



A New Platform for Universal Life

by Karen Rudolph

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Companies writing large volumes of individual life insurance must be planning in advance for a repricing of the entire portfolio. Not only is universal life affected, but all types of traditional and term insurance as well. Within the company, the product development cycle will be tested as never before. Planning, constructive communications, accurate strategy and current knowledge of the company's experience factors will be key to successful portfolio re-engineering. This newsletter addresses universal life products in general.

Mortality Margins

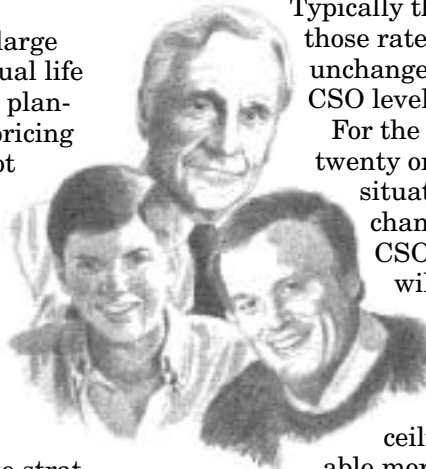
Companies in the universal life market have historically introduced

new products reflecting reductions in current mortality charges or new, more preferred risk classes.

Typically the ceiling on those rates remained unchanged at the 1980 CSO levels.

For the first time in twenty or so years, that situation is about to change. The 2001 CSO Ultimate table will eventually take the place of the 1980 CSO table as the effective ceiling on reasonable mortality charges for standard risks.

Let's look at what this could mean for a sample universal life plan with attained age-based cost of insurance charges. The graph below depicts an assumed level of experience (bold solid line), current insurance charge rates for the sample plan (dotted line) and the



Chairperson's Corner: The Catastrophic Life Reinsurance Coverage Decision after 9/11

by R. Dale Hall

A few months ago, CBS broadcast their primetime special "9/11", which commemorated the six-month anniversary of the tragic events of September 11th, 2001. The program showed the world for the first time footage taped in and around the World Trade Center as a French film crew followed New York City firefighters through the events of that morning. One of the many amazing things that struck me while watching that special was the incredible amount of dust, darkness and confusion that occurred when Tower 1 collapsed to the ground. Hiding behind a car parked on the street and being shielded by one of the captains of the firefighting team, one of the photographers caught on film the whirlwind storm that occurred as the building imploded just a few hundred feet away.

"Whirlwind" might also be the correct adjective to describe the activity surrounding the changes going on in the catastrophic life reinsurance market in the past six months. As traditional reinsurance carriers and pools try to determine how to react and adapt to new types of catastrophic risk, many direct writing insurance companies are facing new decisions. Should they continue with their current coverages even if the parameters of the coverage are changing? Is the cost of the coverage too much given the probability of catastrophe? What other options are available?

An important consideration in determining what type of catastrophic coverage a company

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Chairperson's Corner*continued from page 1*

should choose is the ultimate maximum liability that the company would face. This maximum liability should not only be viewed from the amount of claims the company personally might have, but also how much they might be responsible for if assessments are made against them in the pool in which they participate. Individual catastrophe covers may have specified amounts where the reinsurance coverage ends, or pools may have points at which the pool "maxes out" and no more in recoveries can be made from the pool members. Many insurance companies filing claims on individual policies from the

events of 9/11 quickly found out their catastrophic pool would not cover all the claims they had. For example, in the widely used Special Pooled Risk Administrators (SPRA) ordinary life pool administered by Swiss Re, the limit for any one accident across all companies was \$125 Million. Over two times that amount was apparently submitted as individual claims to the pool, leaving the companies submitting those claims to have a large reduction in their recovery.

In addition, many companies participating in the SPRA pool were busy doing some hurried calculations on assessment liability as the day of Tuesday, September 11th, 2001 came and went. Actuaries around the country were gathering together the critical pieces of infor-

mation needed to make an estimate of their pool assessment liability. For example, since the combined life insurance companies of COUNTRY Insurance & Financial Services made up approximately 1.0% of the SPRA individual pool, we knew were heading towards a maximum liability of 1.0% of the \$125 million limit, or \$1.25 million. Combining this with our exposure on the group side, we set a loss target around \$1.6 million.

As noted above, there are now a whirlwind of changes in the various pools and coverages being offered in the catastrophic reinsurance market. War and terrorism risk are

*R. Dale Hall***small talk**

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Council Member

James R. Thompson,
Newsletter Editor
Central Actuarial Associates
866 Northampton Drive
P.O. Box 1361
Crystal Lake, IL 60039-1361
PHONE: (815) 459-2083
FAX: (815) 459-2092
E-MAIL: jrthompson@ameritech.net

Lois Chinnock, Staff Liaison
PHONE: (847) 706-3524
FAX: (847) 273-8524
E-MAIL: lchinnock@soa.org

Clay Baznik, Publications Director
PHONE: (847) 706-3548
FAX: (847) 273-8548
E-MAIL: cbaznik@soa.org

Joe Adduci, DTP Coordinator
PHONE: (847) 706-3548
FAX: (847) 273-8548
E-MAIL: jadduci@soa.org

more likely to be carved out of coverages now, in order to make the products more affordable. Some pools are reviewing their administrative costs and “per company” and “per accident” limits. As an example, the SPRA individual pool is changing its flat \$125 million limit for any accident, into a formula-based limit that is a function of in force volume within the pool. Initial estimates of the new limit appear to put the limit between \$600 and \$700 million, depending on participation in the pool. Companies in this and other pools now find themselves asking the maximum liability question again: Given the new maximum limits of the pool and my participation percentage, does the maximum liability I have make sense? How does that liability relate to how much I absorb before reinsurance on regular death claims?

Many direct writers, including smaller companies, also find themselves trying to determine if there is a component of geographical concentration in catastrophic risk. The vast majority of claims from 9/11 seem to be coming from the large eastern seaboard carriers. The likelihood of a major catastrophic event may be lower for companies who have a more rural distribution force. With this in mind, a group of insurance companies associated with the Farm Bureau organizations across the United States started an initiative to research whether a catastrophic pool for rural companies might make sense. As of this writing, letters of intent from approximately 15 companies with around \$150 million of individual in force volume had been received. It will be interesting to see if this idea comes to fruition and perhaps establishes a big/urban vs.

small/rural division in catastrophic pools.

