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From the President

Incoming CAS President, ***Mary Frances Miller*** *(left), is passed the gavel from 2002 President* ***Gail M. Ross****.*

Are You Part of the Solution?

by Mary Frances Miller

On November 19, 2003, two ratings agencies issued press releases that held casualty actuaries accountable for the recent increases in property/casualty loss reserves in the United States. Fitch Ratings pointed out that while the industry had seen favorable reserve development for a number of years in the 1990's, in 2001 and 2002 the development was decidedly unfavorable. Although the Fitch report gave a number of reasons for the bad news, including strengthening of asbestos reserves and "a significant upward shift in critical loss cost drivers," Fitch placed blame for the upward development on a failure in the actuarial process. Standard and Poors was even more blunt in its criticism, suggesting that actuaries had played at best a passive and perhaps an active role in companies' suppression of their actual results.

In addition to insulting the integrity of the profession in the United States, the S&P report contained a number of factual inaccuracies. When negative press about the actuarial profession

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Top Ten Casualty Actuarial Stories of 2003

by Vincent F. Yezzi and Robert F. Conger

Based on our annual survey of CAS leaders, we have compiled a list of the top ten news stories affecting casualty actuaries in 2003. This listing, as seen in the accompanying chart, reflects a wide variety of issues and illustrates the diverse areas where casualty actuaries influence the insurance industry.

This year, an unusually large number of the stories are about actuaries, including the CAS approval of mutual recognition, actuarial malpractice, and the role of actuaries in evaluating loss reserves.

In a second theme touching several stories, the tort system is likely to continue as a major driver for the insurance industry and thereby affect a significant number of actuaries. Three top stories related to this theme are medical malpractice reform, actuarial malpractice, and asbestos litigation.

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Comments Sought on CAS Research Initiatives

CAS research took a number of noteworthy steps in new directions in 2003. In addition to continuing to identify and manage research projects, the CAS implemented new initiatives designed to make the results of research more accessible to the CAS membership.

CAS staff worked with the CAS Research and Development Committees to develop a research taxonomy, or categorization scheme, for casualty actuarial science literature. The taxonomy should dramatically improve the ability to identify research articles by standardizing the terminology. Articles currently contained in the online database of actuarial abstracts (www.casact.org/CASBibSearch.cfm) will be categorized according to the taxonomy.

In addition, a template has been developed for use by authors writing research papers. Call paper authors will be required to adhere to a style guide in order to have their papers published in the *Forum*. The consistent style will make it easier for CAS members to browse through the *Forum*. CAS working parties and future call paper authors (beginning with 2005 call paper programs) will be required to use the research paper template when submitting their papers.

CAS members are invited to review the taxonomy and paper template and provide comments until March 19, 2004. The taxonomy and paper template can be

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Inside This Issue:

In My Opinion

A Poor Understanding of Our Profession

by Paul E. Lacko

Do you recall the articles that appeared in the insurance trade press about a week before last Thanksgiving reporting that two rating agencies were accusing U.S. property/casualty actuaries, in essence, of being utterly incompetent as loss reserve analysts? The reports stated that industry reserves have been proven seriously inadequate time and again, judging by the extent to which large and seemingly well-run insurers have radically "strengthened" reserves or simply collapsed in sudden financial ruin.

My first reaction was outrage, because the rating agencies used rather strong language. But my outrage quickly subsided into concern. The rating agencies held an entirely misguided notion of what actuaries do—indeed, what they *can* do—and what a reserve opinion is. And then I thought, "Wow, these rating agencies have just lobbed a couple of multi-megaton bombs on the property/casualty actuarial profession. The CAS and the AAA almost certainly will counterattack. This could get ugly."

"The rating agencies held an entirely misguided notion of what actuaries do—indeed, what they *can* do—and what a reserve opinion is."

So I looked forward to subsequent issues of the insurance magazines for the latest news from the front. I flipped through the *Wall Street Journal* each day, looking for a definitive in-depth analysis of the situation. I scanned the table of contents in *Forbes Magazine*, expecting to find an article ridiculing the rating agencies for their misconceptions. And…nothing happened. There were no follow-up articles in the trade press, no investigative reports in the *Wall Street Journal* or *Forbes*, not even a quick mention on NPR's *Morning Edition* or *All Things Considered* news programs. (*See note at end.*)

The issue seemed to vanish. The reasons why are explained in this issue's "From the President" column. I want to thank and congratulate the executive officers of the CAS and the AAA, who moved quickly to remove the issue from the headlines by responding directly and in person to the rating agencies. Congratulations, too, for such successful efforts at damage control.

The rating agencies are probably not the only ones who depend on the reserving specialist's actuarial work product and fail to understand its uses and limits. We need to make clear to our clients and our clients' clients that reserving actuaries are essentially forecasters.

We collect and monitor an incredible amount of data, run the data through a variety of models, adjust the outcomes based on our experience and professional judgment, and forecast how much cash will ultimately be paid out for losses and expenses. (For some lines of insurance, "ultimately" is a *very* long time!) Our forecasts often rely, in turn, on the forecasts of *other* professional forecasters. Weather forecasters immediately come to mind, of course, but we also need many other forecasts of how things will play out over the coming months and years: interest rates, stock market behavior, regulatory rulings, court decisions, legislative activity, and so on.

Our actuarial forecasting systems are the best available, and we work constantly to improve them. The same can be said of the systems used by other professional

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CAS and SOA To Hold Second Joint ERM Symposium at Chicago in April

The Casualty Actuarial Society and Society of Actuaries will again jointly sponsor a professional education symposium on enterprise risk management (ERM) issues. Building on the success of last year's event, the 2004 Enterprise Risk Management Symposium will be presented April 26-27 at the Renaissance Chicago Hotel in downtown Chicago. Georgia State University's Thomas P. Bowles, Jr. Foundation is a cosponsor of the Symposium. The Professional Risk Management International Association (PRMIA) is participating as well.

The 2004 ERM Symposium replaces the CAS Risk and Capital Management Seminar on the calendar of continuing education opportunities. However, many of the issues covered previously at the Risk and Capital Management Seminar will be addressed at the ERM Symposium.

"The response to the 2003 ERM Symposium was overwhelmingly positive," commented **Kevin Dickson**, chairperson of the CAS/SOA Committee for the ERM Symposium. "The interaction and dialogue generated by bringing both CAS and SOA members together to discuss this topic are invaluable. The planning committee is working hard to make the 2004 program even more engaging than last year's."

Photos courtesy of the Chicago CTB.

The symposium provides an ideal learning opportunity for casualty actuaries. With the convergence of risk management practices throughout the financial sector, actuaries will hear the latest on trends and techniques applicable to areas of practice such as risk pricing. Other sessions will address risk management options such as reinsurance and securitization. Actuaries with regular involvement in investment and financial matters will hear from experts in these areas, too.

A complete program describing the sessions will soon be available. A brochure will be mailed to all CAS members and posted on the CAS Web Site. If you have any questions, feel free to contact the CAS Office at (703) 276-3100, or via e-mail at cleathe@casact.org. ■

Sign Up for the 2004 Ratemaking Seminar

There's still time to register for the 2004 Ratemaking Seminar in Philadelphia. CAS members, actuarial students, and guests are invited to the seminar, which will be held March 11–12 at the Wyndham Franklin Plaza. The 2004 Ratemaking Seminar will feature several new sessions and tracks with an international emphasis and an expanded introductory track.

