, making it difficult for U.S. insurers to invest heavily in those asset classes.

Offshore

Offshore jurisdictions have few, if any, investment restrictions for exempt insurance companies, and those that have restrictions may waive them on a case-by-case basis.

Solvency Requirements

United States

The initial capital required for U.S. companies varies by state. Risk of insolvency is minimized through the conservative nature of statutory reserves and is monitored through asset adequacy and cash flow testing.

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State laws restrict U.S. insurers as to how much they may own of particular investments.

Differences in United States and offshore reinsurance

	United States	Offshore
Reserves	Tabular; complicated variety of rules by state; conservative assumptions	Flexible Best Estimate Assumptions
Actuarial Certification	Asset Adequacy Testing	Certify Reserves
Taxation	Federal Income Tax Mutual Company Equity Tax DAC Tax State Premium Taxes Guarantee Association Fees	No income, capital gains or premium taxes for at least 15 years Government fees generally less than \$10,000 annually U.S. Federal Excise Tax of 1%
Investments	Restricted	Few Restrictions
Solvency	Varies by State	\$200,000 - \$300,000

Offshore

Offshore jurisdictions require initial capital of \$200,000 to \$300,000 to incorporate an exempt life insurance company. Risk of insolvency is monitored and minimized through annual certificates of solvency, early warning operating ratios, minimum solvency margins and/or minimum ratios of net worth to premium income.

The chart above summarizes the differences in U.S. and offshore reinsurance.

Demonstration

To demonstrate the potential financial benefits of some of these differences, we will look at the reinsurance premiums required on a sample nonrenewable term product to meet the reinsurer's profit goal and show the step-by-step impact of changing assumptions from U.S. reinsurance to offshore reinsurance. With each assumption change, the reinsurance premium is adjusted to calibrate the profit for each profit cell to the five percent of premium profit goal. The sample product uses generic assumptions and is not representative of any insurer's particular product. The profit goal of five percent of premium may not meet a reinsurer's profit goal for a similar product. This demonstration is for illustrative purposes only. Actual premiums and premium savings will differ from those shown. Actual profit results after reinsurance should be tested using actual product assumptions and actual quoted reinsurance rates to ensure that the profit goals of the company are being met.

The values discussed are shown in the tables and graphs following the discussion. The base profit study consists of a U.S. company reinsuring model cells representing males and females, preferred, nonsmoker and smoker, issue ages 25, 35, 45 and 55, for 10-, 20- and 30-year term periods. The profit goal after tax and target surplus is five percent of premium with a discount rate equal to the net investment rate of six percent. Reasonable assumptions were used for lapses and mortality. The premiums and premium changes demonstrated for each assumption change below might not be indicative of actual reinsurance premiums quoted by U.S. and offshore reinsurance companies but are used for illustration.

1. Change to Offshore Reserve Standards

The first assumption change in moving from U.S. reinsurance to offshore reinsurance is the use of offshore reserve standards. Offshore reserve standards often permit lower reserve levels than those required by U.S. statutory reserve laws and regulations. If the offshore valuation actuary and auditor believe that deficiency reserves are redundant, the offshore reinsurer may hold reserves equal or near the basic reserve level. Reducing the reserves to the basic reserve levels allows a 13.4 percent decrease in the composite reinsurance premium rate to maintain the five percent of premium profit margin. Higher ages and longer guarantee periods incur the greatest reductions in reinsurance premium. To the degree the

actuary deems that reserves higher or lower than the basic statutory reserves are appropriate, the available premium decrease may be less or more.

2. Reduce Target Surplus

The second assumption change is the reduction of target surplus from 250 percent to 100 percent of risk-based capital (RBC). Again, the implication is that targeting surplus at 100 percent of RBC is adequate. The reduction in target surplus allows a decrease in the composite premium of 4.7 percent of the original premium to maintain the five percent of premium profit margin. In this case, the greater effects are seen at the lowest ages and guarantee periods. Again, to the degree the actuary deems that higher or lower surplus is appropriate, the available premium decrease may be less or more. The ceding company's RBC requirement will also be reduced by going offshore in that the reinsurance reserve credit addition to RBC is canceled out by the letter of credit, trust account or funds withheld account. The effect of this reduction in RBC for the ceding company is not reflected in these premiums.

3. Use of a non-U.S. Tax Entity

Assuming the offshore reinsurer is not a U.S. tax entity, FIT does not apply, allowing the reinsurer to now reduce the original composite premium by another 7.4 percent to maintain the five percent of premium profit margin. The DAC impact on the ceding company and the reinsurer is ignored, assuming the net reinsurance considerations are \$0 in every year.