As you know, an inevitable truth exists at the end of this whirlwind. Sooner or later, the dust will settle, the decisions will be made and the results will be tracked. While we hope that no similar event to 9/11 occurs at any point in the future, we do know that there will always be catastrophic events occurring from time to time. Companies will be looking at renewals of these coverages much more carefully over the next year in order to ensure the path they choose is right for them.

R. Dale Hall, FSA, MAAA, is chief life & annuity actuary at Country Insurance & Financial Services in Bloomington, IL, and chairperson of the Smaller Insurance Company Section Council. He can be reached at dale.hall@countryfinancial.com.

Society of Actuaries Announces Triennial Prize

SCHAUMBURG, ILLINOIS — The Society of Actuaries and its Committee on Life Insurance Company Expenses (CLICE) announces the inaugural \$5,000 Arthur Pedoe Life Insurance Company Expense Study Award. The first award will be presented in 2004 for the best paper published between July 1, 2001 and June 30, 2004.

The purpose of the award is to increase awareness of the importance of expense analysis among company management by encouraging informative, high-caliber papers on the subject. The award will be offered once every three years for a paper that is judged to be the best paper on life insurance company expense analysis published by a suitable actuarial publication.

To be considered, a paper must be based on sound actuarial and accounting principles and should be of such caliber as to advance the state of the art of expense analysis and related life insurance financial information. Members of the CLICE will judge entries in conjunction with the editors of the *North American Actuarial Journal* (NAAJ). The CLICE reserves the right not to make an award in any period in which it does not consider any paper worthy of the award.

The award is named for Arthur Pedoe, an actuary who was well known for his studies of life insurance company expenses. Mr. Pedoe was a Fellow of the Institute of Actuaries, the Actuarial Society of America, the Canadian Institute of Actuaries, and the Society of Actuaries where he held the office of Vice President in 1958-59. He spoke frequently at Society meetings on trends in expenses and on the importance of controlling increases in expenses. For this purpose, he developed methods of calculating expected expenses to be compared with actual expenses. These methods were still in general use at his death in 1979.

The Society of Actuaries is a professional, educational, and research organization with more than 16,400 members who practice primarily in the fields of life and health insurance, pensions, employee benefits, and investments.



Editor's Comments: New Developments In The 2001 CSO

by James R. Thompson

Introduction:

We have been under the 1980 CSO for over 20 years, and the industry has been pushing for a change. A Valuation Basic Table (VBT) was developed and exposed, and the Academy is putting margins to it. Legislation to implement it has been drawn up and exposed for discussion. The adequacy of the mortality has been keenly discussed, and it has affected the proposed legislation. More comprehensive discussion of the backgrounds of the VBT and associated 2001 CSO are available in LHATF Actuarials Subscription of Dec. 2001 and earlier.

Mortality level:

The 2001 CSO is based on mortality experience from 1990-1995. The Valuation Basic Table, when loaded, was designed to only cover 70% of participating companies. Thus, it is more likely that a

underwriting classes. This is the 'XXX term market place'-level term (say 10-20 years) with ultimate ART rates to 95. The huge dispersion between some of these preferred classes and the 1980 CSO nonsmoking mortality helped bring on XXX. Many of the companies writing this are relatively large and have their own sophisticated underwriting and actuarial staffs. Some are reinsurers which make such products available to smaller companies.

On the other hand, there are companies which specialize in underwriting substandard risks by conventional means. There are many small companies which issue simplified issue and even guaranteed issue products and some companies which deal with funeral parlors. The insureds perceive themselves as buying a certain funeral arrangement, but actually, buy a policy from the funeral director. Some people buy final expense

set so as to cover a significant portion of the companies?

Moving Right Along:

At the December meeting of LHATF at the NAIC meeting, this issue emerged.

Another mortality study had been developed by Bragg and Associates from a similar era (1990-1995) and with 9 of the 23 companies the same as those in the Society study.

There were some similarities but some differences, especially for the Male Nonsmoker. The Bragg data had similar mortality overall and had a smaller slope than the SOA study. The smaller slope results in lower reserves, and ironically it would be less conservative.

Another problem was the AIDS adjustment. Since 1990-1995, AIDS has lessened, and the Society of Actuaries understood its own procedure for adjusting the AIDS claims. They did not understand how to deal with the Bragg data.

If we were to attempt to include further data, the delay might be indefinite. During the conference calls, a straw vote indicated the desire to proceed. During the December meeting, Larry Gorski expressed concern about the adequacy of the VBT for standard mortality and wanted to use the asset adequacy analysis as a check. Asset Adequacy is an established industry tool and is required if a company wants to use X factors less than 1 for XXX term insurance.

Bill Carmello expressed concern over the use of the 2001 CSO for simplified issue and guaranteed issue and substandard. This concern had been discussed over



Jim
Thompson

There are many direct marketing companies using TV ads and mailers. They hope for a heavy response with better risks but may get very adverse selection.'

company's mortality will exceed the table. I attended the conference calls in October leading up to this, and there was a debate as to whether to accept the VBT. A delay might get more data, but it might be indefinite.

Dispersion of Risk:

Standard underwritten mortality can vary from company to company, but in the last 20 years there has been a dispersion of mortality target markets. One is the emergence of preferred nonsmoker

policies from agents who may have a special policy for the "senior" market, many of which use direct marketing companies for TV ads and mailers. They hope for a heavy response with better risks but may get very adverse selection.

In addition, there is some normal dispersion of mortality even among those which use generally similar underwriting procedures. If most companies participated in the mortality studies, this would be taken care of when the margins were set. With fewer companies participating, would the margins be

the summer and I assembled a comparison between some guaranteed issue experience from a study performed by the Nontraditional Marketing Section in the early 1990s and compared it to the mortality of the 2001 CSO. At younger ages (say 40s and 50s and even higher) this mortality was much higher than the 2001 CSO.

For the 2001 CSO, I even used the smoker mortality rather than the aggregate to be more conservative. The rationale was based upon the observation that smoker mortality in the VBT was from smaller policies than the nonsmoker and further that they tended to be from lower socioeconomic brackets. These were underwritten but one can presume that the simplified and guaranteed issue products which were not included in the VBT are likewise heavily skewed towards smokers. This study helped show that the 2001 CSO is not adequate for this mortality.

