



# Small Talk



## A Mixed M&A Bag In The First Half of 2004: A Look At Insurance Company Activity

by Peter W. Mattingly and Robert D. Shapiro

### Insurance Transactions Through Mid-Year

In the first half of 2004, the life insurance industry produced 14 transactions, including a handful of significant deals:

- Acquisition of Forethought Financial Services by the Devlin Group (\$280 million).
- Acquisition of CNA's individual life business by Swiss Re (\$690 million).
- Acquisition of Safeco Life by a Berkshire Hathaway and White Mountain investor group (\$1,350 million).

- Great American's purchase of *National Health's* fixed annuity block (\$38.0 million).
- *Health Care Service Corp.'s* acquisition of Omaha Life Insurance Company.
- *Madison National's* acquisition of a block of annuity business from an undisclosed seller.
- Undisclosed buyer's acquisition of *American Founders Life* (\$83.5 million).

These 2004 deals are instructive in creating a better picture of the broader small life company participation in M&A.

1. There are a handful of smaller organizations that are growing through acquisitions of small life companies and blocks of business. Examples include:

- *Citizens Inc.*, its 2004 acquisition of Security Plan Life represents its sixth announced deal since 1999.
- *Madison National Life*, its 2004 annuity block acquisition continues a string of life and annuity block deals consummated over recent years.
- *Universal American Financial Corp* has grown its senior market specialty business through a series of acquisitions over the past three to five years.
- *National Guardian Life* (a mutual) has grown substantially through a combination of acquisitions (of stock companies and blocks of business) and mutual mergers.
- World Insurance (now merged with American Republic Insurance Group) has grown in size and strength over the past decade through a series of acquisitions and mutual mergers involving health insurance business.

In addition, although announced in 2003, the AXA's acquisition of MONY (\$1,500 million) and Prudential's acquisition of CIGNA's retirement business (\$2,100 million) closed in 2004.

On the other hand, property/casualty deals were few and far between, with no major transactions in view. Through six months of 2004 we tracked only seven P/C deals, compared to 62 tracked P/C deals for the full 12 months of 2003. One reason for this decline is buyer concern that the cycle is turning.

Tables I and II provide details on life and property/casualty transactions tracked during the first six months of 2004.

### Small Life Company M&A Activity

Small life company M&A activity continues to represent a significant proportion of announced life M&A transactions. For example, of the 14 life transactions that we tracked in Table I, at least five involved smaller company buyers and/or sellers:

- *Citizens Inc.'s* acquisition of Security Plan Life (\$85 million).

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## Editorial

by James R. Thompson



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### Introduction:

This issue will cover many challenges we face. There are so many it is difficult to prioritize them. One is basic survival. In our lead article, "A Mixed M&A Bag in the First Half of 2004: A Look At Insurance Company Activity," the authors, Peter W. Mattingly and Robert D. Shapiro, take a look at the merger and acquisition activity this year. They point out that small life companies are heavily involved. Companies are like fish in the sea: Predators eat something they can see. Whales do not bother with sardines. As small companies acquire other small companies, they diminish the total number out there.

Another problem is the identity of the Smaller Insurance Company Section itself.

Who are we? Do we include most smaller company actuaries? Do we have a wider membership? Jay M. Jaffe raises these and other questions in his article, "What Is the Smaller Insurance Company Section?"

At some national meetings, we sometimes find ourselves wanting to see practical discussions instead of esoteric theory. One service we can provide is to share advice with each other on the practical side of situations. With this in mind, we have several articles that may be able to help you out. When we do not share, we can feel isolated. It is encouraging to hear from others who have faced challenges and come up with practical solutions.

The first such article is by Pete A. Hitchcock, our section chairman, entitled "Expense Management Experiences in a Smaller Life Insurance Company." We all know the study notes on this, but how do we practically get management involved? Should we grow business or cut expenses? Does the actuary have a practical role in the budgeting process?

*continued on page 3* ▶▶

## On the cover



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*Peter W. Mattingly is a co-founder of P.W. Mattingly & Co., which focuses on investment banking requirements of medium-sized companies.*



► Leon L. Langlitz wrote an article, “The 2005 Version of the Generally Recognized Expense Table (GRET).” This table figures into the illustration actuary work under the Life Insurance Illustration Model Regulation. This was discussed in a LHATF conference call August 5, 2004 in preparation for the September quarterly meeting of the NAIC. His article discusses the methodology, and we have included the proposed table. The major issue is that the branch office expenses increased significantly. Is this credible? This was discussed and a decision was deferred until the fall meeting of the LHATF in Anchorage. There, they accepted the recommendation of the Society of Actuaries Committee on Life Insurance Company Expenses to defer revisions of the GRET until next year. A new set of factors may be produced for implementation in 2006. Until then, the 2003 GRET will be the approved table.

Amy Pahl has written another practical article, “Asset Adequacy Analysis for the Long Term Care Product: A Case Study.” She worked through and recommended an asset strategy for this product to a particular company. Her success story should encourage us as we face similar situations.

On the subject of asset adequacy, we know that the new Actuarial Opinion and Memorandum Regulation (AOMR) takes away the smaller company exemptions. This will expand the number of companies requiring this in the few states where it has passed. One tool is the Gross Premium Valuation Reserve, which can be used in some situations. Dave Smith explores this in his article,

“Gross Premium Valuation Reserves: What Are They and How Are They Calculated?”

Another practical problem is obtaining reinsurance. In her article, “A Practical Guide to Obtaining Reinsurance,” Tamora A. Kapeller gives some tips for the smaller company. Working effectively with a reinsurance partner can often spell success for those without sufficient experience.

Kent Scheiwe and Mark Rowley update us on the New Preeed Valuation Mortality Table. This is necessitated by the upcoming 2001 CSO, which is seen as inadequate for this type of coverage. Al Klein, chair of the newly formed Preferred Mortality Study Task Force and Task Force on Enhancements to Life Experience Studies, updates us on other aspects of mortality underwriting. Published mortality studies help smaller companies, which do not have enough experience of their own.

Narayan Shankar has written an article, “The New Risk Management Professionals,” which deals with an unpleasant problem we are all facing. Companies are moving toward hiring risk managers who are not actuaries. We should all become familiar with this challenge in order to understand the need to keep up.

I hope you benefit as much from reading this edition of the newsletter as I have in preparing it. If you find these articles helpful, let us know so that we can have more of them. ●

## What Is The Smaller Insurance Company Section?

by Jay M. Jaffe

I am very concerned about the health and survival of smaller insurance companies. The news of another merger or sale of a small insurance company is a regular occurrence. Some smaller companies are completely absorbed by their new owners, whereas others are becoming divisions of a larger financial services entity; but the end result is that there are fewer small insurance companies.

Smaller insurance companies have different problems than larger insurance companies. In theory, the Smaller Insurance Company Section (SICS) provides a focal point for the actuaries who work for or consult to these companies to discuss the issues confronting smaller companies and help to ensure the survival of smaller carriers.

For the SICS to meet the needs of its members, however, it needs to know more about the section's membership. Is it truly a group of actuaries from smaller insurance companies or has it attracted a wider membership? Are there groups of actuaries who should be members of the SICS, but for one reason or another are not part of the group, and what can be done to recruit them to members?

To begin to answer these questions, I enlisted the help of the SOA office and was able to obtain the section's membership list. The SICS has slightly more than 700 members. Almost exactly 60 percent of the section's current members are listed as affiliated with an insurance organization (direct writer or reinsurer). Just fewer than 30 percent of members are from consulting companies. The remaining members are from several and varied areas of employment.

But as actuaries know, statistics are misleading. For example, in membership listing, when one lists employment type as an insurance organization, this does not necessarily mean a smaller company. An "eyeball" analysis of the



insurance company membership indicates that at least one-third of the insurance organization members are from employers easily identified as large companies. Moreover, some of these members are from reinsurers rather than direct writing companies.

Of course, this result is dependent on how a large company is defined (my method was "if I considered them large"), but it shows that the section is not just comprised of members from smaller companies. It appears that many actuaries who work for larger companies identify with smaller companies because they work for divisions of these companies having some characteristics of smaller companies.

There is also a large segment of members from companies that appear too large to be small but are definitely not classified as large. Let's call these medium-sized companies. My guess is that the actuaries in these companies have a tendency to identify with their colleagues in smaller companies.

The 2003 Best's Insurance Reports classified 1,357 life/health companies by size according to policyholders' surplus. This report indicates that roughly 500 companies have less than \$25 million of policyholders' surplus, and from my perspective, are safely classified as smaller insurance companies. Over 300 additional companies have policyholders' surplus of less than \$100 million, and at least border on the smaller company

classification and would most likely not consider themselves larger companies.

SICS membership is 85 percent from the United States with the remainder at about an even split between Canadian members and members outside of North America.

While the information just presented about the SICS' membership is circumstantial, it can be used by the section to consider how best to meet the needs of its members. Here are some thoughts:

1. The section should continue to provide programs dealing with the technical actuarial problems that are of concern to smaller insurance companies.
2. The SICS, however, seems to have attracted a diverse group of members from outside of the classical sphere of the smaller companies. These members are seeking something from the section. We need to determine what they want and expect from the section. What about a brief membership survey to find out whether the membership might be interested in discussing the types of business problems that are likely to affect actuaries working in a division of a large enterprise in addition to the more traditional actuarial topics?