Among the many educational offerings, the general sessions will extensively discuss the various aspects of the underwriting cycle as well as past, present, and potential insurance crises.

For more information on concurrent sessions and the expanded introductory tracks, visit the CAS Web Site at www.casact.org/coneduc/ratesem/2004. ■

Scenes from the 2003 CAS Annual Meeting

CAS held its 2003 Annual Meeting in New Orleans, Louisiana, November 9-12. From left to right: **Shaun S. Wang** receives the 2003 Hachemeister Prize from **Donald F. Mango**. **CAS President Gail M. Ross** triumphantly holds up her footstool, which the self-proclaimed "vertically challenged" executive used throughout her presidency.

CAS Recognizes Members With "Above and Beyond Achievement"

Feldblum, Halpert, and Struppeck Honored

Sholom Feldblum

Aaron M. Halpert

Thomas Struppeck

The CAS awarded the first annual Above and Beyond Achievement Award (ABAA) to **Sholom Feldblum**, **Aaron M. Halpert,** and **Thomas Struppeck.** The ABAA celebrates the spirit of volunteerism by recognizing one or more CAS members each year who have made recent contributions that are conspicuously above and beyond what is normally and reasonably expected. The winners receive a commemorative plaque and their choice of several gifts selected from the Tiffany & Co. catalog.

Feldblum is recognized for his work improving the actuarial profession. In the last year, he has written or co-written three papers to be published in the 2003 *Proceedings* and has one discussion paper currently before the Committee on Review of Papers. In fact, Feldblum's public praise (see *The Actuarial Review*, November 2002) of the "above and beyond" work of another actuary who reviewed one of his papers was one of the inspirations for creating the ABAA.

Halpert is acknowledged for his leadership in winning approval for a combination of two proposed goals that he synthesized into a single, integrated Centennial Goal. Halpert shepherded the combined goal through a subcommittee of the Long-Range Planning Committee, which he chaired, and through the full Long-Range Planning Committee. Halpert spoke eloquently in a presentation on the Centennial Goal at the CAS Leadership Meeting.

As chair of CAS Exam 3, Struppeck is recognized for his work, performed on short notice, preparing a staffing plan for the Exam 3 Committee, helping train new members, and taking the leading (and largest) role in assembling questions for the exam. Struppeck exceeded the amount of work normally expected for an exam chair. ■

CAS Member Named to All-America Research Team

Todd Bault, a Fellow of the Casualty Actuarial Society, was named to the third team of *Institutional Investor* magazine's 2003 All-America Research Team in the Nonlife Insurance Sector.

The All-America Team, which was announced by *Institutional Investor* in its October 2003 issue, recognizes broker analysts who have done outstanding work during the past year. The magazine ranks 343 researchers from 19 firms in 71 sectors. Of Bault, *Institutional Investor* notes that the Sanford C. Bernstein analyst "impresses investors with his 12 years' experience as an insurance actuary and his status as a Fellow of the Casualty Actuarial Society." The magazine goes on to note that in a February 2003 report, Bault "recommended Chubb Corp., asserting that investors were overly concerned about a Chubb reserve charge. By early September, the stock had shot up nearly 40 percent."

"I've been working hard to promote the value of actuarial science in securities analysis—I hope this honor reflects well on the profession," Bault said. ■

Let Us Hear From You

The Actuarial Review welcomes letters and story ideas from our readers. Please specify what "department" you intend for your item—letters to the editor, or proposed news items, Brainstorms, It's Puzzlement, etc. Here's how to reach us:

Letters and Ideas for *The Actuarial Review*
E-mail: AR@casact.org
Fax: (703) 276-3108
Mail: CAS, 1100 N. Glebe Road, Suite 600, Arlington, VA 22201. ■

Random Sampler

Pressured to Change: Four Steps Toward the Centennial Goal

by Clive L. Keatinge

Almost a year ago, the CAS Board of Directors adopted the CAS Centennial Goal which says, "The CAS will be globally recognized as the preeminent resource in educating casualty actuaries and conducting research in casualty actuarial science. CAS members will be recognized as the leading experts in the evaluation of hazard risk and the integration of hazard risk with strategic, financial, and operational risk." By approving mutual recognition, we have taken an important first step toward that goal. However, since the target date for achieving the CCG is still a decade away, I believe it would be useful over the next couple of years to have some barometers that will measure how committed we are to achieving the CCG. In this piece, I offer four such barometers.

The first barometer is whether we are willing to cease publication of the *Proceedings* and adopt a new focus for our refereed publication program. The *Proceedings* has served the CAS well over the years, but it does not support our pursuit of the CCG. Few actuaries outside the CAS read the *Proceedings*. In addition, its once yearly publication leaves it unable to keep up with the fast-moving global environment of the twenty-first century.

In place of the *Proceedings*, I suggest two alternatives. The first is to join with the SOA in sponsoring the *North American Actuarial Journal*. This would provide a forum for papers that cross practice areas, such as those that focus on enterprise risk management, the subject of the second part of the CCG. My second suggestion is to join with actuarial organizations outside North America to create a new journal that focuses on topics of interest to practicing casualty actuaries worldwide.

The second barometer is how we handle implementation of the Actuarial Control Cycle (ACC) in our basic education system. The ACC began in Australia as a way to give students a holistic view of the actuary's function, with case studies playing a prominent role. It brings together the apparently disparate elements of early actuarial education and demonstrates their application to actuarial work in a range of traditional and nontraditional fields. It deals with what is common to all practice areas and ensures that candidates have mastered the fundamental concepts and principles before they begin to specialize.

> **"Do we have the will to move forward?"**

The success of the ACC has spawned similar initiatives by the SOA and the Institute and Faculty of Actuaries. Last June, in a straw poll, the CAS Board voted 11 to 0, with 2 abstentions, to endorse the concept as well. Since the ACC applies to all practice areas, the question facing us is whether we are willing to join with other organizations to provide a more effective educational experience than we could on our own. Having a first-rate modern education system is essential if we are to achieve the prominence in North America and abroad demanded by the CCG.

The third barometer is how we handle the implementation of enterprise risk management in our basic education system. Last July, we joined with the SOA in sponsoring a highly successful seminar on the subject, and we will repeat such seminars annually. Thus we have made a commitment to cooperate with the SOA on continuing education in this area. In basic education, the SOA is moving decisively to implement an enterprise risk management track. The question facing us is whether we are willing to cooperate in that effort as well. To do otherwise would almost certainly relegate us to second-class status in the area of enterprise risk management and would effectively doom the second part of the CCG.

The fourth barometer is whether we are willing to change our culture to accommodate a serious debate about the future organizational structure of the actuarial profession, both in North America and around the world. If we partner with other organizations on various initiatives as we pursue the CCG, the question naturally arises as to whether the profession needs restructuring to provide effective and efficient administration and oversight.

In the past, many in CAS circles have considered the subject of restructuring politically incorrect. At the 2002 CAS Leadership Meeting, one prominent CAS member publicly belittled

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In My Opinion

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forecasters. But no professional forecaster, not even a reserving actuary, can *guarantee* that any particular forecast will turn out to be within any specific neighborhood of the "right" answer.

Reserving actuaries may not often hit the target exactly on the bull's eye, but they hit close to the bull's eye very often. And there's no reason to blame reserving actuaries when the real world doesn't reveal all its plans and secrets ahead of time. (*Editor's Note: I spoke too soon. See the opinion column by Susanne Sclafane on pages 34-35 of the January 19, 2004 issue of* National Underwriter.) ■

Focus on International Research

ASTIN in Berlin

by Gary G. Venter, Chairperson, International Research Committee

Editor's note: This is the first of what will be regular articles by the new International Research Committee, highlighting international research of interest to CAS members.