Further, the study had so few companies in it that it was admittedly inadequate as an industry experience standard. It was simply the best published data available. This again dramatized the lack of published data from intercompany studies.

Result:

With these concerns in mind, a subcommittee of three was designated to come up with a proposal for changes to the regulation implementing the 2001 CSO. On February 17, the subcommittee published a revised draft. Section 5E deals shows some significant changes.

When a company first uses the 2001 CSO, it shall:

- 1) Begin to save and retain by electronic means its in force and death data for individual life policies.
- 2) Submit, as soon as reasonably practicable at the end of each year, this data for individual life policies and any group life

certificates reserved on the 2001 CSO.

The submission shall begin within three years after the company starts using the table. But companies with both under 50,000 individual policies and 100 death claims are exempt. Further, an asset adequacy analysis must accompany any opinion in which the 2001 CSO is used.

The intent is to let the commissioners select the Society of Actuaries to perform the mortality studies. This shall produce uniformity and it will enable them to find the companies with experience greater than the 2001 CSO.

Commentary:

Thus we can see how the regulatory and industry concerns gelled into this most recent draft of the regulation. This is of concern to the whole industry but also to smaller companies in that so many of them are involved in the various guaranteed and simplified issue programs.

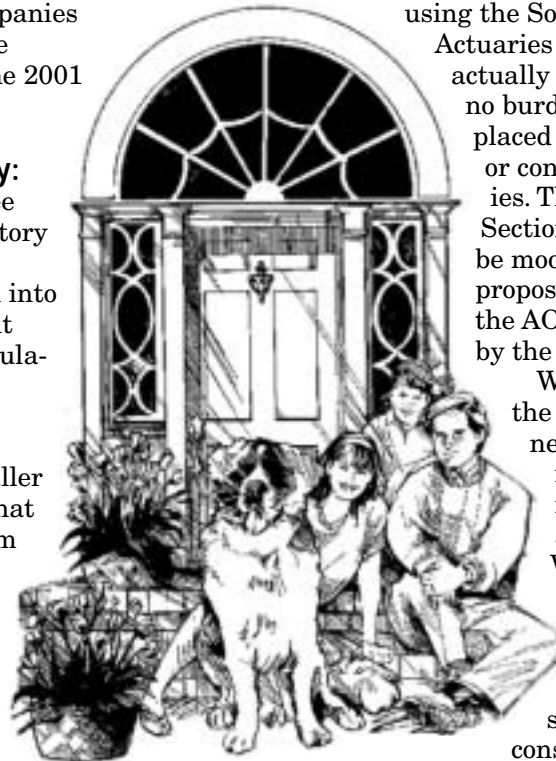
The under-participation in the standard mortality study is disappointing. The only published mortality for the guaranteed / simplified issue experience is the nontraditional marketing studies, which have clearly too few companies participating. This affects pricing, as well as reserving. Exhortations to companies to participate have not yet borne fruit.

The best industry tool for checking on assumptions is the Section 8 opinion. This gives discretion to the actuary but is also a regulatory check. But what guidance does the actuary have?

We need to get the experience. This experience-gathering applies to all life companies. It should broaden the sample available. In mandating this, the regulators have made some clear small-company compromises. The flat out exemption for those with less than 50,000 policies and 100 death claims will exempt a lot of smaller companies which specialize in substandard markets. Still, there will gradually emerge a body of experience from larger companies which can be used. Their three-year delay will enable smaller companies to get their systems up to speed. By using the Society of

Actuaries to perform the actually mortality study, no burden will be placed on the company or consulting actuaries. The mandated Section 8 opinion will be moot if the proposed revisions to the AOMR are passed by the states.

We can perceive the regulators' need for credibility in the mortality assumptions. When their proposed method of achieving this contains so many initial considerations for the smaller companies, I believe we should consider supporting this.



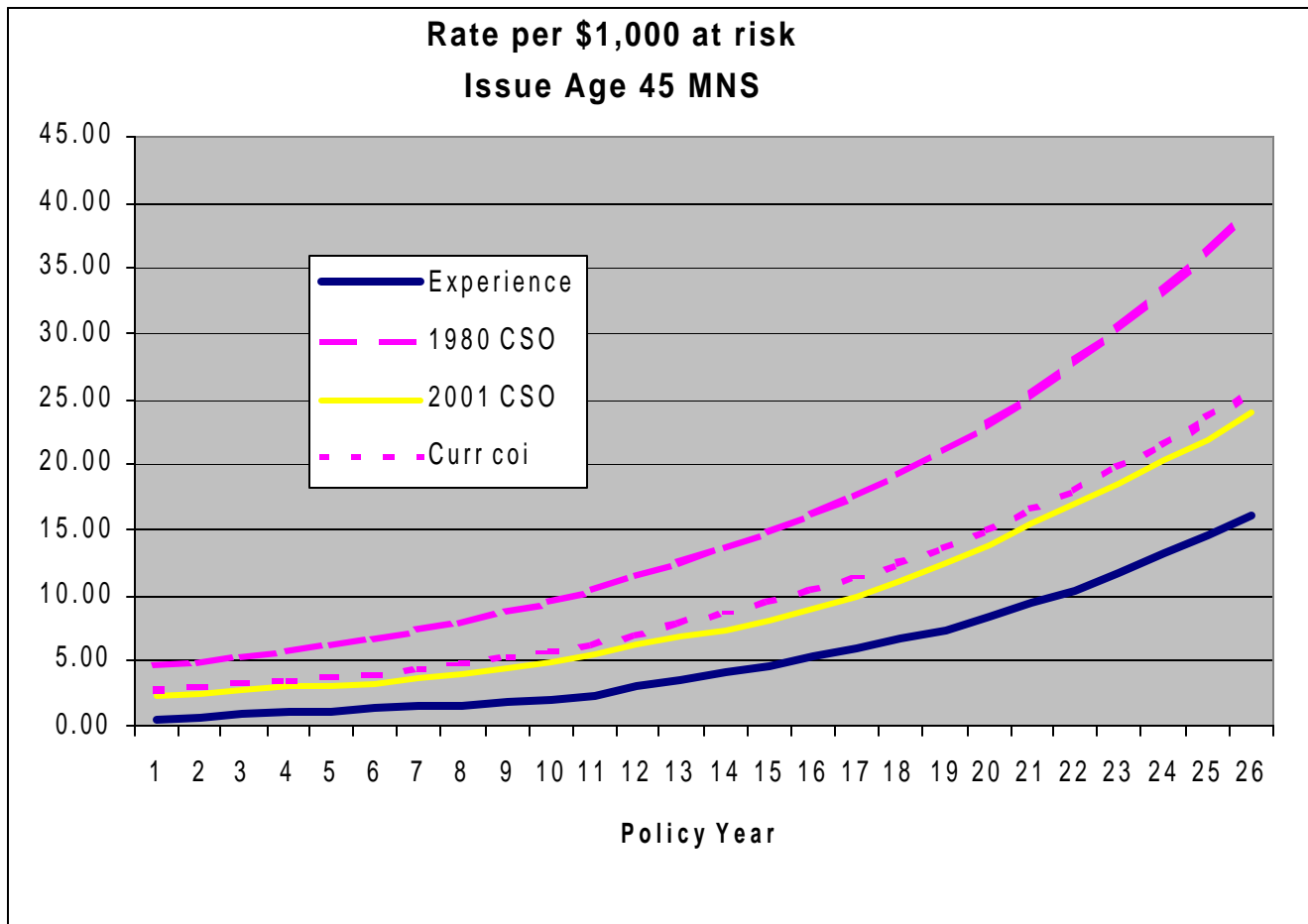
James R. Thompson, FSA, MAAA, is actuary & consultant at Central Actuarial Associates in Crystal Lake, IL, and is editor of small talk newsletter. He can be reached at jrthompson@ameritech.net.