- ▶ 3. There also is the Smaller Consulting Firm Section. Are there issues that the members of both of these sections have in common and could benefit from open discussions of such matters?
4. Are there actuaries from the Casualty Actuarial Society (CAS) who have interests in common with SOA members? If so, is there a way to invite such actuaries to attend and/or otherwise participate in our sessions?
5. Are we attending to the needs of our non-North American members? Are these members interested in the technical issues facing U.S. and Canadian actuaries or do they want information which is less technical and more business oriented? Should the SICS try to become part of a program in Asia and offer a presentation attended by our members in this area of the world?
6. Based on current membership in the SICS, it appears there are many actuaries from smaller companies who are not currently members. Should the SICS embark upon a campaign to contact these people and invite them to join? Should an effort be made to invite other consultants who are serving smaller insurance companies?
7. What about contacting and then forming strategic partnerships between the SICS and insurance trade groups which have smaller insurers as members? We could even become involved with projects of interest to both actuaries and the trade groups, hold meetings (such as seminars) in conjunction with the trade group meetings, etc.
8. Is there a way for the SICS to reach out to smaller companies that don't have an internal actuary? In many instances there could be a para-actuary, accountant or other person who is either doing some actuarial work or acting as the liaison to external consultants and who might find some of the section's programs and resources valuable.

These are just a few quick thoughts about the section and its future. I believe the SICS can play an important role in maintaining a viable smaller insurance company industry. Smaller companies are often the sources of new products and concepts for the insurance industry. It would be unfortunate if the smaller insurance company industry were to diminish any further. ●



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## Letter to the Editor:

As the principal in a one-actuary consulting firm, I read the "Small Firms and Antitrust" article by Lauren Bloom (May 2004) with great interest. I agree for the most part.

I was thrown off by the use of the term "actuary" instead of "actuarial firm" throughout most of the article. Actuaries in large consulting firms routinely price fix, collectively refuse to deal, divide markets and consult among themselves — all internally in the firm.

I conclude that antitrust restrictions act at the firm level, not the individual level. This is without denying the individual professional, ethical and legal responsibilities on any actuary.

Then, what about "virtual company" collaborations by several individual actuaries or firms to pool resources and talents towards providing specific services? I suggest these are to be judged by the particular circumstances.

As one example, I collaborated with two other solo actuaries in creating a program that used our complementary skills. The resulting services competed actively against similar services, with the three of us acting as a unit (not incorporated as a separate firm, though). A potential client could not, however, negotiate individually with one of the three of us as to price or our willingness to deal with the client's project. That's OK by my thinking.

In another circumstance, a collaboration was suggested to me. The other party and I were the only vendors of the subject services in the United States at that time. I rejected the idea on antitrust grounds.

G. Thomas Mitchell  
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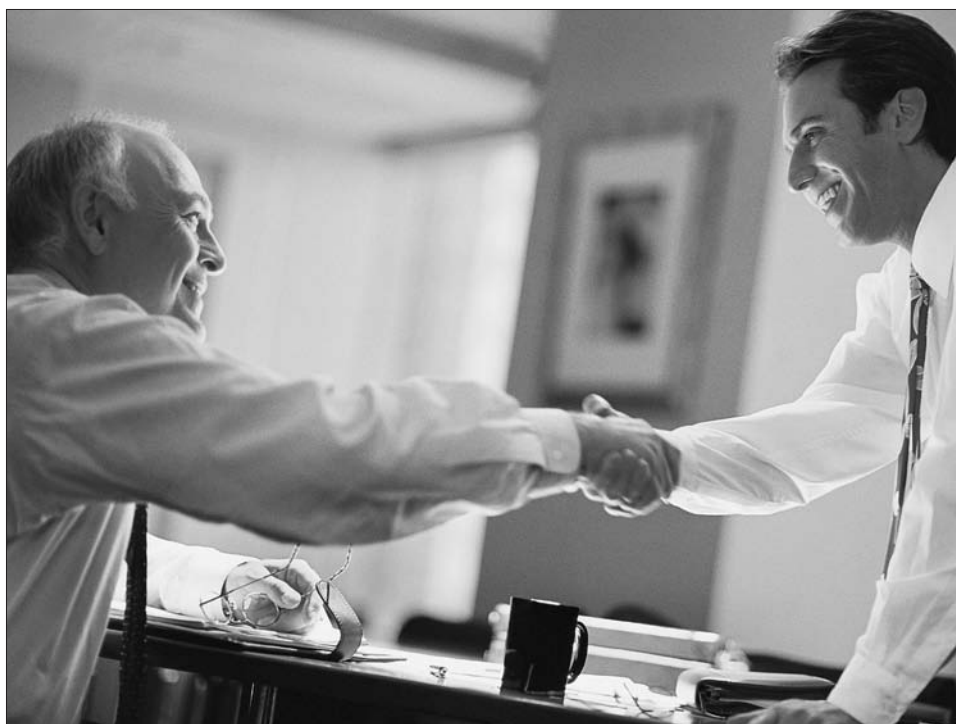
## News From The Chair

by Pete A. Hitchcock

As I write this article, the year is almost two-thirds done. By the time you read this article, the year will be almost gone. There are three new concepts for the Smaller Insurance Company Section (SICS) that I am going to discuss: They are the SOA reorganization, Friends of the Council, and non-voting membership for smaller insurance company professionals, who aren't Society members. Even with the time lag, these concepts will still be new when you read this.

I guess by now you know about the reorganization plans. If not, check out the SOA Web site; there is even a blog devoted to the topic. "But how does this affect the SICS?" you ask. My answer is, we are working on it and you can be a part of the answer. Because of the reorganization, we (SICS) will have opportunities to participate directly in more Society activities. As a smaller section, we will probably work with other sections to assist in activities that were once to be completed by the Practice Areas.

So that brings me to the Friends of the Council concept. Other sections have used this for a while. Essentially, Friends of the Council are section members not currently on the council, who are willing to listen in on conference calls, directly receive section minutes and lend a helping hand in section projects. We have already contacted prior council members to solicit their interest,



and they have responded positively. We want to extend this invitation to any section member. This concept formalizes, just a bit, the volunteering that many of you have done already. Another positive for those who haven't been on the council is that it gives you an opportunity to find out about council membership before you volunteer to run for a council position. Please consider volunteering your time as a Friend of the Council.

Our section's bylaws were changed to allow professionals who aren't members of the Society to be non-voting members of the SICS. These non-voting members will pay the same dues and will receive our newsletter. This change provides an opportunity for smaller companies, who don't have an actuary on staff but rather someone who works under the guidance of a consultant, to become aware of our resources.

So, as the year approaches its end, there are new opportunities for our current section members as well as for reaching out to companies who previously weren't aware of the SICS. ●



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# Expense Management Experiences In A Smaller Life Insurance Company

by Pete A. Hitchcock

In this article, I will discuss some experiences we have had at my company. I don't want to imply that what we did was the best, nor do I want to promote it as the strategy to take. I only provide it as one situation that occurred in a smaller life insurance company.

At the Smaller Insurance Company Section Breakfast at last year's Annual Meeting, someone asked, "How can you get a company to realize that they need to do something about expense levels? Is it a question of reducing expenses or growing business?"

There are many ways you can persuade a company to realize it needs to do something about its expense levels:

- How do the company's expenses compare to a group of peers or to the industry?
- If the company sells products with non-guaranteed elements and is licensed in a state that has adopted the Life Insurance Illustrations Regulation, can the company use its own fully allocated expenses or does it need to depend on GRET?
- If the company has to do asset adequacy testing to comply with valuation regulations in the states it does business in, are high expenses contributing to reserve inadequacy?
- Can the company use its own expenses when pricing and developing an acceptably competitive product?

At the company I work for, when the Life Insurance Illustrations Regulation was adopted, we decided to discontinue some of our products because they couldn't pass the required testing within the regulation. The challenges at the time were both expense levels, which were too high, and production, which was too low. We decided to seek a strategy that could both reduce expenses per policy in the long run and help increase production. We wanted a strategy that was simple to understand, could be easily updated and could be monitored.

We ultimately ended up with two goals:

- A long-term goal to grow into a level of expense that would allow us to price competitively and profitably. This goal involved restraining expense growth to something substantially less than the policy growth being achieved.
- A budget that emphasized the key controllable drivers of expense for our company.

The long-term goal to grow into the desired level of expenses was based on the idea of using expenses in current pricing that reflected the goal we wanted to obtain in five years. By using this assumption, we were able to develop more competitive products. We required a low break-even year so that we could be assured of passing the required tests within the Life Insurance Illustrations Regulation even when we used fully allocated expenses. We set growth goals at 15 percent annual growth. Based on this growth rate, we projected the amount of in-force business we would have in five years. We estimated expense growth based on current and long-term projects planned.

The budgeting process that we developed focused on key controllable drivers of expense. We wanted to budget based on high-level expense categories as much as possible to keep the process simple. Each manager was made responsible for developing their budget and was expected to meet or exceed the targets set. To manage this, monthly reports were generated. Major deviations were discussed. The reports were sent to the executives of the company, as well as the managers for review.