Historic Berlin hosted the 2003 ASTIN Colloquium, with scientific content notable both for the number of papers presented and for the increasing focus on applied issues. With a growing number of CAS members now working in Europe and Asia and the globalization of the insurance business, the CAS presence at ASTIN is also growing. In fact several of the papers were by U.S.-based CAS members.

Traditional actuarial themes of pricing, loss reserving, and insurer financial management dominated the meeting. On the other hand there was very little emphasis on the historical ASTIN topic of probability of ruin. A current hot topic is applying correlation using copulas, with applications to all of the traditional themes. (The papers from the conference are available on the colloquium Web site at www.astin2003.de/03_call_03.shtml.)

Reserving actuaries will want to look at the Quarg paper, which finds that higher paid-to-incurred ratios lead to lower paid development and higher incurred development. The paper uses this occurrence to improve and reconcile paid and incurred estimates. Another emerging issue in reserving is looking at correlation in development between lines and using this as additional information to improve the estimates in both lines as well as to recognize the added runoff risk that can come from correlation. A paper introducing this topic is by Gillet and Serra. Although the writing is in French, the formulas are easy enough to follow. This is a good subject for future research.

Pricing papers looked at credibility, profit loading, loss distributions, and reinsurance pricing. The Møller paper does risk loading in a stochastic process framework and is a bit difficult to read, but comes up with some new ideas for pricing by probability transforms. One such idea, which Møller calls the minimum martingale measure, seems potentially applicable. It can be simplified to picking a loading parameter s, which is a small positive number, maybe 1 percent or less, and increasing loss frequency by dividing by $1 – s$, and multiplying the severity probability for loss size x by $1 – s + sx/EX$. If C is the severity CV, the overall profit margin comes out as $(1+C^2)\, s/(1 – s)$, which can be allocated to layer by this method. Ruhm and Mango look at a related approach to risk pricing.

> **"With a growing number of CAS members now working in Europe and Asia... the CAS presence at ASTIN is also growing."**

In memory of Bill Jewell, Bühlmann, Gisler and Kollöffel review the multidimensional credibility paradigm Jewell started and apply it to finding the best estimate of the frequency of large claims based on the distribution of smaller claims. Hashorva and Jürg look at this problem from another perspective.

Upwards of a half-dozen papers discussed copulas. An earlier version of my own *Proceedings* paper "Tails of Copulas" (www.casact.org/pubs/proceed/proceed02/02068.pdf) was previously an ASTIN Colloquium paper. Some papers followed up on the theme of using descriptive functions of copulas to evaluate goodness of fit of copulas to data, including Belguise and Levi, Charpentier, and my multivariate t-copula paper.

Financial management papers included issues of capital and asset allocation, for example, Mango, Venter, Schnieper, Purcal, Hürlimann, and Corradin. Others addressed financial modeling issues such as DFA models and measuring the impact of reinsurance.

Besides the scientific program, ASTIN always has a social program to encourage informal interaction. Berlin provided a good setting for this, featuring an evening reception on the rooftop of Dresdner Bank, which overlooks the famous horses on top of the Brandenburg Gate. A boat trip on a nearby lake was also enjoyable.

The 2004 Colloquium, to be held June 6-9 in Bergen, Norway (www.astin2004.no), will look to continue the trend of new directions for actuarial applications in a scenic setting amid mountains, waterfalls, and fjords and the long hours of sunlight of the Norwegian summer. The scientific and social programs promise to be rewarding. ■

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another for his support of restructuring. Another prominent member has told me privately that he believes restructuring would be in the best interests of casualty actuaries, but he hesitates to be too public about his views because of what his CAS friends might think. SOA leaders are afraid to come anywhere near the subject because they know that, no matter how well-intentioned and thoughtful their comments, some within the CAS will immediately accuse them of trying to "take over" the CAS. Restructuring is an emotional subject, but if we are to get to the CCG, we must have this debate, free of insults and demagoguery. To achieve the CAS Centennial Goal, we are going to need to take bold steps that entail significant change. But the question remains—do we have the will to move forward? ■

Reintroducing An Important Figure

John Adams, by David McCullough

[Simon & Schuster (paper), 2003, $18.95]

Reviewed by Allan A. Kerin

No doubt, a number of you have read this Pulitzer Prize-winning book. I hope that this brief review will be an introduction to it for those of you who have not yet read it and also have some value to those who have. John Adams was a central figure in the American Revolution and the establishment of the American government. Yet, we often remember him as a relatively minor president sandwiched between two giants, Washington and Jefferson. In doing so, we do not fully appreciate his immense accomplishments as a revolutionary leader and diplomat prior to his presidency or the significant accomplishments, as well as shortcomings, of his presidential administration. No one did more than Adams to build the coalition that won independence. It was Adams who nominated Washington to lead the Continental Army and who selected Thomas Jefferson to write the Declaration of Independence. It was Adams who, during his single term as president, avoided war by steering a middle course between France and Britain and by building the American navy. Of course Adams, much to his discredit, supported, signed, and enforced the undemocratic alien and sedition acts.

Adams, unlike Jefferson, Franklin, and Washington, consistently opposed slavery and never owned slaves. Adams denounced the Terror that followed the French Revolution, while Jefferson praised it. Adams exemplified the greatest virtues of colonial Massachusetts: hard work, scholarship, piety, and a belief in democracy. He also rose above its greatest moral failing, religious intolerance. His last public act, as a member of the second Massachusetts state constitutional convention in the early 1820s, was to unsuccessfully advocate sweeping declaration of religious freedom.

David McCullough is a great writer. He is a strong advocate for John Adams. But, I think that Mr. McCullough could have done more with the 651 pages that he wrote. Much more information could have been conveyed. For example, almost nothing is said about the domestic programs of the Adams administration. McCullough makes it clear that Adams, as a moderate Federalist, followed a middle course between the pro-British position of Hamilton and the "High Federalists" and the pro-French position of Jefferson and the Democratic-Republicans. But little is said about how Adams viewed the opposing economic programs of Jefferson and Hamilton. Additional discussion about the reasons for Adams's difficulty in building popular support for his presidential policies, in contrast to his great success as a political leader in pre-revolutionary Boston and in the Continental Congress, would also be valuable.

> **"We often remember [Adams] as a relatively minor president sandwiched between two giants, Washington and Jefferson."**

John Adams was a man of great personal ambition who, when necessary, subordinated that ambition to the common good. He was a farmer, teacher, lawyer, politician, scholar, and diplomat. He risked his life in signing the Declaration of Independence and in sailing through the British blockade to represent the revolutionary American government in France and the Netherlands. Earlier, in 1770, he had risked censure and violence from his own friends and neighbors for successfully defending, in court, the British soldiers who had fired on the mob that had assaulted them with stones during the "Boston Massacre."

John Adams, second president of the United States of America.

David McCullough has also vividly illustrated John Adams's family life through extensive quotes from his correspondence with his wife, Abigail, and with other family members. A lifetime of friendship, respect, and love can be seen in these letters.