A New Platform for Universal...

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current COI and actual experience are a source of profit for the company. The 1980 CSO rates offer a margin for adverse deviation above the current rates and represent the highest level to which the insurance charges can be raised.

The 2001 CSO Ultimate (thin solid line) is based on insured risk mortality experience from 1990-95. Particularly for males, ultimate rates are considerably lower than current 1980 CSO ultimate ceiling rates. For a plan like that depicted, the new ceiling is at or below the current mortality charge rates.



For this plan, the guaranteed mortality charges take on a new, lower rate while the current mortality charges need to be repriced at a level below the 2001 CSO Ultimate but above experience levels. In any case, the profit margin from mortality charges has been squeezed to minimal levels, assuming the mortality experience underlying the plan remains unchanged. This situation becomes even more apparent for products where the COI charge is designed using a reverse select and ultimate structure. Product loads and charges will need to be designed such that the profit margins lost to the new mortality basis can be recovered elsewhere.

Illustrations and Premium Limits

The NAIC Life Insurance Illustrations Model Regulation requires a basic illustration to consist of a numeric summary of the death benefits and values on three bases: (a) policy guarantees, (b) Insurer's illustrated scale and (c) Insurer's illustrated scale with non-guaranteed elements at an average of the guaranteed rates and the illustrated rates. To date, only the illustrated scales have been subject to change. With the adoption of the new valuation table and its eventual recognition as the maximum level of reasonable mortality charges by the tax code definition of life insurance, the guaranteed illustration and corresponding 7702 maximum premium limits will change.

Here is an example. The policy illustrated below is \$100,000 specified amount with a \$60 policy load, assessed monthly. The guaranteed interest rate is 6% in the first year, 4% in renewal years. The issue age is 45 and four risk classes are examined.

The two numbers listed under 1980 CSO and 2001 CSO are (i) the guaranteed maturity premium or GMP, i.e. that level premium paid at issue and annually thereafter which matures the policy for the specified amount (at attained age 95 in this case) based on contractual guarantees of mortality, interest, loads and charges and (ii) the 20th year cash value, i.e. the cash value at attained age 65.

Risk	<u>GMP / Cash Value PY 20</u>		Reduction
	1980 CSO	2001 CSO	
45 MNS	\$1,904/\$37,954	\$1,559/\$33,056	18%/13%
45 MS	\$2,504/\$41,017	\$2,022/\$36,433	19%/11%
45 FNS	\$1,597/\$32,579	\$1,279/\$26,384	20%/19%
45 FS	\$1,875/\$33,770	\$1,761/\$32,117	6%/ 5%

Three of the four risk classes demonstrate a material reduction (up to 20%) in the amount of premium necessary to mature the contract. Likewise, there is a corresponding reduction in the policy cash values. Female smoker risks will see the least amount of change under the new limits.

The tax code definition of life insurance defines a guideline level premium similar to a GMP. These tax code guideline premium limits will also experience reductions under the 2001 CSO basis. An insurer's premium receipts per \$1,000 of specified amount will be placed under a lower limit than before for universal life plans following guideline premium/cash value accumulation test requirements. Recovery of this premium revenue will be the focus of the marketing division since agent's commissions will also be limited in dollars per \$1,000 of coverage.

Conclusion

Product structure for flexible premium universal life plans with fixed interest guarantees are likely to change as the 2001 CSO is phased in as the required statutory and tax valuation table. Compared to current portfolio universal life products:

- Mortality margins will become smaller
- Premium limits will become smaller per unit of specified amount
- Surrender charge limits may decline as the new tables reduce the maximum first year allowable charge per unit
- Statutory and Tax basis reserves will change

Advance planning, constructive communications and a clear vision of the desired product portfolio and profit objectives will facilitate the company's success in moving to the new 2001 CSO platform.

Karen Rudolph, FSA, MAAA, is a consultant in the Omaha office of Milliman USA specializing in life and annuity pricing, modeling, valuation, illustration and tax code compliance. She can be reached at karen.rudolph@milliman.com.

Slashing New-Business Processing Costs With Point-of-Sale Technology—a Golden Opportunity for Small Insurers to Outflank the Giants

by Maria N. Thomson

LIMRA tells us that the 20 largest insurance conglomerates write 80% of the life and health insurance premium today. These insurers focus primarily on investment products, and insurance products for the affluent – the top 10% of the population. For all other insurers, survival will depend on their ability to sell insurance to the remaining 90% of the populace.

Alternate distribution alone has not solved the problem – the downward slide in people covered by any type of life insurance has continued unabated since 1980. The slow underwriting and issue process, and the 20% average application fall-out during this are the likely culprits.

New rapid underwriting and issue tools can solve the problem, letting insurers of any size dramatically cut costs by reducing their new business processing staff while providing much faster service to agents and customers.

Smaller companies, nimbler than the industry giants, are in a great position to adopt this new technology now and gain a real competitive advantage – particularly in the neglected mid-market.