4. Add Federal Excise Tax

The direct U.S. insurer will incur a federal excise tax of one percent of net premiums paid to non-U.S. tax entities, directly increasing the ceding insurer's cost. Assuming that the offshore reinsurer reimburses the U.S. insurer for the federal excise tax, the composite premium increases by .9 percent of the original composite premium to maintain the five percent of premium profit margin.

5. Add Cost of Letter of Credit

In order for the U.S. insurer to receive a full reinsurance reserve credit, and assuming that the offshore reinsurer is not "admitted" in the insurer's domiciliary state, a letter of

Reinsurance Premium Development - U.S. to Offshore
Composite Premium Rates per \$1,000

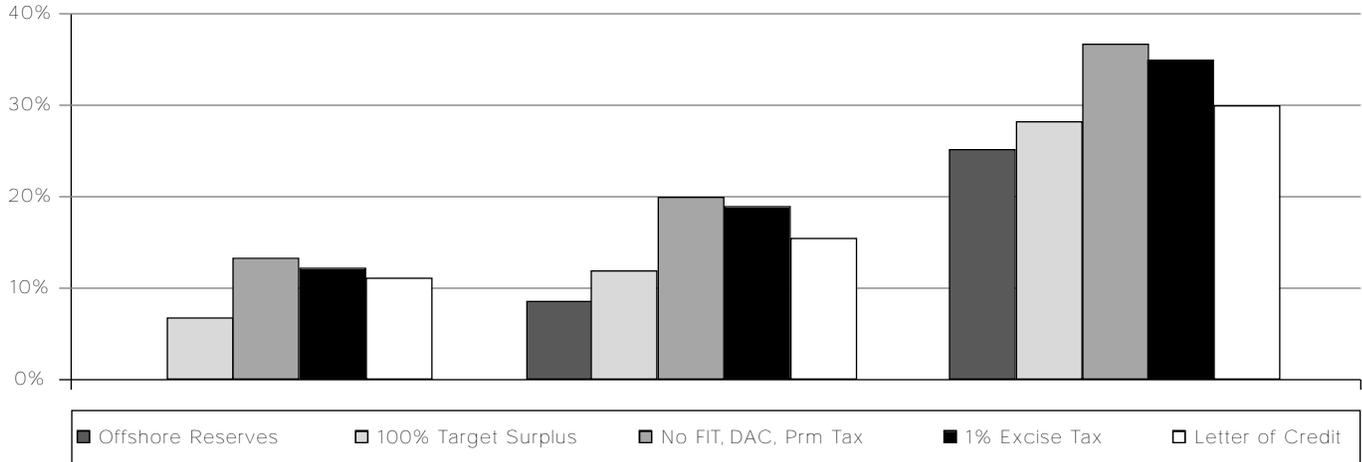
Assumption Change	Base	(1)	(2)	(3)	(4)	(5)
Term: 10	1.75	1.75	1.64	1.52	1.54	1.55
20	2.59	2.36	2.24	2.07	2.10	2.18
30	3.76	2.84	2.70	2.39	2.42	2.63
Composite All Term Periods	2.65	2.29	2.17	1.97	2.00	2.10

Decrease as Percent of Base Premium

Assumption Change	(1)	(2)	(3)	(4)	(5)	Total
Term: 10	0.0%	6.4%	7.1%	-1.1%	-0.8%	11.6%
20	8.7%	4.7%	6.5%	-1.0%	-3.2%	15.6%
30	24.4%	3.8%	8.2%	-0.7%	-5.6%	30.0%
Composite All Term Periods	13.4%	4.7%	7.4%	-0.9%	-3.6%	20.8%

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Cumulative Percent of Premium Changes by Term Period



credit, trust account or funds withheld arrangement must be made. A letter of credit issued at a cost of 60 basis points is assumed, resulting in an increase in the composite premium by 3.6 percent of the original composite premium to maintain the five percent of premium profit margin.

The final result is a 21 percent potential reduction in the reinsurance premium between a U.S. reinsurer and an offshore reinsurer. Note that only term insurance is addressed here. The results for other types of insurance products, such as whole life, annuities and long-term care are expected to differ from these results.