The process contributed to the success in both reducing expenses and improving growth. But even with the improvements that occurred, we didn't completely meet our goals in the five-year period. Product distribution changed dramatically. Products anticipated to be sold were different from what was sold. Estimates for project expenses were sometimes low.

There was a temptation to extend the period and keep trying to meet the set targets. In 2004, we decided to go back to pricing fully allocated expenses based on current experience. Even though we hadn't fully met our goals, we had reduced our expenses enough that we were much more in line with the industry.

This process was simple to monitor. We worked hard as a team and were honest with ourselves each year when we set budgets and growth goals. The process succeeded in forcing us to reassess projects that would have definitely caused major overruns in expenses.

I am not convinced that the process we chose was necessarily the best, but I am convinced that by choosing a process that was simple to understand, simple to explain and simple to monitor, we achieved a measure of success. Other elements that significantly assisted were the willingness of each manager to contribute as a team player and having growth goals within our bonus plan.

Expense management is a necessary and ongoing process. Every company must keep an eye on their expenses and choose strategies that can provide success. But all companies must also remember that expenses are only one item to manage among many for a company to maintain its health and viability. ●

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## The 2005 Version of the Generally Recognized Expense Table (GRET)

by Leon L. Langlitz

The 2005 version of the Generally Recognized Expense Table (GRET) has been recommended to the NAIC for adoption by the SOA Committee on Life Insurance Company Expenses (CLICE).

As a refresher, the GRET was initially adopted to show compliance with the NAIC Life Insurance Illustration Model Regulation and the associated Actuarial Standard of Practice, both of which became effective in 1997 and 1996, respectively. The table was to represent the average expenses of the life insurance industry on a fully allocated basis. The factors were originally to be used in life insurance illustrations. There were industry concerns over the use of these expenses. A compromise was struck between the industry and regulators allowing a company to use marginal expenses if they are not less than the GRET expenses. Also a company is allowed to use their own fully allocated expenses in any illustration. Originally, the GRET was to be updated annually, but due to constraints of time, it was renewed on a less frequent basis.

The 2005 table is replacing the 2003 table. The CLICE and SOA staff are responsible for the creation of the new table. The process used to create the 2005 factors was essentially the same as was used to develop the current factors. Annual statement data of the 200 largest life companies, as measured by life insurance expenses, was the starting point for the analysis. Companies were then grouped into four distribution system categories. These were Branch Office, Direct Marketing, Home Service and All Other. This sorting was based on public information, as well as, research performed by Conning and Co. Companies with multiple distribution systems were analyzed and placed in the group that generated the most business for the company.



As has been the case in all prior versions of the GRET, table expense factors from LOMA expense studies were used as starting points. These were then modified, based on the appropriate total units, for each group of companies. A ratio of the total group expenses to totals produced by the LOMA factors was then determined. This adjustment factor, when applied to the LOMA factors and appropriate units, will reproduce the total expenses for the group. Once this was completed, actual to expected ratios were developed for each company and they were then sorted based on the ratios.

Companies were then removed from the analysis if reinsurance commissions and allowances were at least 25 percent of total of general life expenses and commissions. Other companies were dropped if their expenses were less than 20 percent or more than 300 percent of the expenses produced by the median factors, applied to the particular company's units. An equal number of additional companies were added to replace those that were removed.

The final factors for each group were obtained by taking the actual to expected ratio of the median company for that group and multiplying it by the initial LOMA factors. The resulting factors were then rounded to the nearest dollar for per policy expenses, nearest percent for percent of premium expenses and nearest nickel in the case of per unit expenses.

Results of the above process showed an increase in all expense categories of the branch office and direct marketing groups. For the Home Service and Other Company categories, expenses were generally higher than the 2001 factors but lower than the 2003 factors. The Direct Marketing group showed significant increases which were due in a large part, if not in total, to the small number of companies in the group. The committee has recommended to the Life and Health Actuarial Task Force (LHATF) to consolidate this category into the Other Company group. ►►



► At a conference call of the LHATF in early August 2004, the committee discussed various issues of the new table. One of the key issues was the increase in Branch Office expenses over the 2003 factors. It was pointed out that the 2003 factors were lower than the 2001 factors and now they were greater. LHATF asked CLICE to review the underlying data in the 2003 and 2005 tables and try to determine if the increases were

reasonable and report back to LHATF. They also asked CLICE to review whether it would be possible and appropriate to smooth the resulting factors. LHATF will consider this again at its next meeting in September in Anchorage. A vote will be taken to adopt the new table. If it does not pass, the 2003 factors will remain in effect for 2005. Stay tuned. ●

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## GRET Factor Comparison

	2001 Factors	2003 Factors	Percent of 2001 Factors	2005 Factors	Percent of 2001 Factors	Percent of 2003 Factors
<b>Branch Office</b>						
<b>Acq</b>						
Per Policy	\$70.00	\$66.00	94%	\$76.00	109%	115%
Per Unit	\$ 1.25	\$ 1.15	92%	\$ 1.35	108%	117%
% of Prem	78%	73%	94%	84%	108%	115%
<b>Maint</b>						
Per Policy	\$35.00	\$33.00	94%	\$38.00	109%	115%
<b>Direct Marketing</b>						
<b>Acq</b>						
Per Policy	\$87.00	\$80.00	92%	\$140.00	161%	175%
Per Unit	\$ 1.55	\$ 1.40	90%	\$ 2.50	161%	179%
% of Prem	48%	44%	92%	77%	160%	175%
<b>Maint</b>						
Per Policy	\$43.00	\$40.00	93%	\$70.00	163%	175%
<b>Home Service</b>						
<b>Acq</b>						
Per Policy	\$60.00	\$61.00	102%	\$59.00	98%	97%
Per Unit	\$ 1.05	\$ 1.10	105%	\$ 1.05	100%	95%
% of Prem	33%	34%	103%	33%	100%	97%
<b>Maint</b>						
Per Policy	\$30.00	\$31.00	103%	\$30.00	100%	97%
<b>Other (excluding Direct Marketing)</b>						
<b>Acq</b>						
Per Policy	\$78.00	\$85.00	109%	\$80.00	103%	94%
Per Unit	\$ 1.40	\$ 1.50	107%	\$ 1.45	104%	97%
% of Prem	43%	47%	109%	44%	102%	94%
<b>Maint</b>						
Per Policy	\$39.00	\$43.00	110%	\$40.00	103%	93%
<b>Other (including Direct Marketing in 2005)</b>						
<b>Acq</b>						
Per Policy				\$81.00		
Per Unit				\$ 1.45		
% of Prem				45%		
<b>Maint</b>						
Per Policy				\$41.00		

# Asset Adequacy Analysis for the Long-Term Care Product: A Case Study

by Amy Pahl

As the appointed actuary for a small insurance company with long-term care (LTC) insurance, I've recently dealt first-hand with the issues surrounding investing appropriately for LTC liabilities. In 2003, like many small companies, this company (let's call it Small LTC Inc.) was subject to asset adequacy testing under the NAIC Model Actuarial Opinion and Memorandum Regulation for the first time. In this article, I will discuss the noteworthy issues encountered relative to Small LTC's asset liability matching results and how they responded.

By way of background, Small LTC Inc., has approximately \$22 million of net in-force premium and \$24 million in reserves, of which approximately half is for their LTC insurance. Small LTC Inc's LTC block is small, by industry standards, but nonetheless growing, with almost \$5 million in collected premiums for 2003. The vast majority of their in-force business was priced in the late 1990s and issued in the last three years. Small LTC Inc., is a multi-line company with life insurance, waiver of premium and group accident and health comprising the remainder of their business.

## Asset Adequacy Testing

The LTC liabilities were tested using cash-flow testing (CFT) based on the New York seven interest rate scenarios, Small LTC Inc.'s actual invested assets, and a 12/31/03 starting yield curve. Given that Small LTC Inc., has historically invested conservatively and given the current low interest rate environment, it is no surprise that the market value of projected assets and liabilities were not well-matched. In fact, the LTC liability duration is so long that a perfect match, even for a large insurer with a highly sophisticated hedging strategy, is virtually impossible to achieve.

No. of States	(in thousands)		Percent of Total net Assets
	Average Cost	Current Value	
170,000	\$ 14,619	\$ 15,988	44 %
800,000	23,955	26,749	
1,500,000	21,820	54,031	
	60,394	96,770	
650,100	20,196	23,614	46 %
100,000	6,597	10,150	
200,000	8,062	10,308	
100,000	18,204	18,389	
50,000	14,369	37,138	
	71,478	100,100	

What we found was that the initial test results demonstrated material surplus deficits as early as the tenth projection year in down interest rate scenarios. The company needed to take a serious look at what was driving these results and determine what action could be taken to improve the situation.

The drivers of the poor asset-liability match and surplus deficit were quickly identified. Just over 70 percent of the company's non-cash invested assets were in U.S. government bonds, most with a maturity of five to 10 years. The average book yield on the starting bond portfolio was 5.12 percent, far short of the 7 percent investment earnings rate assumed in the product pricing. In addition, the company had no hedge against the situation worsening if rates were to go lower.