Starting at the Point of Sale

Rapid issue begins with Point-of-Sale (POS) software, hosted on the web, that agents can access from their computers. A POS system captures extensive information about the applicant during the first interview. This data is sent electronically to the home office new-business system, eliminating mailing or faxing forms and reentering the information.

POS systems should have the following features:

- Simple needs analysis—the agent enters some basic data about prospects, including their

age, income, dependents and assets. The software then produces recommendations about which kinds and how much insurance the individual needs.

- Personal history interview—a series of drill-down questions about the applicant's health. The agent enters the answers in the computer. A well-constructed personal-history interview can reveal just about everything that would be revealed by the attending physician statement, but unlike the APS, can be obtained immediately and without cost. The information from this interview should automatically be used to fill in the legally filed application form.
- Illustration/rating software—the agent can provide quotes and illustrations without accessing separate software.

Smaller companies, nimbler than the industry giants, are in a great position to adopt this new technology now and gain a real competitive advantage — particularly in the neglected mid-market.'

After the interview has been completed, the agent can send the file to the home office system electronically, bypassing the fleet of entry clerks insurers employ today. If electronic signature capability isn't a part of the software, the application can be printed, signed, and sent to the home office to be filed with other records. However, the home office staff can have the case evaluated in the time it takes for the application to arrive. By

using oral fluids, taken by the agent, instead of blood or urine – lab results can be secured within several days of the sale.

Furthermore, in addition to the Medical Information Bureau, there are now new underwriting databases such as Motor Vehicle Records and pharmaceutical history that can be accessed before the lab results are in. All of this information provides a very good picture of an applicant's health – which should be adequate for nonmed underwriting levels, and possibly even higher.

Using this process, any progressive insurer should be able to issue a well-underwritten life or health insurance policy within two weeks.

However, *instant* field issue is on the horizon, and it promises even greater efficiency and speed.

The next generation of POS systems will feature a wireless link to motor vehicle, pharmaceutical,

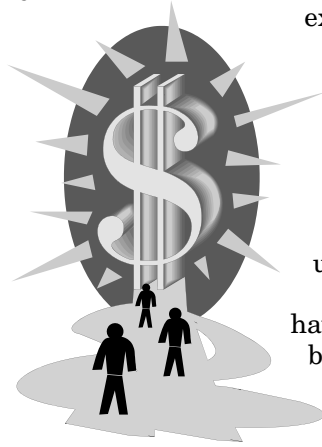
medical and credit-history databases. The agent taking the application will access these databases, perform a search and download the results within minutes. For the majority of applicants, who don't have any major problems, the computer will be able to make an immediate acceptance, utilizing an expert underwriting feature, and provide a final rate. The agent can then print out the policy with a portable printer, and a

click on an icon will transfer all the information immediately to the home office.

How Much Can You Save?

Surprisingly, POS technology isn't very expensive. If they choose the right vendor, even small companies can readily afford it. The POS vendor will charge a fee to set up the software on its system. After that, there's a small fee for each use. Since the vendor takes full responsibility for maintaining and upgrading the software, the insurer doesn't have to add expensive software specialists to its staff.

A company should be able to readily recoup its investment in streamlined processing. In a recent case story, we estimated it costs \$283 to underwrite and issue each policy under traditional "slow



issue." Instant issue could slash this to \$141.50 per policy and also virtually eliminate the applications that are lost in the issue process due to withdrawals, incomplete information and not-takens (this averages 15%). The savings can be substantial, even if somewhat higher mortality is

experienced. However, with the advance in technologies and databases, mortality and morbidity very well could be just as good as with traditional, slow methods, especially at issue ages under 40.

Even small insurers today have a large staff for new-business processing. Much mailroom work comes from taking in applications and delivering them to underwriting, and sending out policies. Additionally, the underwriting and issue areas are generally large. With streamlined processing today and instant field issue within about two years, an

insurer can eliminate most of these people, plus their attendant computers, processing software, furniture and space—saving millions annually for an average-sized insurer. If software is developed that takes information directly from the electronically submitted application and uses it to directly feed the administrative system, then all that will need to be retained of the current new-business processing personnel are a portion of the underwriters. This is because the best expert underwriting systems can usually only evaluate 50% to 70% of all apps, depending on the target market.

Faster, better, cheaper underwriting and issue is truly a survival issue for smaller companies, and those that move ahead now will be in the driver's seat to thrive in the years ahead.

Maria N. Thomson, FSA, MAAA, is Managing Principal of Thomson Management Solutions, Inc. in Brimfield, MA. She can be reached at mthomson@tmsolutionsinc.com.

Section 7, Section 8, ASOP 7, and ACG4

by Godfrey Perrott

Recently, the NAIC substantially revised the model Actuarial Opinion and Memorandum Regulation (AOMR) eliminating the old Section 7 (which covered statutory opinions where asset adequacy analysis [cash flow testing] was not required. The Actuarial Standards Board revised ASOPs 7 and 22 and repealed ASOP 14 to update them. These revisions contemplate the 2001 AOMR but all States have not yet adopted the 2001 AOMR. How do these various forms of guidance to the actuary fit together, and which applies to each situation?

- ASOP 7 applies to any cash flow testing regardless of the purpose. ASOP 7 applies to cash flow test-

ing done for appraisals, pricing, valuation, or any other purpose. It applies to both stochastic and deterministic cash flow testing.

- ASOP 22 applies to all actuarial opinions that require asset adequacy analysis. Thus it applies to all opinions in States that have adopted the 2001 AOMR without substantial modification, and Section 8 opinions in States that have not adopted the 2001 AOMR.
- Actuarial Compliance Guideline 4 (ACG 4) of the American Academy of Actuaries applies to Section 7 opinions in states that have not adopted the 2001 AOMR and to any other circum-

stance in which an actuarial opinion on statutory reserves does not require asset adequacy analysis.

Keep this handy guideline in your pocket for future reference! (ASOP 14 is no longer applicable to anything. It was repealed since its guidance [to the extent it is still relevant] is now in the revised ASOPs 7 and 22.)

Godfrey Perrott is the Chair of the Life Operating Committee of the Actuarial Standards Board and a consulting actuary with Milliman USA in Boston. He can be reached at godfrey.perrott@milliman.com.