I presumptuously believe that Mr. McCullough should have done more. But, as it is, this is an excellent book and a good reintroduction to an extremely important figure in American and world history. And, it is true that understanding history provides perspective. Reading about the excesses of party politics in 1800 should reassure us that democracy has never been neat and tidy and that we certainly haven't fallen from a golden age. ■

CAS Welcomes New Affiliate Member

Sinead Josephine Kiernan
Vice President
Centre Solutions
Pembroke, Bermuda

Fellow, Institute of Actuaries

From the President

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appears, the American Academy's crisis communication plan is triggered. The first step is to get a short press release out as soon as possible. The purpose of this first step is twofold—first, to put a damper on any tendency for the media to accept the negative press as factual and therefore to quote it as such, and, second, to steer media inquiries to the Academy for further information. The initial press release is designed to be fairly hard hitting so that it will draw the desired media response. The expectation is that the first release will serve temporarily while the Academy composes a longer, more thoughtful response. The Academy's response was developed very quickly and made available late on November 21. Although the tone of the press release was a bit harsher than some of us might have preferred, it did have the desired effect, and there were no further reports covering only the S&P article.

There has been significant follow up since that initial press release. More balanced articles by Morgan Stanley and the *National Underwriter* quoted the Academy press release and **Bob Anker** (former president of both the CAS and the AAA), **Rade Musulin** (CAS External Communication Committee chair and AAA Communications Review Committee chair), and others. The Academy followed up with letters to S&P and to Morgan Stanley. Bob Anker, **Dave Hartman**, and I had a productive face-to-face visit at S&P that led to both a better understanding by S&P of the casualty actuary's role and some pointed feedback to us on how dependent S&P and the other rating agencies really are on our analyses.

The Academy was able to release its issue brief, *Actuarial Opinions in Property-Casualty Insurance*, at the NAIC winter meeting during the second week in December. The article discussing the role of the actuary in developing loss reserves, developed by the CAS Committee on Reserves, will be published over Gail Ross's and my names in the near future.

So, we have responded to the media quickly and effectively. But how well have we addressed the underlying issues that brought the attention in the first place? The CAS and the Academy have not been asleep at the switch. In addition to the issue brief mentioned above, the Casualty Practice Council of the Academy has formed a task force to address Financial Soundness and Risk Management. Within the CAS, the Committee on Reserves has formed a subcommittee specifically to address the link between under-reserving and insolvency. A working party of more than 40 members is currently compiling the existing literature on reserve ranges, with the intention of aiding practicing actuaries looking for the most up-to-date methods. The NAIC's new model law calls for disclosure of the relationship between the carried reserve and the actuary's estimate or range.

> **"We have responded to the media quickly and effectively. But how well have we addressed the underlying issues that brought the attention in the first place?"**

All of these efforts should improve our work. But I see two fundamental questions remaining for us to address as a profession in our research and practice, questions that will be critical to our credibility in the next century.

(1) Leaving aside questions on asbestos, other mass torts, and unpredictable judicial decisions, the Fitch report, I think rightly, complains that actuarial techniques, dependent principally on historical data from within the insurance industry, are least accurate when external conditions such as the overall economic climate change. Bob Anker has characterized insurance companies' data as miniature barometers of the economy. Admittedly, economists are also not the greatest predictors of the very changes that we actuaries tend to reflect only in hindsight. Where is our research on how to anticipate and reflect changing economic conditions in our pricing and reserving? What are we doing as a profession to improve the accuracy of our calculations for standard lines of insurance?

(2) Actuaries opine in the United States that reserves are reasonable. That is, they fall within a range of estimates calculated using reasonable assumptions. When results deteriorate, we are more often called upon to opine on reserves that fall well within our range of reasonable estimates but nevertheless somewhat short of our best estimate. We end up with a collection of reasonable estimates, the sum of which is not a reasonable estimate of the whole. Even when every one of its claim reserves has been set at a reasonable amount, a single insurer needs to reserve for IBNR that is not assignable to individual claims. Similarly, *the insurance industry as a whole has IBNR that may not be assignable to individual insurers.* How do we communicate this concept to our critics—regulators and rating agencies in particular—and how do we distinguish between unreasonable company estimates (parallel lousy case reserving) and truly unassignable IBNR?

I challenge all of us to respond to these questions.

For pricing actuaries—how are you changing your ratemaking calculations to be more responsive? How are you improving your ability to predict the loss ratio? Is that even part of your job? Should it be?

For reserving actuaries—how do you take economic conditions into account? How reasonable are your assumptions? How are you reacting to what the underwriters are doing and what the pricing actuaries are telling you?

For all of us—are *you* a part of the solution? ■

CAS Research Initiatives

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accessed through the Research Section of the CAS Web Site at ww.casact.org/research/research.htm. A cash prize of $100 will be awarded via random draw from among all those members submitting comments. ■

Actuaries Abroad

Actuaries Among the Leeks and Daffodils

by Kendra Felisky-Watson

Croeso! Cymru am byth! (Welcome! Wales forever!)

This year's GIRO conference was held in Cardiff's City Hall; an absolutely gorgeous homage to the scions of Victorian mining industry complete with portraits of stern Victorians. (Travel tip: Cardiff is the capital of Wales but it is also a university town, therefore, full of pubs and coffee houses as well as more staid museums and castles.)

The conference opened with a general session on operational risk and other regulatory matters. Michael Tripp and his working party updated everyone on various regulatory developments and also discussed how the approach to measuring risk should be a multidisciplinary approach. Of keen interest was the report on the working party's interviews with various companies on what risk meant to them. The working party concluded that insurers have a less developed approach to operational risk than other financial sectors like banks. They concluded that little data collection or modeling was being done so far. The working party then presented a case study and several examples of how operational risk could be modeled. What were probably new to most actuaries were the causal model (all those arrows!) and the Delphi method.

The CAS contributed a general session on hot topics from "across the pond." **Kevin Bingham** talked about what was going on with medical malpractice, **Raji Bhagavatula** discussed the latest happenings with U.S. asbestos, and **Gail Ross** talked about recent happenings with other mass torts.

Another general session was devoted to the reserving cycle called "the Cycle Survival Kit." This working party was formed in response to **Bob Conger's** presentation at the 2002 GIRO conference where he offered a graph showing the relationship between the initial and current loss projections over the last 20 years for the U.S. industry. The working party's main question was, "is there such a reserving cycle in the U.K. and, if so, what causes it, how are our reserving methods affected by it, and how can we handle it better?" The working party found clear evidence of a reserving cycle in the U.K. that led them to investigate how this might have occurred due to the mechanical use of reserving methods. They then suggested a few proposals on method refinement, particularly with regard to rating indices. This paper led to an entertaining and thought-provoking discussion.

The Clearer Communication Working Party, chaired by **Catherine Cresswell,** had surveyed a subset of actuaries by asking them for their definitions of various insurance and actuarial phrases. The questions ranged from "what does IBNR mean?" to "what is a range of reasonable estimates?" The results were very interesting, if not slightly surprising, particularly when the differences between students and over 10-years qualifieds were compared. The working party proposes to continue its study for the next year as they did not have time to get into areas like what "premium" means in a U.S. versus U.K. context. (Hint: it has to do with whether commissions and brokerage are included or not.)

David Sanders, complete with illustrative graphs and photos, presented a very entertaining final session, on "Extreme Events—or What Happened to My Pension?" While nominally a presentation on financial catastrophes, it was a great romp through such historical disasters as the "South Sea Bubble," which involved Isaac Newton, tulipmania of the 1600's in the Netherlands, and the Wall Street Crash of 1929. Even more recent calamities such as Enron, LTCM, and Equitable Life in the U.K. were dissected. The conclusion was that modern economic theory breaks down when the market does not act in a rational manner and regulation offers no protection.