## Company Response

Although management of Small LTC Inc. had suspected that there would be problems with "passing" the CFT exercise, seeing the results solidified the issue and moved them to action. Within two days of providing our preliminary test results, I was in a meeting with the company president and those responsible for making investment decisions. They were very receptive to making changes to the investment strategy to better match the asset and liability cash flows for LTC, while also maintaining a level of conservatism required by the company board of directors. As a result of our discussion, the company made the following changes to their investment strategy going forward:

- They established a new investment account specifically for LTC and transferred into it select higher-yielding assets from the existing portfolio. The assets chosen were commercial mortgage-backed and asset-backed securities with an average yield of 6.15 percent, far higher than the bond portfolio average of 5.12 percent which had been used to back the LTC liabilities in the preliminary test runs.
- They revised the target duration for assets backing LTC from the five- to 10-year range to 20 years.
- They permitted investment in mortgage and government-backed fixed income securities with a 100 to 150 basis point spread over the 10-year Treasury rate.

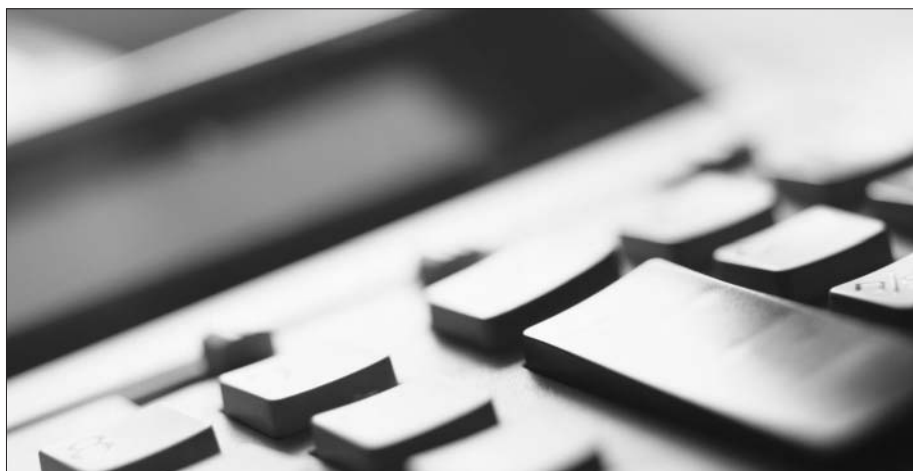
With these changes reflected in the reinvestment strategy of our CFT analysis (and a certification from the company in hand that these changes would be implemented early in 2004), surplus deficits were, in aggregate, avoided. ●

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# Gross Premium Valuation Reserves: What Are They and How Are They Calculated?

by David V. Smith



Since four states now require an actuarial opinion based on an asset adequacy analysis, and since a gross premium valuation is one of the methodologies listed in ASB 22 to accomplish this in certain situations, now is an appropriate time to delve into what a gross premium valuation is. Since I am the chief actuary for a small insurance company that previously was not subject to this requirement, this topic was of great interest to me. Although I was first thinking along the lines of cash flow analysis rather than gross premium valuations, the approach I came up with is applicable to both types of analysis.

## What Are They?

A gross premium valuation reserve is just that, a reserve. It is calculated on a closed block basis using your existing reserves as of the valuation date as a starting value. Statutory reserves are calculated on either a prospective or a retrospective basis using present value of benefits and/or expenses and persistency and interest assumptions. Gross premium reserves are calculated on a prospective basis using Natural Reserve Assumptions (expected assumptions). They are the present value of future benefits and expenses less the present value of future gross premiums. If you sum to the end of the benefit period, no further adjustments are required. If however, you do not project to the end of the benefit period, you must discount the ending statutory reserve to add to your gross premium reserve.

If you start dissecting the gross premium valuation reserve formulas, some things become immediately apparent. The gross premium itself can be split into three component parts: the net benefit reserve premium, the net expense reserve premium and the profit portion of the premium. The present value of the benefits, less the present value of the net-benefit premium to the end of the benefit period, is the Natural Benefit Reserve.

The present value of the expenses less the present value of the net expense reserve premium is the Natural Expense Reserve; this number will generally be negative. The negative of the present value of the profit portion of the premium is also calculated; let's call this the Natural Profit Reserve. The sum of the Natural Benefit Reserve plus the Natural Expense Reserve plus the Natural Profit Reserve equals the gross premium valuation reserve.

Referring to the above paragraph, the gross premium valuation reserve can be seen to be the required future benefit reserve less the present value of future excess premiums that won't be used for expenses.

Another way to look at the gross premium valuation is that it is the negative of the present value of future cash flows not including interest or taxes.

As stated before, if the cash flows are not evaluated to the end of the benefit period, the present value of the statutory benefit reserve for that period should be discounted to the reserve valuation date and added to the present value of the negative cash flows; this is a good approximation to the gross premium valuation reserve.

Calculate your gross premium valuation reserve using various adverse loadings on your claim costs, your expenses and lapses, and using different interest rates.

The final step is to compare the gross premium valuation reserve to the starting reserve as of the valuation date in question. If the starting reserve is greater than the gross premium valuation reserve, the starting reserve is sufficient. If the starting reserve is less than the gross premium valuation reserve, you may be required to set up the deficiency as additional reserves.

The above analysis was done from a statutory viewpoint. To change to a GAAP viewpoint, do the following. Use GAAP assumptions. Discount the net GAAP reserve at the end of the benefit period rather than the statutory reserve at the end of the benefit period. The net GAAP reserve is the benefit reserve less the DAC asset. Compare the negative of the discounted cash flows excluding interest to the beginning net GAAP reserve. If the beginning net GAAP reserve is greater, your reserve and DAC are sufficient and recoverable respectively.

## How to Do One

Run asset shares for your major lines of business and aggregate the various asset shares within a line of business down to one asset share run, using the distributions of business by number of units as weights for combining the runs.

Take ratios of the various cash-flow items by duration quarter to the corresponding premium by duration. Do this for all cash-flow items, except interest and federal income taxes. The cash-flow items should include claims, surrenders, fixed expenses, variable expenses, various statutory reserve amounts and other items management may wish to break out for analysis.

For each line of business, project premium income for each issue quarter as far forward as needed. I projected 120 quarters from the valuation date. Assume no future sales.

Multiply the projected premium for a given durational quarter times the cash flow item ratio for the corresponding quarter from the asset share runs. Sum these cash flows by calendar quarter to produce the cash flows for the cash-flow item in question. ▶▶

► Perform a similar projection for the total reserves. Validate the cash-flow items and the reserve amounts against some recent history of corresponding values from management reports. Try to get your “past projected values” as close as you can to the actual historical values. Then apply an adjustment factor and perhaps a trend to your projected values to get them to exactly match your historical values.

Sum each of the premiums, cash-flow items and statutory reserves by calendar quarter.

Up until this point, the process is equally applicable to gross premium valuation analysis and cash-flow analysis. We will proceed down the gross premium valuation path.

Discount the negative of the cash flows, and add to that the present value of the ending statutory reserve, if any. This is your gross premium valuation reserve.

Calculate your gross premium valuation reserve using various adverse loadings on your claim costs, your expenses and lapses and using various interest rates.

The final step is to compare the gross premium valuation reserve to the starting statutory reserve as of the valuation date in question. If the starting statutory reserve is greater than the gross premium valuation reserve, the starting

statutory reserve is sufficient and you can signoff on the reserves. If the starting statutory reserve is less than the gross premium valuation reserve, you may be required to setup the deficiency as additional reserves. It’s time to talk to your friendly auditor or regulator, or both if applicable.

Although at this point the gross premium valuation was completed, I did some cash-flow testing to assure myself that no further portfolio analysis was needed.

Please note that this paper is written from the standpoint of a small company that sells no products with liabilities varying with investment yields. ●



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## 7702 Announcement

The Society of Actuaries is pleased to announce that its newest publication, *Life Insurance and Modified Endowments Under Internal Revenue Code Sections 7702 and 7702A*, the first textbook ever written on the subject, is going to be available October 25, 2004. This innovative work provides a practical look at the issues surrounding federal income tax treatment of life insurance products, including in-depth information on the statutory definition of life insurance found in sections 101 (f) and 7702, and the modified endowment rules in 7702A. An essential resource for product designers and those dealing with compliance issues on a daily basis, the book also delivers background and historical information to help readers appreciate the context in which these sections were developed.

Leading experts in the field, actuaries Chris DesRochers, Doug Hertz and Brian King team up with attorney John Adney to write a well-balanced book, combining their extensive knowledge. The result is a text that reflects the actuarial theory, tax policy and political compromises underlying the statutory limitations. Formulas and calculations are provided, along with extensive legal analysis and citations.