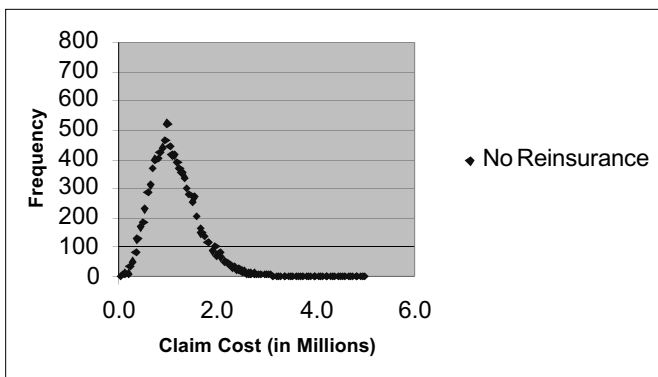
The Truth About Reinsurance

by Robert P. Stone

The truth about reinsurance is nothing new: reinsurance reduces a company's risk of incurring unacceptably high claims. While this concept is less than mind-boggling, some of the details behind it are worth a quick look.

For a smaller life insurance company without reinsurance, the variability in statutory income caused by a wide range of possible death claim experience is unacceptable. Here's why:

Consider a block of roughly 6000 term policies having face amounts ranging from \$10,000 to \$1.0M with expected claims in the coming year of \$1.335M. The frequency distribution of aggregate death claims for the block (generated via 10,000 Monte Carlo simulations) looks like this:



Some selected percentiles of this simulated distribution follow:

Percentile	50 th	75 th	90 th	95 th	99 th
Aggregate Claims (in thousands of dollars)	1,275	1,630	2,083	2,272	2,883

When considering pro forma financials for the coming year, company management might be very comfortable with a statutory income statement containing death claims equal to the expected amount. This feeling might change if they knew there was a 10% chance claims would exceed \$2.03M. And if it could be shown that expected claims would be \$2.38M given that they exceeded the \$2.03M (i.e. this is the conditional tail expectation), all comfort with the financials might disappear.

Now assume all net amounts at risk above \$100,000 are 100% reinsured on a YRT basis. For illustrative purposes, net reinsurance costs are assumed to be 105% of expected reinsurance benefits and expected profit per \$1,000 insured is \$0.10. Expected unreinsured claims

plus reinsurance costs and forfeited profit are now \$1.380M. The simulated frequency distribution of aggregate unreinsured death claims plus reinsurance cost and forfeited profit for the block has been added alongside the prior graph:

Selected percentiles of the new simulated distribution (all values in thousands of dollars):

Percentile	50 th	75 th	90 th	95 th	99 th
Aggregate Unreinsured Claims	930	1,130	1,325	1,450	1,700
Reinsurance Cost	412	412	412	412	412
Expected Profit Lost	25	25	25	25	25
Total	1,367	1,567	1,762	1,887	2,137

Note the significantly lower values at the 90th percentile and above. The numbers illustrate exactly what the graph shows: the addition of reinsurance has narrowed the range of possible outcomes, i.e. reduced the variance of aggregate claim costs. There is a definite price for this reduced variance, though, as the graph also shows minimum cost of at least the assumed reinsurance cost. Thus the lessened chance of catastrophic death claim experience is traded for part of the potential gain should death claim experience be substantially less than expected.

This exercise can be taken a step further. By running the above example using reinsurance retention other than \$100,000, the tradeoff between more or less risk reduction and its cost can be illustrated. Consider the following table of results for various retention limits (all values in thousands of dollars):

Retention	Lowest Sim. Cost	50 th Perct.	75 th Perct.	90 th Perct.	95 th Perct.	99 th Perct.
50K	915	1,420	1,535	1,645	1,718	1,845
100K	537	1,367	1,567	1,762	1,887	2,137
250K	225	1,320	1,612	1,900	2,079	2,435
500K	131	1,295	1,631	1,981	2,211	2,639
No Reinsurance	100	1,275	1,630	2,028	2,272	2,883

Note the extremes shown in the table on the previous page. By retaining only \$50K of face on each policy, the 90th percentile has been reduced by about 20% as compared to the scenario without reinsurance.

These results can be demonstrated another way. The following table shows how pretax profits are affected by the variance in death claims and reinsurance cost (all values in thousands of dollars):

Retention	Expected Claims/Reins Cost On Statutory Income Statement	Impact on Earnings for Claims at Low and High End of Range		
		50% Probability Actual Claims will be in this range	80% Probability Actual Claims will be in this range	90% Probability Actual Claims will be in this range
50K	1,422	119 to (113)	212 to (223)	267 to (296)
100K	1,380	198 to (187)	358 to (382)	443 to (507)
250K	1,347	297 to (265)	508 to (553)	622 to (732)
500K	1,338	347 to (293)	582 to (643)	707 to (873)
No Reinsurance	1,335	375 to (295)	610 to (693)	735 to (937)

As an explanation for the information in this table, consider the 50K retention entries. The expected claims and reinsurance cost of \$1.422M could be the death benefit portion of a pro forma statutory income projection. The 50% probability column for this retention limit indicates a \$119,000 mortality gain if actual death claims occur at the 25th percentile, while at the 75th percentile, a \$113,000 mortality loss would occur. Likewise the 90% probability column illustrates the income statement gain or loss due to actual mortality experience at the 5th and 95th

percentiles. It is easy to see that more reinsurance (i.e. lower retention) gives rise to a narrower range of possibilities and more stability in statutory income. With \$50,000 retention, there is a 90% chance of actual death claims within \$300,000 of the expected value (or in a total range of \$563,000). Without reinsurance, this same total range is \$1,672,000.

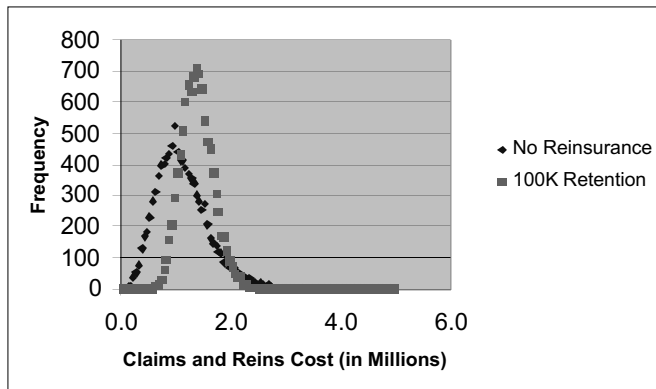
Greater stability in statutory income does have a cost. Note the expected value of the \$50,000 retention scenario is \$87,000 more than for the uninsured case. On an expected basis, this amount would be the reinsurance cost using \$50,000 retention. Looking at the mortality gain at the 25th percentile (the positive number in the 50% probability column) for these two cases, however, it is evident that in the presence of reinsurance a significant gain is forfeited in a period of better than expected experience.