Workshops were held throughout the conference on a variety of topics including the New FSA Capital Requirements, U.K. and European Asbestos, U.S. D&O, Financial Guaranty business, and the entirely useful "Practical Issues in Modelling Dependencies." The CAS's own **Doug Collins** and **Dave Powell** presented a session on "Worldwide Actuaries… Separated by a Common Set of Standards and

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CORP-Accepted Papers Posted on Web

The CAS Committee on Review of Papers has released its quarterly update of recently accepted papers. The CAS Editorial Committee will be editing these papers for inclusion in the *Proceedings of the Casualty Actuarial Society*. As of January 2, 2004, CORP has accepted the following paper:

- "The Stanard-Bühlmann Reserving Method—A Practitioner's Guide" by Sholom Feldblum.

Top Casualty Actuarial Stories of 2003

How They Ranked and Why

Rank	News Story	Actuarial Significance	# of Votes Sum	#1 or #2	Total
1	Actuarial Credibility Put to the Test: S&P Criticizes Actuaries	Actuarial credibility challenged	404	18	32
2	Industry Reserve Adequacy: Influx of Reserve Increases for Insurers and Reinsurers	Must respond to allegations of reserve inadequacy or improve reserving methods	397	18	31
3	Companies Employ Tighter Governance Standards in light of Sarbanes-Oxley	D&O pricing becomes more important	321	5	29
4	Asbestos Exposures Still Plague Insurers—No Asbestos Agreement Reached Yet	Must model effect of proposed reforms, as well as continued impact on insurers	244	7	22
5	Debate with Consumers and Regulators: The Use of Credit Scoring As A Pricing Tool	Need to show correlation between credit scoring and claim costs	234	2	24
6	String of Reinsurers Shut-Down	Opportunity for advice of actuaries to be more highly valued	233	4	22
7	Actuarial Malpractice Litigation is on the Rise	Demonstrates the increasing accountability of actuaries for the results of their employers	224	2	21
8	Medical Malpractice Crisis: Availability and Affordability Problems	Assist in evaluating impact of tort reforms and be a valued source of information to the public	221	5	20
9	International Accounting Issues—FASB & IASB Converge—Fair Value Accounting	Need to adapt to proposed new reserve guidelines	170	1	19
10	Actuarial Mutual Recognition Debate—CAS Fellows approve	International opportunities open up for CAS members	167	0	18
11	End of the Hard Insurance Market Coming Soon?	Actuarial indications should continue to underlie pricing decisions	143	1	13
12	Mergers & Acquisitions Challenges in a Mature Insurance Market—St. Paul/Travelers	Actuaries have an important role in due diligence process	123	2	12
13	Rating Agency Downgrades Continue to Outpace Upgrades	Insurers need sound financial advice that actuaries can provide	119	0	13
14	Weak Investment Environment Continues	Continued emphasis on underwriting and pricing	100	1	10
15	Mold: The Next Asbestos?	Need to develop models to project mold claims	100	0	11

Top Ten

From page 1

Here's the top ten listing for 2003:

10. Mutual Recognition Approved by CAS Fellows. This approval allows the CAS Board to give Fellowship status to members of other actuarial organizations who meet a set of rigorous requirements. This approval represents a change to the CAS Constitution and is a significant step in the globalization of the CAS.

9. Proposed Convergence of FASB and IASB in Fair Value Accounting. This story also demonstrates the influence of the international community on the work of casualty actuaries. Phase 1 of this process will only affect the definition of an insurance contract, but the proposed Phase 2 would eventually require fair value accounting, where assets and liabilities need to be valued at market value. This will challenge casualty actuaries to adjust reserving methods to incorporate the new accounting standards.

8. Continuing Medical Malpractice Crisis, Including Availability and Affordability Problems. Many states have responded to this crisis by proposing reforms to limit non-economic (pain and suffering) claims to some fixed amount. In addition, the federal government has proposed tort-

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Top Ten

From page 10

reform legislation related to medical malpractice. Casualty actuaries have provided analysis and testimony to states and Congress on the potential impact of such legislation. Respondents noted that this high-visibility topic provides an opportunity for actuaries to rise above partisanship and to be seen as a valuable source of information in this important debate.

7. Actuarial Malpractice. An actuary has been sued by the domiciliary state for his involvement in signing an Actuarial Opinion for a failed insurance company. The work of other actuaries has come under increased scrutiny, as well. Actuaries are being held more responsible in a legal setting for their work products and their impact on employers and clients. It is more important than ever that actuaries adhere to the Code of Professional Conduct and various Standards of Practice, as well as carefully document the work scope and responsibilities of the actuary and the client.

6. Large Number of Reinsurers Out of Business In 2003. This directly affects actuaries to the extent that jobs are lost. In addition, this serves as a challenge to actuaries to identify the factors that caused the downfall of these companies and to provide better information to management in the future.

5. Credit Scoring Use by Insurers in Underwriting and Rating Personal Lines of Insurance. Actuaries have a major role to play in the debate among the insurance industry, consumers, and regulators. Actuaries need to identify and explain any correlation between credit scores and insurance claim frequency/severity, and provide information that could be used to educate the public regarding this controversial issue.

4. Asbestos Claims' Continued Effects on Insurers and Corporations. National legislation was proposed that would provide for the settlement of all remaining asbestos claims from a trust. Casualty actuaries played a significant role in crafting the legislation, including testifying before Congress. Actuaries need to continue to identify methods of reserving for asbestos claims to help the insurance industry get its hands around the quantification of this liability.

3. The Influence of Sarbanes-Oxley on the Governance Standards of Insurance Companies and Corporations. Increasingly, insurance company audit committees are requesting a direct meeting and dialog with the reserving actuary, most frequently to help them understand the key risks and uncertainties in the reserves. In addition, the spotlight on corporate governance has increased the demand for Directors and Officers insurance. Casualty actuaries will continue to help properly price this product, reflecting the increased potential for claims against senior management and boards of directors.

2. The General Level of Reserve Deficiency of the Property/Casualty Industry and the Resulting Reserve Increases Taken by Insurers and Reinsurers. Despite substantial reserve increases by a number of insurers during 2003, rating agencies estimate that the nonasbestos reserve shortfall for the industry is between $30 billion and $60 billion. There was consistent concern among respondents that actuaries must be very effective in performing the core function of reserving and effectively communicating our findings, if we are to maintain credibility with the insurance industry at large.

1. Actuaries Come Under Significant Public Criticism for Perceived Poor Performance in Projecting Loss Reserves. In particular, Standard & Poor's published an article in November stating that "actuaries are signing off on reserves that turn out to be wildly inaccurate. It's an abysmal track record." This is a challenge to casualty actuaries to support the work that we have done historically, to develop more rigorous analyses of loss reserves in the future, and to improve the way that we explain reserves to non-actuaries. We hope all actuaries will respond in a way that enhances our reputations and increases the value actuaries add to the insurance industry.

The chart on page 12 summarizes the results of the survey. Fifteen points were awarded to a story which received a first place vote, down to six points awarded to a story for a tenth place vote.

We have compared the consensus top ten stories with the responses of the individual participants to determine the closest predictors of top stories and their ranks. This year's winner selected nine of the consensus top ten stories, including the number one story. In addition to being a good predictor of the consensus, this person is either very shy or technically challenged, as he or she did not enter a name! A number of participants selected eight of the consensus top ten stories, with **Dave Hartman** coming in second and **Gail Ross** third in overall scoring. This is the third year in a row that Gail has been one of the top finishers!