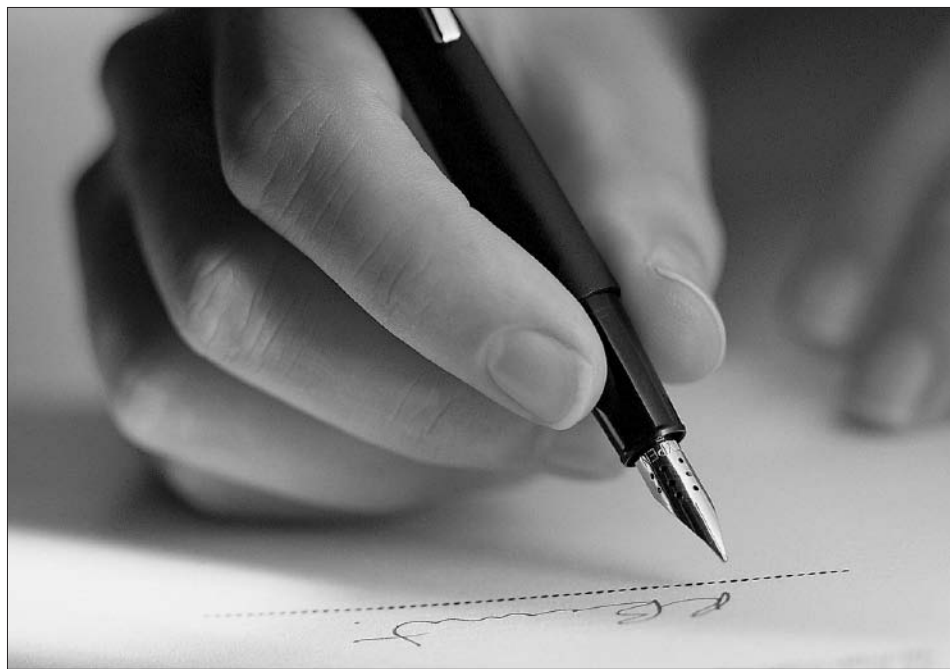
# A Practical Guide to Obtaining Reinsurance

by Tamora A. Kappeller

Smaller insurance companies are increasingly concerned with finding viable reinsurance solutions for their business needs. This article will explore changes in the reinsurance industry, which contributes to this trend, and discuss things smaller companies might consider to improve their ability to form a mutually satisfying relationship with their reinsurer.

Reinsurers, like their direct company counterparts, must answer to their owners regarding profitability and performance, and owners are increasingly asking for a higher return on their investment. Most reinsurers are owned by European parent companies that demand profitability on an embedded value basis. Pricing must cover capital costs, in addition to mortality and expenses, and continuously add value to the growing block of business. Due to the long guarantees inherent in prevailing products, high capital levels are necessary to support them. Reinsurers must use a combination of surplus, letters of credit and other mechanisms to fund the reserves required to support product guarantees. The cost of these devices are accounted for in reinsurance pricing models, and thus are ultimately paid by ceding companies.

In order to ensure smooth earnings and reduce wide variation in claim ratios each year, a reinsurer must spread its risk among a large number of cases. Profitability is measured overall as well as by ceding company account. Each ceding company must submit enough business to cover the expenses involved in managing the reinsurance account. Therefore, many reinsurers set parameters for minimum reinsurance volume necessary to make the account viable. The management of smaller insurance companies often insists on purchasing reinsurance on an excess of retention basis rather than first-dollar quota share. Without a good spread of risk on every piece of business, a reinsurer does not have a large incentive to provide its reinsurance services. This is es-



pecially true if a ceding company requires a high level of facultative underwriting support or requires other reinsurance services disproportionate to the level of business to cede.

Oftentimes, smaller companies choose to cede their business on an excess of retention basis because they do not have a reinsurance administration system in place to effectively manage reinsurance accounting. In order to obtain and maintain quality reinsurance, it is well worth the investment in a good reinsurance administration tool. Many reinsurers choose not to do business with companies that are unable to administer their business electronically.

An important consideration in forming a reinsurance relationship is the level of partnership formed between the ceding company and reinsurer. A reinsurer prefers partners willing to share information regarding mortality results, underwriting procedures and who values a win-win relationship. Transparency in the relationship ensures proper pricing and results consistent with expectations.

When evaluating a request for reinsurance, underwriting is a key consideration. A priority for an underwriting assessment is the quality and consistency of underwriting decisions. It is important that ceding companies adhere to their underwriting manual and limit exceptions. If exceptions are made, they should be consistent and defensible. It is important that ceding companies allow their reinsurers to perform underwriting audits to verify that underwriting practices

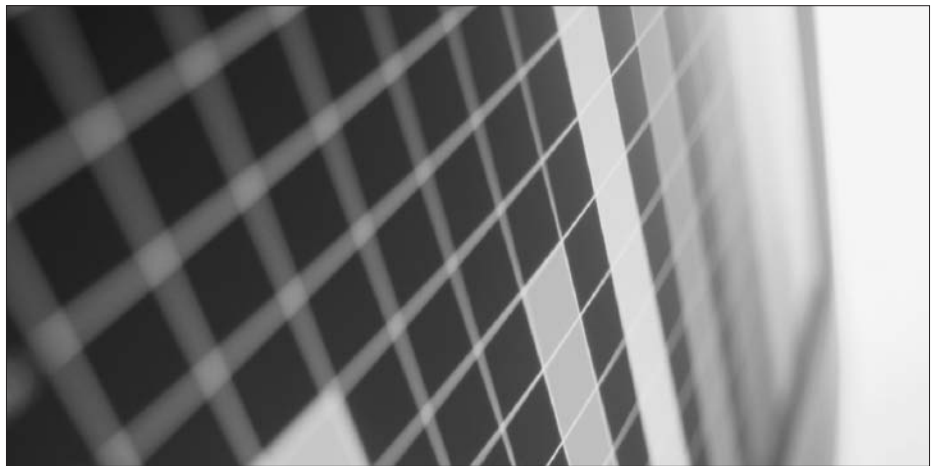
match expectations. Another important underwriting consideration is the reputation and strength of the ceding company's underwriting talent and whether a company has regular access to a medical director. Facultative volume also affects pricing of reinsurance when it demands a large amount of resources. Strong placement ratios become important to ensuring the success of a reinsurance relationship.

When submitting a request for reinsurance, it is helpful to provide several pieces of information to the reinsurer. The following is a list of items to help reinsurers when preparing a reinsurance proposal:

- Type of reinsurance arrangement (Auto/FAC, First-Dollar/Quota Share, Coins/YRT)
- Rate basis (COI rates, mortality table, underlying retail rates, etc.)
- Product specifications
- Underwriting Information:
  - Risk class definitions
  - Medical exam requirements
  - Height/weight requirements
  - Retention schedule
  - Jumbo limit and definition
  - Binding limits
  - Special programs (e.g. table shaving)
  - Facultative support requirements
  - Application
- Premiums (current and guaranteed)
- Age basis (ANB or ALB)
- Average policy size assumptions

# New Preneed Valuation Mortality Table

by Mark C. Rowley and Kent L. Scheiwe



The development of a preneed insurance valuation table is currently under way. Fifteen companies that sell preneed insurance have committed to share their mortality experience with the Society of Actuaries to produce the mortality table. A Project Oversight Group (POG) consisting of actuaries representing the industry was selected to assist the Society of Actuaries in developing the table. The NAIC was notified of the table development so they can begin the process of creating a regulation for approval by the states adopting the table as the “preneed mortality table.”

The need for a preneed mortality table came about because reserves produced by the 2001 CSO table are seen as inadequate for preneed in-

surance. Because of the unique mortality experience for preneed insurance, discussions are under way to create a distinct preneed valuation mortality table. Once the 26th state approves this table for preneed reserves, insurance companies will be able to use this table for tax reserves.

Any questions concerning the table can be addressed to Mark Rowley of Van Elsen Consulting or Kent Scheiwe of Milliman. ●



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Kent L. Scheiwe, FSA, MAAA, is a consulting actuary at Milliman Inc. He can be reached at [Kent.Scheiwe@milliman.com](mailto:Kent.Scheiwe@milliman.com)

- ▶ • Total volume sold and expected to be sold
- Distribution assumptions — volume sold by plan, sex, risk class, age
- Mortality experience
- Lapse assumptions and/or experience (especially for unique/different product types)
- Policy form
- Types of riders reinsured, rider premium rates including supplemental benefit riders, rider policy forms
- How product is sold (i.e., what distribution channel is — direct market, brokers, career agents...)

Smaller insurance companies need realistic expectations for reinsurance coverage. If reinsurance is necessary to maintain overall financial stability, ceding companies should offer enough volume to provide an acceptable spread of risk to the reinsurer or be willing to pay a little more to cover the additional variability and cost. Smaller companies should also realize that reinsurers are more likely to value the relationship when resources are not tapped disproportionately to business ceded. Smaller companies still have reinsurance options, but they may have to make some changes in business practices to maximize their utilization. ●



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# Recommendations of the Society of Actuaries Mortality Study Working Group

by Al Klein



In 2003, the Society of Actuaries formed a panel of experts, the Mortality Study Working Group (MSWG), whose purpose was to re-evaluate the scope and content of the Society's mortality experience studies and to develop fresh strategic perspectives for the long term. The purpose of this article is to summarize the results and recommendations of the MSWG and to request your support in implementing the recommendations.

The MSWG recently had its first meeting. We typically had one to two conference calls per month. The final report (50 pages) was released in January 2004. The MSWG had broad representation—companies, consultants, regulators, reinsurers, SOA committee chairs and SOA staff were all represented. The underwriting and medical professions were also represented.