It should be noted that the assumptions used for reinsurance cost and forfeited profit are somewhat arbitrary. It is conceivable that a competitive reinsurance quote might be for 100% of expected claims or less. While this would affect the relative total costs at each percentile shown above, it would not change the resulting reduction in variance. Also, the impact of reinsurance will vary by company depending on the distribution of policies by face amount. It is therefore not appropriate to make a sweeping statement regarding the desired retention limit for all companies.

Also, all the stochastic analysis in the world is useless if the underlying mortality assumption is flawed (misestimation of the mean). When running stochastic analyses, if a block of business consistently ends up with actual claims in the upper percentiles of the expected distribution, it may be time to review the underlying mortality assumptions.

So the truth about reinsurance remains that same. Reinsurance is about considering the extremes of what can happen and putting a finger on how likely those extremes are. It's about a tradeoff between risk reduction versus the cost of this reduction. And if you are company management, it is about knowing the complete range of risk before and after any reinsurance is in place, so that reinsurance decisions are based on acceptable levels of this risk.

Robert P. Stone, FSA, MAAA, is an actuary at Milliman USA in Indianapolis, IN. He can be reached at Rob.Stone@milliman.com.



Distance Learning Up Close

by John Riley

How does a nonprofit organization create a robust, growing campus of on-line programs when development costs are out of sight and members are reluctant to pay even a modest sum for on-line training?

If you are thinking, "well, you can't," then you are not far from the truth. SOA finds itself struggling to balance the sentiment to "get continuing education (CE) into cyberspace" where it is available to all at any time against the reality that this goal is both expensive and time-consuming and does not always result in a high level of utilization by the membership.

There are ten programs currently on the SOA Virtual Campus. Most were created from live sessions at major meetings, which made them relatively inexpensive to produce. These have provided us with our own experience study as to whether members would be interested in

mistake if they expect on-line training to play by the same rules as live meetings and seminars. Absent some organization-wide commitment to sacrifice resources to it come what may, on-line programming cannot flourish without using some creativity in how it is funded and without targeting the right audience.

The SOA has recently released two voluntary distance learning subscriptions for pension actuaries and candidates involved in the Professional Development program. In both cases, all the programs on

must meet the qualification requirements for signing prescribed statements of actuarial opinion.

Distance learning might be a good option here for the six hours per year of individual study.

So, like many dotcom organizations who championed it, the bloom is off the computer-based training rose, but all is not lost. The fact that you can sit down at your computer and get credible continu-

ing education at the touch of a finger means that distance learning is here to stay. If and when the SOA mandates a continuing education requirement for all of its members, it will most certainly become an extremely important delivery method.

Until then, I would love to chat about its virtues at one of our "live" programs. See you then!

John Riley is Managing Director of Continuing Education at the Society of Actuaries in Schaumburg, IL. He can be reached at jriley@soa.org.



SOA CE is investigating the possibility of creating a program to assist actuaries who must meet the qualification requirements for signing prescribed statements of actuarial opinion.'

paying for on-line programs on a "retail" basis. For the most part, they have not. In the last six months since seven programs were added to the Campus, we have had less than fifty paying customers; the return on investment has been awful. It should be noted that the free program on "Tailoring Products for the Bancassurance Market" has done very well with over 200 people signing up for that within the same time span.

With apologies for elevating the financial side of things, the point must be made that money remains an excellent barometer for all things CE. Nonprofits make a

the Virtual Campus are provided to the subscriber as part of the fee along with several audio tapes. Early response to these programs has been very good, most likely due to the fact that both groups face a continuing education requirement.

In these cases, distance learning has a powerful appeal. The subscriptions provide credits (or units) more conveniently and at a far less cost than attendance at "live" events. Given the variety of audio tapes available, it also lets individuals fashion a very specific, relevant course of study. SOA CE is investigating the possibility of creating a program to assist actuaries who

Modeling of Economic Series Coordinated With Interest Rate Scenarios Project

by Steve Siegel

Last year, the SOA and the CAS partnered to jointly sponsor a request for proposals on research involving the modeling of economic series. Both organizations recognized the extreme importance to actuaries of appropriate modeling techniques for generating economic scenarios in a dynamic financial analysis model or a cash flow test. As a consequence, the organizations concluded an end result of this project should be a model for projecting economic indices in a correlated manner.

Of the proposals received, the one submitted by the research team of Kevin Ahlgrim of Bradley University, Stephen D'Arcy of the University of Illinois and Richard Gorvett of Zurich North America was selected.

The researchers initiated their work in January 2002. The broad plan for the project includes the following items:

- **Literature Review** – A comprehensive survey and review of the literature relevant to the topic. The review will include articles from actuarial, financial, and

other available sources such as econometric and/or statistical journals. A summary of the primary findings and procedures appearing in the review articles will be written. As of the publication of this newsletter, the researchers have largely completed this item.

- **Development and Presentation of an Economic Scenario Generator Model** – There are three aspects associated with this phase of the project. Work is currently underway on each of these:

a) Development of a model to represent economic and financial series—Specific series include the term structure of interest rates, inflation, stock market levels, real estate price levels, unemployment rates, and economic growth rates.

- b) Parameter Estimation – Relevant historical data will be used to parameterize the model.

- c) Provision for Extreme Conditions – Included in the model will be a

provision to represent extreme financial and economic conditions through either appropriate parameter values or other means.

- **Creation of software that allows users to model economic and financial series** – Application of the model described above will be available through use of a software program created as part of the project.
- **Report and Articles** – A final report describing all aspects of the project will be written as well as articles intended to appear in pertinent actuarial publications.

The research team expects to complete its work by June 2002.

With this and other research projects, the SOA is always interested in your feedback and suggestions as well as ideas for new projects. Please feel free to contact Steve Siegel, SOA Research Actuary at (847) 706-3578 or ssiegel@soa.org.