The following tables and charts summarize the composite premiums and their step-by-step changes. The assumption changes are as follows:

Base: U.S. Reinsurer

- (1) Use offshore reserve standards
- (2) Set target surplus at 100 percent RBC
- (3) Use of a non-U.S. Tax entity
- (4) Add one percent excise tax
- (5) Add 60bp cost for letter of credit

Offshore Options

There are three main options for reinsuring offshore:

1. Reinsure with an existing offshore reinsurer.

Appropriate due diligence on the offshore reinsurer is required. To the degree the risk

is transferred to the reinsurer, so are the profits. Potential difficulties with cross-border legal disputes and currency risks must be reviewed.

2. Start a captive reinsurance company.

This will keep the risk and the profits within the ceding company's family. The cost to set up and operate a captive includes government and license fees, audit fees, captive management fees, legal fees, local director's fees and, in those jurisdictions requiring local meetings, annual meeting costs. The jurisdictions vary somewhat in government and management costs, but the deciding factor for location will often be based on local expertise and working relationships with government officials, insurance managers, banks and lawyers.

3. Reinsure through a "rent-a-captive," allowing the company to retain the risk and more of the profits without incorporating its own subsidiary.

The management fees must be analyzed with respect to the savings otherwise incurred. The rent-a-captive should have segregated portfolios to protect the ceding company's coverage from losses of other client companies.

Conclusion

There are economic reasons to reinsure offshore. The reinsurance actuary should explore offshore opportunities to determine the potential benefits for his/her company. ✍



Margaret O'Connor is a consulting actuary with Milliman USA in Indianapolis and may be reached at margaret.oconnor@milliman.com.



Kent Scheiwe is a principal with Milliman USA in Indianapolis and may be reached at kent.scheiwe@milliman.com.

Actuaries of the Caribbean

by Timothy F. Harris

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You say you're tired of the rat race, the long commute, the smog and the weather. Well, why not join the ranks of those actuaries who have left the safety of the shores of the United States, and possibly other homelands, to strike out for a region of the world that was once the habitat of some of history's most colorful characters, including pirates and explorers? Yes, I'm talking about the actuaries of the Caribbean (and Bermuda).

Note that some Bermuda actuaries claim that they are not in the Caribbean. Technically, Bermuda is not in the Caribbean, but since it is an insurance center that has attracted many actuaries, used to attract pirates, has some of the best dark rum I have ever tasted (Goslings) and is subject to devastating hurricanes, for the purposes of this article, Bermuda is in the extended Caribbean. After all, it's one of the pivot points of the Bermuda Triangle.

Who are these adventurers, what have they encountered in this brave new actuarial world, and are they happy in their swashbuckling environment? I am reminded of the Key Largo dive boat operator who wore an earring shaped like a saber running through his ear, a bandanna and a beard; a real pirate. I have obtained one of those earrings but have to figure out how to discreetly get my ear pierced without raising the eyebrows of clients so that I can wear the saber while boating and sailing.

Your author, in search of better diving and sailing locales, has been kicking around the Caribbean for the past several years and also has engaged in some consulting assignments that involved reinsurance companies in the once-dreaded offshore environments. Those of us that have a few years of experience have probably heard horror stories about insurance money disappearing in the Caribbean in the past. We also heard some of the Enron stories about money disappearing in the Caribbean even more recently. In the case of offshore insurance companies, that is no longer the case. We now have

many reputable, highly rated companies ceding their business to likewise reputable, highly rated and highly capitalized offshore companies.

In the process of touring the Caribbean, your author has visited with some of the actuaries of the Caribbean and some offshore insurance regulators in search of the ideal environment for an actuary who likes to play in water.

The actuaries that I visited with were for the most part U.S. expatriates. There are a couple of reasons for these actuaries retaining their U.S. citizenship. One is that they like their U.S. citizenship and the taxes that go with it. The other is that it is extremely difficult for anyone except for the very rich and famous to become a citizen of many of these countries. In one country, the only way, other than being born to existing citizens, was to marry a current citizen and live under the same roof for 10 years. That's a record period of time for many marriages.

What do these actuaries do? For the most part the ones that I met with were busy evaluating

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potential reinsurance deals with U.S. companies. The difference in the methods for accounting for certain liabilities makes it advantageous to cede those liabilities to an offshore environment where the liabilities are accounted for on a GAAP basis in lieu of the statutory methods used for state financial reporting. The assuming company then provides a letter of credit for the reserve credit taken by the ceding company and the ceding company realizes a ceding commission representing part of the difference between the GAAP and the statutory reserves. Two likely candidates for this type of reinsurance are Reduced Paid Up life insurance reserves and Long Term Disability (LTD) reserves. Actually a sizeable portion of the LTD reserves of U.S. companies has already found its way offshore, mostly to Bermuda. Another advantage to ceding the LTD reserves offshore is that U.S. statutory accounting for investments does not make it easy to match assets and liabilities on this business which has extremely long durations. Theoretically, there should be more common stock in the mix. Forget the fact that the market has done poorly recently.