Thanks to all of the actuaries who participated in this survey! Your responses are not only useful for this article, but are used by the CAS in its long range planning process. ■

Discipline Committee Issues 2003 Report

The Rules of Procedure of the Discipline Committee require that the committee report annually on activities to the Board of Directors and to the membership.

During 2002 one case was referred by the Actuarial Board for Counseling and Discipline. That case was still pending at the time of the November 2002 report to the Board. Since that date, a private reprimand was decided upon by the Discipline Committee and was appealed by the subject actuary to the board. A panel of the board upheld the decision of the Discipline Committee, and a letter of reprimand was issued by the CAS president.

No new cases were referred to the Discipline Committee since November 2002. ■

Roundtable Discussion

The State of the Actuarial Employment Market—Part One

by Arthur J. Schwartz

To assess the state of the employment market for actuaries, I recently held a round-table discussion with a number of prominent recruiters. Our panel includes:

Patty Jacobsen, from D.W. Simpson & Company in Chicago, the largest actuarial search firm in the world. Patty is managing partner with her firm, which specializes solely in actuarial search within all lines of business including life, health, property/casualty, and pension. Patty can be reached at 1-800-837-8338 x229 or by e-mail at patty.jacobsen@dwsimpson.com

Margaret Resce Milkint, from Jacobson Associates in Chicago. Milkint is a partner and her firm places all types of specialties for insurers—actuaries of course, but also underwriters and claims specialists. She can be reached at 1-800-466-1578 or margaret-milkint@jacobsonexec.com

James Coleman, from Nationwide Actuarial Search in Las Vegas. His firm specializes in placing casualty actuaries only. He can be reached at 1-800-733-3536 or jim@actuary-recruiter.com

Pauline Reimer, ASA, MAAA, from Pryor Associates in New York. Named one the top 25 recruiting firms by Dun & Bradstreet, Pryor Associates has 30+ years of experience in the insurance industry (property/casualty, life, health, pension). Pauline has been director of the Actuarial Placement Division since 1986 and has a decade of her own employment experience in insurance and consulting firms. She has also been appointed to the Executive Board of Actuarial Society of Greater New York (ASNY) as vice president of Public Relations. Pauline can be reached at 1-866-6-ACTUARY or at paulinereimer@aol.com.

Schwartz*: Let's talk about salaries. What would be typical salary ranges for a) students with 1-4 exams; b) pre-Associates with 5-6 exams; c) new Associates; d) new Fellows; and e) experienced Fellows (about ten or more years beyond Fellowship)? (Editor's note: Each of the recruiters submitted a table of compensation levels that vary by number of exams and years of experience. The table below reflects the consensus of their comments.)*

Jacobsen: A brief summary of what we see would be as follows. For the entry-level students with 1 to 4 exams, with experience from 0 to four years, $42K to $79K. For near-ACAS, 5 to 6 exams, and 0.5 to 4 years, $57K-$97K. For new ACAS, with experience from 0.5 to four years, $65K-$104K. For near-FCAS, 8 to 9 exams $78K to $130K. For new FCAS $106K-$168K. For experienced FCAS, anywhere from $98K-$233K, depending on years of experience, and type of job responsibilities.

Coleman: I would generally subscribe to those numbers. Note that ranges for students can be pretty wide depending not only on number of exams, but on *how quickly they progress* through the exams. Another caveat: we sometimes see some regional employers who tend to pay somewhat below the averages noted. These organizations tend to hire people with ties to their geographical area, which will yield people who will accept pay at the lower end of the range just to be able to live in the area.

Jacobsen: I don't agree. Employers see that they have to compensate actuaries at national averages, and they will step up to the plate. If an actuary is interested in an area where the cost of living is less, then it just happens to be a plus since there may be a higher quality of life due to a lower cost of living.

Milkint: I also don't agree. Actuaries see the employment market from a national and increasingly international perspective. So employers realize that their compensation has to match national levels.

Reimer: With clients both domestic and abroad, I am observing compensation ranges of: for 1 to 3 exams with no experience, $50K to $60K. For 1 to 4 exams with some experience, $55K to $80K. For 5 to 6 exams, $70K to $95K. For new ACAS, $95K to $150K. For new FCAS, $100K to $180K. And for experienced Fellows, compensation is highly variable depending on the position's responsibilities and the caliber of the candidate. Many experienced Fellows are earning in excess of $200K, and even $500K is not uncommon.

Jacobsen: At D.W. Simpson, we have a team of recruiters dedicated to recruiting and working with entry-level candidates and entry-level positions. In addition, we have a sister company which handles out-sourced college recruiting and all salaries are reported to our Webmaster (who's an ACAS) to be plugged into our salary survey. We believe that gives a very accurate salary picture for the entry-level students.

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A Comparison of Salaries from Actuarial Recruiters
Years of Experience

Exams	0 to 1 yrs	1 to 5 yrs	5-10 yrs	10 yrs or more
1 to 2	40 - 60	42 - 74	*	*
3 to 4	48 - 70	50 - 85	65 - 100	*
Near Associates (5 to 6)	*	57 - 95	80 - 130	*
Associates	*	65 - 115	85 - 135	90 - 218+
New Fellows	*	*	95 - 180	118 - 188+
Experienced Fellows	*	*	95 - 180	100 - 400+

Spring 2004 CAS Meeting Set For The Broadmoor in Colorado Springs

by Dan Crifo

Pike's Peak and the surrounding countryside—what a wonderful setting for the Spring 2004 meeting of the CAS! Take it all in—especially the continuing education opportunities offered by the program. The meeting kicks off on Sunday, May 16, at The Broadmoor in Colorado Springs and runs through Wednesday, May 19. A world-class resort, The Broadmoor is hosting a CAS Spring meeting for the third time.

Our featured speaker will be Terry "Moose" Millard, a senior executive with Southwest Airlines. Believing that love and fun are required to live a fulfilling life and reach maximum human potential, Mr. Millard uses his passionate style to convince people to take action—to make a difference—to push the envelope of performance. In 1990, he began sharing his experiences and research as a seminar leader, consultant, and public speaker. Mr. Millard speaks about building and maintaining high performance corporate cultures, nurturing gutsy leadership, and dealing with adversity through "Realistic Optimism."

Four general sessions will delve into fundamental areas of interest to casualty actuaries like reserve inadequacy impacts, privacy of data, a global framework for insurer solvency assessment, and fair value accounting. Papers on generalized linear modeling, submitted in response to a call for papers, will be presented in concurrent sessions. Other concurrent sessions will cover earnings management and the post Sarbanes-Oxley world, actuaries in nontraditional roles, workers compensation developments, rating based on the vehicle (liability coverages as well

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Photo courtesy of The Broadmoor

2004 Discussion Paper Program Centers on GLMs

Papers To Be Presented At CAS Spring Meeting

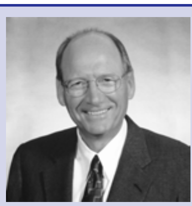
Generalized Linear Models (GLMs), statistical tools generating increasing interest among casualty actuaries, are the focus of the 2004 CAS *Discussion Paper Program*. Authors will present papers written for the program during sessions at the CAS Spring Meeting, scheduled for May 16-19, 2004 at The Broadmoor in Colorado Springs, Colorado.

The 2004 *Discussion Paper Program* concentrates on the practical application of GLM, with papers touching on a wide range of topics.