The MSWG concluded that mortality studies bring fundamental value to the life insurance industry and these studies cannot currently be obtained elsewhere. However, they also concluded that much change needs to take place. The collection process, form of output and speed of implementation, were singled out as areas needing improvement. Another area where additional improvement is necessary is in the number of contributors to the study. Currently, the annual Standard Ordinary Mortality Study receives contributions from 23 companies.

The MSWG had three specific recommendations. They suggested trying to implement these recommendations as soon as possible. The recommendations are to:

1. Design and develop a new preferred mortality study.

2. Further develop a new mortality study (called the FIRST Study) which will collect underwriting and other data to allow for more in-depth analysis of mortality.
3. Provide data and results on a more timely basis and in more useful forms.

Let's look at each of these recommendations in more detail.

## 1. Preferred Mortality Study

The MSWG concluded that the industry desperately needs a preferred mortality study for both pricing and valuation purposes. The recommendation is to complete this study by the end of 2005.

In order to do this and to maintain the momentum that the Individual Life Experience Studies Committee is making (more on this later), a new task force was formed. This new task force, which is called the Preferred Mortality Study Task Force (PMSTF), had its first meeting August 11–12, 2004 in Chicago. The PMSTF has eight actuaries and four underwriters, representing a nice cross-section of direct companies, reinsurers and consultants.

In order to complete the work by the end of 2005, currently available data will be used. The PMSTF worked together to define a standard three rate class structure using seven criteria, including build, blood pressure, cholesterol ratio, driving record, current personal characteristics (i.e., not substandard), drug and alcohol use and family history. The next step is to collect the preferred criteria from each of the current contributors and then map all of the current data into the appropriate newly defined rate class. This will enable the PMSTF to perform a preferred mortality study on each of the rate classes that have been pre-defined.

If this study is successful, as we anticipate that it will be, another interim study or two may be performed before the FIRST Mortality Study is ready.

## 2. FIRST Mortality Study

The FIRST (Factors In Risk Selection Techniques) Mortality Study is a mortality study that will enable a more in-depth analysis of multiple variables than has ever been done. The idea behind the FIRST Study is to collect laboratory and other underwriting data and then do a mortality study on each element and correlated combinations of elements to gain a better understanding of the predictors of increased mortality risk.

The MSWG concluded that the FIRST Study approach was the best approach for future mortality studies.

Currently, four of the 23 contributors to the Standard Ordinary Mortality Study submit their contributions in the FIRST Study format. Since many companies are not familiar with the FIRST Study format and because the amount of data requested can be intimidating, there is a large education process in front of us.

A new task force, called the Task Force on Enhancements to Life Experience Studies (TFELES), will be formed to fine-tune the FIRST Study and to educate and recruit companies to contribute in this new format. Recruiting for members of TFELES is underway. This task force will have actuaries and underwriters and at least one medical director, IT person and statistician. We anticipate 12-15 members on TFELES.

It will take many years to collect enough data to perform a FIRST mortality study. The major laboratories have retained each company's data ►►

► back to 1995, and this information is easily obtained from your lab. There is information about this on the FIRST Study Web page on the SOA Web site. Since it will take a long time before there is sufficient data to perform a mortality study, we may provide certain useful distributions of exposures on an interim basis, until enough deaths have occurred to do a credible mortality analysis.

### 3. Data

The MSWG concluded that more companies are needed to contribute more data more quickly. The Individual Life Experience Studies Committee is trying to catch up and move to annual mortality studies again. The plan is to catch up completely by the 2005 SOA Annual Meeting.

The other suggestion of the MSWG was to create a new paradigm for mortality study output. The idea is to make the data available so that users can analyze it more deeply on their own. Exactly how the data is provided will need further examination, however, the confidentiality of the insured and the insurer will not be compromised. TFELES will also work on this issue.

### Implementation

Implementation of these recommendations will be difficult, however, work has already begun on each of the recommendations, as described above. The SOA seems serious about moving to some new paradigms that will benefit the industry. Quick implementation and turnaround will benefit both pricing and valuation actuaries.

The SOA sent a blast e-mail to its membership asking for comments on the MSWG's recommendations and to find out whether members are willing to pay more to help support the additional effort and cost involved with the recommendations. Preliminary results were mixed in terms of willingness to pay more; however, they were almost universally in favor of the recommendations. There were a few suggestions, such as concentrating on getting more contributors and making sure that the SOA doesn't spread itself too thin trying to accomplish all that it has set out to do.

### How You Can Help

There are a number of ways that you can help:

- Most importantly, have your company begin to contribute data, if it is not already doing so. Despite the limited resources at most companies, the technology available today should help in this regard. For those on older, more cumbersome systems for maintaining experience data, Medical Information Bureau (MIB) can help. MIB is the company that collects and compiles the data for the SOA, and is very willing to work with you to enable you to contribute data. The more smaller companies that we can get to contribute, the easier it will be to segregate smaller company results from the aggregate results and provide more meaningful results for the smaller companies.
- Volunteer on a task force. Recruiting for TFELES is underway and the first meeting will probably take place in early December (2004).
- Help pass along our message and recruit others. Tell your life insurance company friends and neighbors and ask them to get involved!

If you are already contributing, thank you!

If you have any questions or would like to participate, you can contact me at [al.klein@towersperrin.com](mailto:al.klein@towersperrin.com) or Narayan Shankar at the SOA at [NShankar@soa.org](mailto:NShankar@soa.org).

You can find a copy of the full MSWG report on the SOA Web site at <http://www.soa.org/ccm/content/areas-of-practice/life-insurance/experience-studies/mortality-studies-work-group/>. ●



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# The New Risk Management Professionals

by Narayan Shankar

## Introduction

There is a new awakening in the world of business that analytical and quantitative methods can be applied to model and manage risk. Business leaders are beginning to believe that a disciplined approach to managing risk can create shareholder value by reducing the likelihood of catastrophic “surprises” that damage their corporate reputation and result in financial losses.

This awakening, driven mainly by regulatory developments, began in the banking industry, as I will describe in this article. Recently, it has spread to other industries. The nudging of Congress and regulators, following the recent financial scandals, provided the necessary impetus.

New risk management professionals, recognized for their successes in banking risk management, stand ready to serve the emerging needs. These professionals are well equipped with science and theory. They are supported by a strong intellectual base, led by research programs in elite universities as well as some of the largest corporations in the financial sector.

Many of these practitioners, working in investment and commercial banks, hold doctoral degrees in hard sciences (such as nuclear physics, mathematics, econometrics, etc.) from prestigious universities around the world. They are very talented, trained in research—through graduate school and academic experience—and skilled in applying basic principles in creative ways to find solutions to many problems, including those in the business world.

The challenge for the actuarial profession is to join this new movement as a full partner. Actuaries have centuries of practice in risk management, and we describe ourselves as professionals who “model and manage risk.” However, the new risk management professionals, with no



affiliation whatsoever to the actuarial profession, are quickly establishing themselves as the risk management profession. “Risk management” is in the SOA vision statement—something hardly anyone reads—but it is squarely in the title of the new professionals. In this article, we will describe how this came about and provide additional background on the new profession.

## Actuaries and Risk Management

Since the early years of our profession, actuaries have been involved in modeling contingent events. The profession developed a repertoire of basic tools and techniques to support modeling and analysis. For the most part, a deterministic modeling approach was used that did not capture the intrinsically stochastic nature of contingent phenomena. That approach continues to this day in many areas of actuarial practice. One exception is the actuary who faces the highly dynamic problem of managing investment risk in the context of liabilities with embedded options. Many actuaries in this area are using sophisticated stochastic modeling tools.

Now let us consider the flip side of modeling and talk about managing risk. Historically, the actu-

arial approach to risk management was qualitative and intuitive. It depended heavily on “judgment” acquired from experience, rather than on a rigorous quantitative measure of risk. In fact, “risk” (or “adverse variability”) was not often formally measured by the actuary. This can be contrasted with the emphasis placed on quantitative measures of variability by the new risk management professionals.

A primary tool used by actuaries for managing risk was conservatism, i.e., the use of margins to minimize the risk of loss. A big area of emphasis has been the control of behavioral risks in contracting, including moral and morale hazards, through sophisticated policy features and underwriting techniques. A refined approach to the definition of risk classes, combined with precise measurement of the expected loss experience of each class, was a focus of actuaries, rather than quantitative methods to model and manage portfolio risk. These traditional approaches continue to be emphasized by actuaries in the life insurance industry. ▶▶

## Actuaries have evolved a sophisticated asset-liability approach for managing insurance risks and some actuaries are at the forefront of using these tools in their practice.

### ► Developments Since the 1950s

Theories of the measure and price of risk, as well as new tools for managing risk, emerged from the work of financial economists. They were developed in the context of pricing primary and derivative securities, with variability of returns and intrinsic price volatility taking center stage as formal measures related to investor risk. In the 1980s, these ideas were applied in a portfolio context to the management of risk in financial institutions—primarily in banks—and the new science of enterprise risk management was born.

### Risk Management in Banks

At the enterprise level, the central risk management issue in financial institutions is the amount of capital needed to protect against adverse business results. Financial institutions need to hold capital in order to give confidence to their customers (bank depositors, insurance policyholders, etc.) that liabilities will be honored even if the institution experiences unexpected losses.