Some of the offshore insurance companies have been set up solely for the purpose of reinsuring U.S. business and earning a profit on the differences in U.S. statutory accounting and international GAAP accounting. Some have been set up to allow wealthy individuals to create self-directed insurance policies with self-directed investments for income tax or estate tax purposes. Others have been established to provide an insurance company structure for a hedge fund or other investment fund. This later purpose is an outgrowth of some of the tax treaties and allows for the sheltering of hedge fund profits from federal income tax.

The offshore actuary's typical workday begins with a breakfast of the local fruit and maybe a glass of very expensive milk followed by a trip from the company-subsidized dwelling to the downtown office on the motor scooter. The work

attire may be a suit on some of the islands or Bermuda shorts with a white short-sleeve shirt and tie, white socks and dress shoes. Lunch will be at the restaurant with all of the other expatriates, insurance executives, bankers, investment bankers, etc. After a long day at the office, the

actuary might retire to a nearby pub for more quality time with the other expatriates. Often the expatriate actuary will fly back to the states on the weekend since the family did not follow them to the island. The schools are not what we are used to in the states and many expatriates leave the children behind.

As you can imagine, the lifestyles are more limited when it comes to dining and theater. Distance becomes relative since, at times, it only takes 30 minutes to drive as far as you can go on an island.

The pace is a little slower and the temperature a little higher in most of these coun-

tries. The mode of dress is generally casual, but you do find the British influence on a few islands. In at least one of these countries, Cayman, you can find the occasional businessman wandering about on a hot day wearing a full dark suit, which brings to mind the saying about "only mad dogs and Englishmen" going out in the heat of the day. In another country, Bermuda, some actually do wear the Bermuda shorts with the knee socks and, at times, even a tie and a sports jacket along with the combination. Also, in Bermuda, you encounter a stronger British formality in the accepted dress codes in restaurants and on the street. Restaurants are generally casual but they are "smart casual" and the local police will speak to you if you wander around in beach attire while not on the beach. In addition, wearing tennis shoes is a fashion faux pas in Bermuda unless you are actually playing tennis.

Let's not forget the hurricane risk and the more remote volcanic action risk. The hurricane risk has become more well known in the past few years due, in part, to the Weather Channel and

Another advantage to ceding the LTD reserves offshore is that U.S. statutory accounting for investments does not make it easy to match assets and liabilities on this business...

the increased availability of all forms of news and possibly even more as a result of the change in weather patterns caused by El Niño or La Niña which are, in turn, caused by global warming, or so one theory goes. As I was sitting in Bermuda writing my first draft of this article last year, a hurricane was about 400 miles south of me and meandering around. That year's weather pattern caused hurricanes to meander around a lot. The forecasters weren't sure if it was going to hit or not. It was scheduled to hit on the day that I was to leave but, luckily, continued its meandering for another day so I could make it out of town. Hurricanes are such a part of normal life here that one of the local actuaries wasn't even aware that there was a hurricane close by. The previous month I missed Hurricane Debbie by a week when I was in the British Virgin Islands. Debbie may have dispersed over Cuba but it whacked the island that I had been on with 70 mph winds. More recently, when I was in the Caymans, I was caught at the mercy of a hurricane (whose name I forget) when the airports were shut down. The only option was to sit in the bar and hold a hurricane party as the tidal surge came in and the power flickered on and off. Again, luck spared me the direct onslaught when the hurricane split into two storms, both of which missed the island. The diving was terrible, however, since the fish have more sense and head to deeper water. Some of the underwater stills and video can be seen at my Web site www.sealifepix.com.

So what does the prudent actuary do when weather threatens?

- A) Put your head between your legs.
- B) Head back to the mainland by the fastest route.
- C) Go to the south beach and watch it come in.
- D) Wait it out.