"We are pleased with the quality of the papers submitted, which represent the work of some of the leading experts in the field. We expect the Spring Meeting presentations to benefit GLM practitioners at all experience levels," commented **Roger Bovard**, Chairperson of the 2004 Discussion Paper Program.

A complete list of papers to be presented, with their abstracts, will be posted on the CAS Web Site with other 2004 CAS Spring Meeting information as soon as it is available.

The Michelbacher Prize, in the amount of $1,500, will be awarded to the author of the best paper and presented at the 2004 CAS Spring Meeting. Papers will be published in the *Discussion Paper Program* book and on the CAS Web Site before the meeting. ■



Featured Spring Meeting Speaker:
Terry "Moose" Millard

Earning his pilot license at age 15, Terry "Moose" Millard developed a solid work ethic early on. He served in the U.S. Air Force in several leadership and command positions, including commander of the first F-16C fighter squadron and leadership and management evaluator. Millard joined Southwest Airlines in 1988, continuing as pilot while also immersed in corporate culture issues at every level of the company.

Millard uses his passionate style to motivate people to push the envelope of building and maintaining high performance corporate cultures, nurturing gutsy leadership, and dealing with adversity.

Roundtable Discussion

From page 12

Coleman: Some entry-level positions are being offered in the low 40's range.

Reimer: We see that too, however if there is a bonus, that can lift compensation for entry-level positions up to the 50's.

Milkint: I agree with Patty and Pauline. We definitely see an escalation of compensation levels for new Associates and new Fellows. Often for new Fellows, this is accompanied by executive level management responsibilities or new business responsibilities. For experienced Fellows, we often see compensation in the $150K-$250K range varying by level of responsibility.

Coleman: In general, the lower pay levels impact people with a limited breadth of experience. This would be seen where they may have reserving but limited pricing experience, or pricing personal lines experience only with no commercial lines or reserving experience. Where we see a good strong general experience matched with exams to years experience, we see higher compensation ranges. This ties back with strong communications skills, business understanding, and technical skills, all bringing added value that the individual can demonstrate in his job function. In general, at present, we see a higher demand for commercial lines and finite reinsurance that drives slightly higher pay over personal lines. This will shift back, over time, as supply and demand seek equilibrium.

***Schwartz**: How active is the job market for each of these categories? How has the current slowdown in employment in the economy generally, affected employment opportunities for actuaries? Are there any bright spots, either now or on the horizon?*

Reimer: One of my roles as a vice president of the Actuarial Society of Greater New York (ASNY) has been chairing an Actuarial Career Day. One notable trend is an increase in the trainee pool, especially of second- or third-career applicants, for example, those displaced by the dot.com boom who are seeking a more stable career. While a decrease in the number of applicants sitting for Exam 1 was expected due to the syllabus changes in 2000, in fact the exact opposite held true. From 2000 to 2003 we have seen a 102 percent increase in candidates taking Exam 1 compared to an 18 percent increase from 1997 to 2000. The restructuring on Wall Street and the economic doldrums in information technology (IT) are major factors. We've also seen a substantial increase in students sitting for exams from countries outside the United States. As many as one third of the students taking Exam 1 are coming from several Asian countries, particularly China. In fact, the largest exam centers in the world, right after New York City, are Beijing, China and Seoul, Korea. *(Editors note: The Hong Kong, China testing center may have had a temporarily reduced number of candidates, due to the SARS epidemic.)*

> **"Strong demand [for actuaries] is more true on the P&C side rather than the life side."**
>
> *—Pauline Reimer*

While opportunities seem to be diminishing for life and pension actuaries, opportunities are abundant for P&C actuaries, especially in reinsurance. Since 9/11 there have been several new reinsurers entering the market (which has offset the loss in jobs from reinsurers that have merged or closed operations). The new reinsurers have fueled a tremendous growth in the number of reinsurance positions and related compensation levels.

Coleman: The job market is very active in all property & casualty areas. The mix of opportunities we see is roughly 20 percent for those with 1 to 3 exams, 55 percent for 4 to 7 exams, and 25 percent for Fellows and near Fellows. The current economic slowdown has impacted largely through higher salary ranges, smaller increases in offers, and protracted hiring cycles (the time from phone interview to offer).

Milkint: Specialty insurers have been especially keen. Between 2000 and 2003 many outside the insurance field saw insurance as a bright spot. Employment in the insurance industry has continued to be strong while other parts of the economy have careened off the tracks. We do not see any slow down—not even a pause—in the demand for actuaries.

Reimer: That strong demand is more true on the P&C side rather than the life side.

Milkint: P&C is definitely more active. Life and health is coming back somewhat.

Jacobsen: The health actuarial side is coming back stronger than it has been in the past two years. Life actuarial has been soft but has started to pick up. On the P&C side the market has remained strong. If an actuary loses a position they will, in general, be able to find a new position quickly. More actuaries are moving into roles in claims and underwriting.

Sarbanes Oxley (SOX) has had a "full employment for actuaries" effect. Actuaries are seen as professionals with outstanding overall enterprise risk management skills that will help lead to better controls over the management of the business. Since the CFO and CEO have to attest to the overall financial health of a company, I believe there will be greater empathy with the appointed actuary.

Milkint: For the actuary this is a role that shifts their position right into the mainstream of the company's executive staff. CFOs are asking appointed actuaries to review their checks and controls on all financial matters. Boards of directors will look to the appointed actuary for guidance and to be sure that all is in compliance with SOX. The appointed actuary may be setting up checks and controls, and making the whole financial reporting system work. Boards of directors look to you, the actuary, as a professional with a reputation for honesty and integrity. And for compliance purposes, the board will often pass things by an actuary as a final test or a litmus test.

Reimer: SOX has also had a signifi-

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Latest Research

The Risk Premium Project Releases Empirical Results

by Louise A. Francis

The Risk Premium Project (RPP) is a team of researchers organized in response to a request for proposal distributed by the Committee on the Theory of Risk to support research on valuing property-liability risks. Members of the team are Robert Butsic, David Cummins, Richard Derrig and Richard Phillips. The first two phases of the project, available on the CAS Web Site, encompassed a thorough review of and synthesis of the literature with particular attention to literature on profit loads, risk loads, and risk-adjusted discount rates. In the last phase of the project original research was undertaken on one specific approach used to value by-line property-liability exposures. The research focused on full information and sumbetas (sum of betas from the current and one lagged return), valuation approaches based on recently improved methods for estimating the Capital Asset Pricing Model (CAPM) equity betas. Note that numerous other methods are in common use by actuaries and no one approach was viewed superior to the others when awarding the research project. Some of the other methods of valuation are based on ruin theory, utility theory, and transformed distributions (some of the methods used to compute risk/profit loads are found in the white paper on "Fair Value of Liabilities," which is on the CAS Web Site).