Traditionally, bank liabilities are relatively simple, consisting primarily of checking, savings and time deposits, though more recently, banks are raising funds in the capital markets. There are generally no contingencies with respect to liability cash flows. Interest rates and guarantees are a factor in raising funds in the retail market, but most guarantees are very short term in nature. These considerations are more an issue for marketing and operations than for risk management.

In most cases, the operating liabilities of a bank are immediately callable, with or without penalties. But there is a normal pattern of withdrawals that is quite predictable, with some seasonality. The primary focus in managing liability risk is to avoid a “run on the bank.” This can generally be achieved by avoiding liquidity concerns, reputation issues or excessive losses on the asset portfolio.

Hence, the primary emphasis of risk management in banks is on the asset side of the balance sheet. Banks invest in marketable securities, currencies, mortgages, retail loans and business loans. They generally do not employ a “buy and hold” approach to investments, but consider them part of a trading portfolio on which they attempt to earn a spread over the cost of funds. The main risks faced by banks with respect to their investments are broadly classified as market risk and credit risk.

### Risk Management for Insurers and Pension Funds

Some actuaries are involved in managing enterprise financial risk at insurance companies and pension funds. Due to the complex long-term nature of insurance and pension liabilities, and the contingencies involved, risk managers at these institutions usually cannot take a simplistic approach to the liability cash flows, especially in those cases where the liability cash flows are dynamic.

Actuaries have evolved a sophisticated asset-liability approach for managing insurance risks and some actuaries are at the forefront of using these tools in their practice. However, many actuaries do not employ these tools for the management of risks, and sometimes not even for modeling them. Often, actuaries play a passive role, using their considerable talents in this area only for the fulfillment of the statutory asset adequacy analysis function. In order to fulfill the vision and mission of the profession, actuaries need to be actively engaged in managing enterprise financial risk. They are clearly positioned to take the lead in this area, if they will only do so.

In the pension area, the state of theory and practice in asset-liability management (ALM) lags that of insurance companies. In most cases, pension ALM reduced to the choice of investment policy of a 60/40 or a 70/30 allocation between equity and fixed income. This is based on the premise that a heavy weight toward equity is appropriate due to the long duration and implicit inflation indexing of the pension obligations.

The focus of pension actuaries was the plan sponsors and the management of their financial objectives. The incompatible goals of the IRS of prohibiting overfunding while ensuring funding adequacy led to a bizarre set of rules that created anomalous swings in funding levels through the course of a business cycle, complicating the development of a rational ALM strategy.

The involvement of pension actuaries in asset-liability analysis has increased. Actuaries need to take a leading role in tackling the tough theoretical and practical issues in pension valuation, funding and ALM.

The solutions may require significant legislative action to allow a better fit between theoretically sound risk management practices and permissible contribution strategies. Should there be a risk-based capital (RBC) measure for pension plans? We need thoughtful analysis of the issues and a dialogue on the financial and policy implications. With their understanding of the big picture, actuaries are better positioned than any other professionals involved with pension plans to do the analysis and propose creative solutions to the current challenges. ►►

► Bold, principle-oriented thinking is needed from actuaries. This is our turf, and we should be thought-leaders in this area. Unless actuaries are an integral part of developing solutions to these issues, addressing the balance sheets of pension trusts as well as plan sponsors, they risk being marginalized in an area that has historically been a pillar of the actuarial profession.

Like life actuaries, health actuaries face risk classification and loss estimation issues. They have focused on these micro-level risks and at the same time have tried to get a handle on the tough problem of forecasting health care inflation. At the enterprise level, a major risk faced by health insurers and HMOs is the prospect that cost and utilization of medical services will exceed the estimates built into premium rates. Health insurance companies have taken many creative measures over the last couple of decades to manage this risk. These risk management strategies are collectively known as managed care, and primarily address the liability (operating) side. Actuaries have been involved in these efforts. In the future, there may be new approaches that incorporate asset-based strategies and certain hedging techniques.

### Threats and Opportunities for Actuaries

It's time for actuaries to step up and be enterprise financial risk managers in traditional industries. The opportunities are there for the taking. However, these opportunities will

## **Bold, principle-oriented thinking is needed from actuaries. This is our turf, and we should be thought-leaders in this area.**

be there for only so long and we need to act fast, since senior management is beginning to see the need for an active enterprise financial risk function. The new risk management professionals can easily step in and "eat our lunch." That is already happening, with the appointment of chief risk officers within insurance companies from outside the ranks of the actuarial profession.

It is necessary for every actuary to break out of their passivity, and think consciously of themselves as "risk management professionals," rather than premium or reserve calculators. Chief actuaries need to think at an "enterprise" level, assessing risk and advising the CEO on threats and opportunities. It is the responsibility of every actuary to raise the overall profile of our profession and gain recognition as risk experts.

Risk management is dynamic and action-oriented. It involves making choices, reaching decisions and taking action. All the analysis in the world is wasted if no action results—the risk does not go away because it is analyzed, it only goes away when action is taken. Actuaries can be guilty of over-analyzing and under-managing. A first step in this ►►



## It is necessary for every actuary to break out of their passivity, and think consciously of themselves as “risk management professionals,” rather than premium or reserve calculators.

► process is effective communication. Actuaries can be the decision makers in some cases, but frequently they are advisors. Senior management is generally not aware of the risks that are present, nor are they equipped to even ask the right questions. It is not only the prerogative of actuaries to raise these questions and provide creative and reliable advice; it is their obligation.

We have emphasized the threat that actuaries face from the new professionals in the traditional areas of insurance and pension. For now, it looks like the nuts-and-bolts jobs in pricing and reserving still belong to actuaries, but the new risk management professionals are a strong competition for the enterprise-level analysis and decision-making positions. Indeed, they seem to be viewed as better equipped to understand the big picture and manage risk at the macro (enterprise) level.



Let us examine the other side of this issue. What are the opportunities for actuaries in nontraditional areas, such as banks? For the rest of this article, we will focus on how well actuaries are equipped to step in, from the perspective of technical knowledge. What comparative advantages and disadvantages do we have for success in these new areas?

### The Gap in the Actuarial Knowledge Base

Actuaries are generally not familiar with the tools and techniques used to manage risk in those cases where enterprise financial risk of the asset portfolio can be separated from that of the liabilities, as is the case in banks. While there is clearly a learning curve—and most actuaries will probably have to bone up on their mathematical and statistical knowledge—it is well within the range of their skills for actuaries to attain a mastery of the state of the art in asset risk management. Indeed, it is imperative that all actuaries have a general familiarity with the tools and jargon in this field.

The following two areas might be a good place to start. One is Extreme Value Theory, which deals with evaluating the probability of unlikely occurrences. By definition, capital is held to cushion against unlikely occurrences. So, having the knowledge to measure and manage risk at the enterprise balance sheet level is important. The other area of knowledge is modeling contingent cash flows on financial instruments, primarily options, futures and swaps that are frequently used to hedge risk or speculate in the financial markets. Derivative instruments are absolutely integral to asset management, so a working knowledge of them is necessary. However, a mastery of all the mathematics behind valuing these instruments is probably not required to work with them in the risk management field. There are software packages that do all the math.

We will provide a quick overview of the various types of risk analyzed by the new risk management professionals in banks, the current state of the art in their practice and the techniques used.

### Market Risk

The impetus for the birth of the new science of risk management was the fundamental question: How much capital does a bank need to cushion against market risk, i.e., the possibility of short-term losses on its trading portfolio of marketable securities? The key words here are “short-term” and “marketable securities.” It has been possible to develop precise mathematical and statistical methods to measure this specific risk. Note that while these problems are more ►►



► tractable than the ones actuaries work on in the traditional industries, solving them usually requires more advanced mathematical knowledge than most actuaries have.

Bank regulators proposed RBC requirements as a cushion against market risk. To correctly measure this risk and avoid unnecessarily onerous capital requirements, banks hired “rocket scientists” holding PhDs to develop the appropriate techniques. In the 1980s, investment banks had already discovered the value that advanced scientific training can bring—“rocket scientists” had been significant players in the development of new securities such as collateralized mortgage obligations and complex hedging instruments.

Once again, PhDs with advanced analytical training came through for financial institutions. Using mathematical and statistical tools, including concepts from traditional Extreme Value Theory, a solid body of knowledge has been created for measurement of market risk. This body of knowledge generally goes under the jargon of Value at Risk (VaR) methods. Knowledge in this area continues to advance.

Note that insurance companies also face market risk, but from a long-term rather than short-term perspective. Hence ALM methods, including the emerging work on contingent tail expectations, rather than VaR methods, are more applicable.

### Credit Risk

More recently, banks (led by bank regulators) have turned to the other basic categories of risk they face—credit and operating risk. The new risk managers are at work, and progress is happening. Credit risk for banks corresponds to underwriting risk for insurance companies. For banks, credit risk is present in both the operating portfolio of loans as well as the investment portfolio of bonds. The issue is being addressed scientifically, incorporating the idiosyncratic risk of individual customers, i.e., the underwriting risk in the traditional sense, as well as the systematic risk of business cycles.

Measuring and managing credit risk is harder than short-term market risk, which was addressed so successfully in the 1990s. Credit risk involves longer-term economic issues and selection effects familiar to actuaries. It is a harder problem, not so easily solved using advanced mathematics, but it is also one where actuaries have much relevant knowledge.