Smaller Insurance Company Section's Boston Sessions for October 27-30, 2002

Smaller Insurance Company Symposium - Part I

Monday 10/28

10:30 a.m. - 12:00 p.m.

- Expense analysis
- Reinsurance partnerships and strategic alliances
- 2001 CSO table

Smaller Insurance Company Symposium - Part II

Monday 10/28

2:00 p.m. - 3:30 p.m.

- Credit insurance
- Distribution and niche product development
- Simplified underwriting
- How to sell "big company" products

Smaller Insurance Company Section Hot Breakfast

Wednesday 10/30

7:30 a.m. - 9:30 a.m.

Proposed Actuarial Guideline XYZ

by Scott Cipinko

Editor's Note: The following article is reprinted with permission. It last ran in the March 31, 2002 NALC newsletter.

A Revised version of Proposed Actuarial Guideline (PAG) XYZ was distributed at the LHATF meeting. Two topics were discussed without closure. The same topics were discussed during the most recent conference call. The first issue was whether or not to allow the use of a simplified approach for calculating the R factor, rather than a seriatim method. The other issue was how to change the definition of the expense allowance. However, the new draft Optional Guideline included all the changes that were discussed.

The regulators discussed the March 12, 2001 letter that included comments from the February letter. The following concerns were included in that letter:

1. Expressed continued opposition to PAG Guideline XYZ whether on a mandatory or optional basis
2. If NAIC decides to go forward, PAG XYZ should be a regulation rather than an Optional Guideline
3. Appendix of the letter had a number of suggested changes.

There was a discussion about the simplified approach for calculating the R factor as well as the discussion of a serious administrative concern by the industry. There is uncertainty about the effect of an Optional Guideline because it is not clear whether companies would know whether a guideline has been adopted by the state. It was pointed out that approximately one third of the states automatically adopt guidelines. To avoid this confusion, and for many other reasons, the Guideline should be a regulation and go through the normal administrative procedure process.

It was also suggested that the possibility of cost reduction could involve using pricing mortality rather than the CSO mortality tables. Two approaches were considered and problems were found with both.

It was mentioned that the industry does not believe the approach for PAG XYZ is legally enforceable and does not have social value. Alex Zeid, the Chair of the NALC Actuarial Committee (FMSI, Actuarial Concepts) advised the regulators that the cost of implementing PAG XYZ would be in excess of seven figures for one company and may take as much as nine months to implement. Mr. Zeid further pointed out that this cost estimate did not include the cost for variable products, which are included in the scope of this Guideline. In addition, there will be costs to, change illustration

systems and make new policy filings. Mr. Zeid requested that the regulators perform a cost/benefit analysis to determine if the cost justified the expense of the Optional Guideline. Each time the NALC asks for the regulators to do such an analysis, the regulators either ignore the request or advise that it is the industry's job to tell them how much the proposed Guideline or Regulation would cost to implement.

The regulators pointed out that cash values "are needed" for policies with lifetime guarantees.

Regarding the suggested changes, the table below summarizes the changes and the LHATF's actions:

Optionality:	No comments on industry position.
Authority:	No comments on industry position.
Purpose:	Motion to accept was approved.
Applicability:	Opposed and regulators thought Dino's language is better.
Expense Allowance:	No comments on industry position.
Effective date:	Motion to use industry language approved. Discussed changing 2 years to 1 year. Motion to change 2 years to 1 year made but not seconded.

A motion was offered to expose and move the Guideline for adoption in June. The Chair requested each state to tell how they would vote.

The committee chair stated that he does not know why the industry is opposing the Guideline and what we are accomplishing. A vote by the LHATF Member states and their comments are set out in the table on the next page:

- IL Voted for NAIC adoption but state will most likely not adopt. Believe that Nonforfeiture is a state issue. Optional Guideline makes this a state issue.
- CA Agrees with IL. States this this is XXX of Nonforfeiture. Not sure whether CA will adopt.
- TX Agree with points made by IL and CA. Creates awareness with other states. Not sure if UL model reflects current experience. TX will adopt.
- CT Supports the Guideline but does not know if they will adopt.
- MI Support adoption, but does not know if the state will adopt.
- UT Not appropriate, needs to be adopted as a regulation and will vote against it.
- NE Not supportive due to cost and regulation vs. Guidelines as well as other concerns. State would not pass it.
- PA Abstained.
- OK Agree with NE. OK would not adopt.
- MN Personally supportive. MN has not supported the UL Guideline.
- FL Sponsored and kept this issue alive. Will support and pass in the State. this is the same as XXX. It gives value to the insured.
- SC Borrowed from CA and uses disclosure guidelines. Unsure whether it would provide support and would need to study the Guideline.
- AK Does not support actuarial Guidelines.

Motion passed.

Scott Cipinko is Executive Director of the NALC in Rosemont, IL and can be reached at cipinko@nalc.net.

***Smaller Insurance Company
Section's Colorado Springs
Sessions for May 30 - 31, 2002***

**How Can A Smaller Company Sell Big
Company Products • Session 13 PD**

Thursday 5/30

10:30 a.m. - 12:00 p.m.

Moderator: Jim McWilliams

Panel: Edwards S. Burns, Paul Grinvalds,
Jim McWilliams

Because of their size, many smaller companies seem to be shut out of selling some products because they are unable to develop administer, and sell such products due to their size.

Panelists discuss ways in which a smaller company may make “big company products” available to its field force without becoming bigger.

Participants learn how they may offer portfolios that includes products typically offered by larger companies.

Session Coordinator: Jim McWilliams

**New AOMR Requirements—Burden Or
Opportunity? • Session 66 PD**

Friday 5/31

8:30 a.m. - 10:00 a.m.

Moderator: Keith A. Dall

Panel: Norma Y. Christopher, Keith A. Dall

Recent changes in the requirements of the Actuarial Opinion and Memorandum Regulation (AOMR) may be either a burden or an opportunity for smaller companies.

Panelists review the change in requirements and discuss:

- Options available in performing asset adequacy analysis
- How to leverage the benefits from this analysis to other areas of the company

Attendees gain a better understanding of the changes to the AOMR, the ways in which the new requirements can be fulfilled, and use of asset adequacy analysis in other areas of the company.

Session Coordinator: Jim McWilliams



Society of Actuaries

475 North Martingale Road • Suite 800

Schaumburg, Illinois 60173

Web: www.soa.org