The correct answer, I learned, is D. I've met people who think the correct answer is C. They weren't actuaries, however, and yes, the hurricanes typically approach from the south in the Caribbean and, yes, they did end up in the hospital. Many of the actuaries that I spoke to had not experienced a hurricane. The



recommended approach is to do what people in the Midwest do. During the storm, find the safest place in the house and open the windows facing south to avoid implosion and then after the eye of the storm passes (if this happens in the Midwest, it's too late), close those windows and open the windows to the north. Having spent a bit of time in the Caribbean and the Florida Keys, I raised the question of dealing with the tidal surge, which, we as actuaries know, causes the great majority of deaths in a hurricane. This is an issue that wasn't always well thought out. The risk actually varies with the terrain of the island and the location of your home. For example, the Virgin Islands, which can be visualized as a group of mountainous peaks sticking out of the ocean, are not as subject to tidal surges. Grand Cayman, which is formed on an old coral reef and, where the highest point of the island is about 15 feet, has in the past been literally covered by tidal surges. When you hear about the old disasters that occurred before the current sophistication of storm watching, the large numbers of deaths in the Keys, Galveston and Mississippi were due to tidal surges. However, a few years ago some people stayed around Key West to watch

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a 12-foot tidal surge that occurred during a hurricane. Over 6000 people were killed in the Galveston Hurricane in 1900, most of them by the tidal surge. Camille produced a 25-foot tidal surge in Mississippi and Hugo in 1989 generated a 20-foot tidal surge in South Carolina. A 20- to 25-foot storm surge would completely cover Grand Cayman.

Regarding the volcanic risk, remember, many of these islands were formed by volcanic action. So, if you're on an island that has no hills, you need to worry more about tidal surges. If your island has lumps you need to factor in the volcano risk. One of the islands, Montserrat, was devastated in 1995 by volcanic eruptions.

Another issue is cost of living. When almost everything that we need to survive as 21st-century human beings has to be shipped to the island, you can expect to pay pretty much by weight and volume. Some examples that I was given were \$7.50 for a gallon of milk if you could find it by the gallon and \$12 for a watermelon. Bananas and other island fruit are cheaper, however.

One of the by-products of the higher cost of island living is the higher cost of gasoline and the limitations on the use of automobiles. An example of this is one island where the residents were limited to one car per household. This left other members of the household to either walk or ride around on a scooter. This is not all that bad, unless it is raining. You may also have to take another driver's test and, remember, many of these people drive on the wrong side of the road.

Finding a place to live can also be a problem. In some of the more popular islands, real estate ownership is limited to citizens and, as we now know, that's probably not going to happen for you. This is also an issue in Hawaii. As you can tell, I've been pricing real estate and the prices are actually about the same for Hawaii and the Caribbean—LOTS. So you're typically limited to renting a place that might cost something slightly higher than a place in Manhattan. There are some islands that do allow nonresident purchases of real estate, but there are typically price limits and high taxes or duties associated with this ownership. For example, in

Bermuda, a nonresident can only purchase real estate valued in excess of \$1.7 million and there is a 30 percent or so tax on top of that. The situation in the Caymans is similar except for Cayman Brac, a sister island.

Let's list some of the insurance offices here including Bermuda, Cayman, BVI, Barbados, Turks and Cacos, Grenadine and Panama. Note that Bermuda is apparently a two Letter of Credit (LOC) domicile, which means that you have to buy a LOC to back your reserves in the United States and if you don't have the capital in Bermuda, you need another LOC. This is why some reinsurance companies choose Barbados. Depending on the reigning tax treaties, some islands require two LOCs and some require one. The cost of LOCs has been going up and it is getting more and more difficult to obtain them as banks realize that there is actually a risk associated with these instruments. It is also virtually impossible to obtain one that renews year after year. There are some alternatives to letters of credit including using actual assets, and posting of assets in a U.S. trust equal to statutory reserve credits is becoming more and more common.

These banking and insurance centers were often created initially through tax treaties with Great Britain and have continued through similar tax treaties with the United States and Canada.

The banking lure is the confidentiality of the account holder's identity and information. However, some of this is breaking down in some of the offshore havens. For example, a recently negotiated tax treaty between the United States and the Caymans opens up bank records to the IRS in several years. So, if you have any money there, move it soon. Will this affect the actuaries? Maybe one or two will need to reappropriate assets.

This is just one more example of unusual opportunities for actuaries. You don't have to drink the rum, although I recommend it, and you don't have to wear the saber earring, I'll let you know how that goes, but you do have to know the international GAAP accounting requirements. ☛

Finding a place to live can also be a problem.



Timothy F. Harris, FSA, MAAA, is a principal at Milliman USA in St. Louis, MO. He can be reached at tim.harris@milliman.com