Actuaries have much to contribute in this area, having worked on similar problems for more than 100 years. Indeed, casualty actuaries, with their experience in man-

## Actuaries have much to contribute in this area, having worked on similar problems for more than 100 years.

aging underwriting risk through business cycles are in a position to lead the way. The new risk managers are going for the Holy Grail, i.e., the mathematical modeling of the business cycle and its interplay with credit losses.

Another approach taken is to reduce the credit risk problem to one of market risk by creating new traded instruments such as “credit derivatives” that securitize credit risk. Since market risk is already measurable, and credit derivatives provide liquidity, completeness and the opportunity to hedge, these new instruments offer a powerful way to efficiently manage credit risk. An increasing number of companies are trying to address market and credit risk in one cohesive risk management framework.

### Operating Risk

Perhaps the best area for actuaries to contribute is in operating risk, which includes such issues as fraud, internal controls, reputation, litigation liability, marketing risk, etc. Casualty actuaries have long made a market in many of these risks, and have vast amounts of institutional knowledge, data and experience in this area. The new risk managers are groping their way around, in many cases reinventing “the wheel.” Operating risk is a messy area of risk management, where measurement will never be reduced to a science and “experienced judgment” will remain important as a factor in risk management—a skill that actuaries possess.

For operating risk, prevention is often the best form of management rather than hedging, diversification and other portfolio-type solutions, which are the primary tools for handling credit and market risk. To the extent operating risk is managed through portfolio approaches, it is often transferred through insurance and pooled by casualty insurers, which is the reason that casualty insurers have a deep understanding of the general portfolio characteristics of such risks.

Even when insurance is an efficient mechanism for managing certain operating risks, the risk management tools center around “prevention,” with “insurable interest” and “loss sharing” being the primary devices by which casualty insurers accomplish loss control objectives. While life insurers focus on moral hazard and selection effects, casualty insurers are also concerned with morale hazard and prevention effects. ►►

## While life insurers focus on moral hazard and selection effects, casualty insurers are also concerned with morale hazard and prevention effects.

► But there are types of operating risk that have gained attention lately, such as reputation risk, for which portfolio solutions are probably not efficient. Hence, much of the focus in this area is on developing robust processes to minimize the likelihood of “catastrophe” events. “Six Sigma” is the buzzword for those familiar with that concept.

### Looking to the Future

Where do actuaries fit into the new risk management profession? Currently, they are not in the picture. This is regrettable for two reasons. First, actuaries bring a lot to the table, especially in the difficult area of long-term risks that is the current focus of the new risk management professionals. Second, there is an enormous amount of dynamic energy and intellectual capital in play within the risk management profession, and actuaries can learn a lot from these talented professionals, and re-energize our own profession with new ideas, tools and techniques.

The risk managers I meet rely upon basic mathematical ideas and theories and think deeply and creatively from first principles. They work in partnership with regulators, such as governors or economists at the Federal Reserve Board, who are also accomplished and gifted individuals. Rather than focus on complying with complex and patchwork regulatory requirements—which actuaries can get tied up in—risk managers seem to take the lead on developing the new techniques that lead to more efficient regulatory solutions. Being a part of the bigger picture of the risk management profession might help our profession break out of its shell. The historical solution in the insurance industry for managing enterprise risk was building a complex regulatory structure and enforcing compliance, founded on the principle of conservatism. This was used as a substitute for quantitative measures of variability and more rigorous mathematical techniques. Actuaries have approached this system somewhat passively, often focusing their energies on managing to the regulatory rules rather than managing the underlying risk.



The new risk managers are action-oriented, creating dynamic market-based strategies to address some of the same risks actuaries work with every day. Many complain of the same problems actuaries face, that the managers they advise don't understand the theory and the numbers. But they seem to have the ear and the respect of their CEOs, based upon a history of success within the two short decades this “new” profession has been in existence. Their success and dynamism can serve as a useful inspiration for actuaries, as we seek to strengthen our profession and position it for an even brighter future. ●

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2. Many small company deals, particularly sales of blocks of business or acquisitions of servicing or marketing companies, are not made public, so they are not “counted” in M&A analyses such as this.

3. Many smaller mutual companies (e.g., assets under \$1 billion) have merged with other mutual entities. Examples of such transactions over the past several years include:

- World Insurance’s merger with American Republic
- Protected Life’s merger with National Guardian
- National Travelers merger with EMC’s life operations

This trend in mutual company consolidation is expected to continue as: (a) most smaller mutuals are finding it increasingly difficult to compete in today’s marketplace, and; (b) in most cases, alternatives such as demutualization are too burdensome to pursue for reasons of cost, time and effectiveness.

We expect a high level of small company activity to continue as it has in the past, even during the slowdown in announced transactions early in the millennium (often in deals “under the screen”). Small organizations considering M&A as a growth engine need to establish a focused, disciplined process. Successful buyers (such as some of the buyer organizations mentioned above) are

characterized by their clear acquisition rationale, their disciplined and well-oiled process and their strong post-purchase management execution.

Successful small company sellers need a comparable level of focus and discipline, particularly in establishing the groundwork for the sale process, executing the process with the proper sense of urgency and following through in a thorough manner. ●

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**TABLE 1**  
**2004 INSURANCE M&A ACTIVITY ANNOUNCED LIFE TRANSACTIONS**

BUYER	UNIT TO BE BOUGHT	PRICE (IN \$ MILLIONS)	GAAP P/E	GAAP P/B
Berkshire Hath. & White Mtns. (Investor Group)	Safeco Corp. (life and investment operations)	1350.0	0.525	
Ceridian Corp.	COBRA contracts and other assets from Cigna Group			
Citizens Inc.	Security Plan Life sub of Alderwoods Group	85.0		
Devlin Group LLC	Forethought Financial Services	280.0		
Great American	Fixed annuity block from National Health	38.0		
Hartford Life Insurance Co.	London Pacific Life & Annuity Co. (immediate & deferred annuities).			
Health Care Service Corp.	Omaha Life Insurance Co.			
Independence Holdings sub. Madison Nat'l.	Block of annuities from undisclosed seller			
Jefferson-Pilot Corp.	U.S. group business of Canada Life sub of Great-West Life	200.0		
Ohio National Mutual Holdings, Inc.	Security Mutual Life Insurance Co. of New York			
Security Benefit Group of Companies	Mutual of Omaha (variable annuity and variable life blocks of business)			
Swiss Re	CNA Individual Life Business	690.0		
Undisclosed buyer	American Founders Life, sub. of Vesta Corp.	63.5		
Western-Southern Mutual	Lafayette Life MHIC			

**TABLE 2**  
**2004 INSURANCE M&A ACTIVITY ANNOUNCED P/C TRANSACTIONS**

BUYER	UNIT TO BE BOUGHT	PRICE (IN \$ MILLIONS)	GAAP P/E	GAAP P/B
Frontenac Co.	WNC Insurance Services	50.0		
Odyssey Re Holdings	U.S. Reinsurance Co. sub of Overseas Partners	43.0	NM	0.617
ProAssure Corp.	OHIC Insurance Co. (renewal rights)			
QualSure Holding Corp.	Sunshine State Insurance Co.			
TD Bank Financial Group	Canadian personal property & casualty operations from Liberty Mutual Holding Co.			
White Mountains	Renewal rights from Provident Washington sub. of Securitas Capital			
W. R. Berkley	Renewal rights from St. Paul Cos.			



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### CONGRATULATIONS!

The following are newly-elected members of the Smaller Insurance Section Council. Each will serve the term indicated, which began in October, 2004.

Paul Carmody, FSA (three-year term)  
Pacific Guardian Life Insurance Co.  
Honolulu, Hawaii

Jeffrey S. Morris, FSA (three-year term)  
Family Heritage Life Insurance Co.  
Cleveland, Ohio

W. Howell Pugh, FSA (three-year term)  
Indianapolis, IN

Todd R. Sagmoe, FSA (two-year term)  
Scottish Re (US) Inc.  
Charlotte, NC

Arthur J. Verney, FSA (one-year term)  
Disability Insurance Specialists LLC  
Bloomfield, CT

### Articles Needed for the *Small Talk*

Your help and participation is needed and welcomed. All articles will include a byline to give you full credit for your effort. *Small Talk* is pleased to publish articles in a second language if a translation is provided by the author. For those of you interested in working on *Small Talk*, several associate editors are also needed to handle various specialty areas such as meetings, seminars, symposia, continuing education meetings, teleconferences and cassettes (audio and video) for Enrolled Actuaries, new pension study notes, new research and studies by Society committees, etc. If you would like to submit an article or be an associate editor, please call James R. Thompson at 815.459.2083

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In order to efficiently handle articles, please use the following format when submitting articles:

Please e-mail your articles as attachments in either MS Word (.doc) or Simple Text (.txt) files. We are able to convert most PC-compatible software packages. Headlines are typed upper and lower case. Please use a 10-point Times New Roman font for the body text. Carriage returns are put in only at the end of paragraphs. The right-hand margin is not justified.

If you must submit articles in another manner, please call Joe Adduci, 847.706.3548, at the Society of Actuaries for assistance.

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Thank you for your help.