CAPM may be familiar to those involved in rate filings, as it is often one of the key financial theories used in the regulation of insurance companies to determine a "fair rate of return." However, the new methods of CAPM estimation used in this study may not be widely known to actuaries. The use of CAPM is controversial among actuaries, as it has been used in the past to "prove" that insurance companies are exposed only to undiversifiable underwriting risk and therefore merit little or no return above that supplied by the risk-free rate of return. Usually the "proof" involves demonstrating that insurance industry underwriting profit betas are low, or in some cases negative. In his paper, "Underwriting Betas–The Shadow of Ghosts" (*PCAS* 1994), **Thomas Kozik** gives a good discussion of the shortcomings encountered in practice when CAPM is used to compute risk/profit loads in insurance. Under some idealized financial assumptions, including frictionless markets, CAPM states that

$$\tilde{r}_c = r_f + ß_c(\tilde{r}_M - \tilde{r}_f)$$

where

$\tilde{r}_c$ is the company's expected return
$\tilde{r}_f$ is the risk-free return for the chosen investment horizon
$\tilde{r}_M$ is the expected return on the entire market of all investments
$ß_c$ is the company's Beta, based on its covariation with market returns
$(\tilde{r}_M - \tilde{r}_f)$ is the market risk premium

Instead of $\tilde{r}_c$, a single company's return, the return for an industry, such as the property and casualty insurance industry, $\tilde{r}_{pc}$ can be computed from the full information CAPM model. In capital budgeting and regulatory applications, the result of a CAPM calculation is sometimes used as a cost of equity capital (the return required by shareholders in order to induce them to invest in the company), which then becomes an input for other calculations such as an internal rate of return pricing methodology or a risk adjusted discount rate. It should be noted that as traditionally applied, the simple one-factor CAPM incorporates a return only for systematic risk (that due to covariance of an entity's returns with the market). That covariance is measured by beta. Thus, from the simple CAPM perspective, beta is the only relevant factor determining a company's required return on equity, and therefore its cost of equity.

The Risk Premium Project team incorporated a number of the most recent research developments into a model based on CAPM but with refinements to address some of the limitations of CAPM. One of these refinements is the Fama-French three-factor model. In 1992 two leading researchers in academic finance, Eugene Fama and Kenneth French, created a storm in the finance community when they published a paper suggesting that beta was not the only relevant factor for predicting a company's return. The authors' research indicated that two factors other than beta were significant in explaining returns. These two factors are a size factor (smaller companies tend to have higher returns) and a distress factor (companies with high book-to-market ratios tend to have higher returns). The three-factor Fama-French model incorporates these two additional factors. The Risk Premium Project's results indicate that use of the three-factor model provides clarification of the single factor results and produces higher costs of equity estimates for property-casualty insurance companies.

The three-factor Fama-French model is one of the better known of recent developments in the CAPM literature. However, other important developments were identified and used by the Risk Premium Project. One of these is the sumbeta approach developed at Ibbotson Associates. They found that the returns on smaller stocks are influenced by less frequent trading and low information flow and as such are related not only to the current return on the market but to past returns on the market. Using sumbeta tends to raise the overall cost of equity for smaller companies, explaining some of the size effect.

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New Fellows and Associates Honored

New Fellows, first row, from left: Thomas Joseph Chisholm Nathalie Charbonneau, Gregory L. Dunn, Dana R. Frantz, **CAS President Gail M. Ross**, Julie A. Jordan, Ali Ishaq, David W. Dahlen, Xiangfei Zeng, Stevan S. Baloski. **Second row, from left:** Christopher Wayne Hurst, Michelle L. Busch, Scott H. Drab, Mark Richard Desrochers, Ruchira Dutta, Darci Z. Noonan, Erich A. Brandt, Rick D. Beam, Douglas H. Kemppainen. **Third row, from left:** Nebojsa Bojer, Jacqueline Lewis Gronski, Denise M. Ambrogio, Ramakrishna Duvvuri, Jonathan P. Berenbom, Nathan L. Bluhm, Tony Francis Bloemer, Angela D. Burgess.

New Fellows, first row, from left: Christopher P. DiMartino, Daniel R. Kamen, Eric J. Hornick, **CAS President Gail M. Ross**, Wai-Yip Chow, Shanjing Li, Jeremy N. Scharnick, Kevin L. Anderson. **Second row, from left:** Stacey M. Kidd, Andrew Samuel Golfin, Claude B. Bunick, Aaron T. Cushing, Michelle L. Rockafellow, Stephen P. Marsden, Michael R. Rozema, Jeffery R. Adcock, Karen E. Myers. **Third row, from left:** Allen J. Hope, Paul A. Vendetti, Erin Hye-Sook Kang, Stephen E. Lehecka, Warren T. Printz, Jeff A. Kluck, Larry J. Seymour, Jason A. Lauterbach.

New Fellows, first row, from left: Michelle L. Sheppard, Jennifer L. Caulder, Silvia J. Bach, **CAS President Gail M. Ross**, Wei Hua Su, Scott G. Sobel, Guo Harrison, Michael Thomas Patterson. **Second row, from left:** Vladimir Shander, Ethan Charles Mowry, Karen E. Watson, Khanh K. Nguyen, Tracie L. Pencak, Christopher David Goodwin, Jason M. Nonis, Stephanie C. Young, Kristi Irene Carpine-Taber, Gerard J. Palisi, Lianmin Zhou. **Third row, from left:** Hans Heldner, Thomas Schneider, Mark Richard Strona, John E. Noble, John J. Karwath, Michael Douglas Nielsen, Larry Xu Zhang, William Dwane Rader Jr.

New Fellows, first row, from left: Stephen James Talley, Laura Beth Sachs, Deborah Herman Ardern, **CAS President Gail M. Ross**, Marie-Eve J. Vesel, Jason K. Machtinger, Lisa Liqin Sun, Sharon L. Sowka. **Second row, from left:** Kevin Thomas Peterson, Patrick Barbeau, Isabelle Girard, Karine St-Onge, Isabelle Gingras, Isabelle Perron, Robert A. Grocock, Brian P. Rucci, Anthony G. Martella, Jack Barnett, Andrew M. Lloyd, Scott I. Rosenthal, James E. Calton. **Third row, from left:** Richard Jason Cook, Jason E. Berkey, Sylvain Perrier, Cameron A. Cook, Philip M. Imm, Robert C. Roddy, Douglas E. Smith, Michael E. Mielzynski.

At The 2003 CAS Annual Meeting

New Associates, first row, from left: Susan J. Forray, Malgorzata Timberg, Philip A. Clancey Jr., **CAS President Gail M. Ross**, Lien K. Tu-Chalmers, Ju-Young Suh, Patrick Beaulieu, Paul D. Wilbert. **Second row, from left:** Matthew B. Feldman, Jin Shao, Jean-François Tremblay, Jeffery A. Dvinoff, William C. Reddington, James M. Smieszkal, Faisal O. Hamid, Susan B. Van Horn, Robert D. Harrington, Dovid C. Tkatch, James J. Konstanty. **Third row, from left:** Chris M. Bilski, Robert B. McCleish, Eric A. Hatch, James J. Leonard, Kevin K. Vesel, Raymond J. Kluesner, James C. Murphy, Timothy C. Mosler.

New Associates, first row, from left: Laura T. Sprouse, Lauri A. Gordon, Jonas F. Thisner, **CAS President Gail M. Ross**, Eva M. Paxhia, Stacie R.W. Grindstaff, Willie L. Davis, ZhenZhen Lai. **Second row, from left:** Keith Curley, Melissa A. Ogden, David A. Traugott, Richard R. Crabb, Richard S. Crandall, Joseph S. Highbarger, Heather D. Lake, Anne Marie Klein-Lee, Robert W. Geist. **Third row, from left:** Gavin X. Lienemann, Yves Charbonneau, William J. Gerhardt, Melissa J. Appenzeller, Katheryn E. Herzog, Hooi Lee Lai, Jason C. Harland, Kevin K.W. Chan.

New Associates, first row, from left: Fernando Alberto Alvarado, Jessica L. Elsinger, Michelle S. Raeihle, John T. Maher, **CAS President Gail M. Ross**, Tomer Eilam, Stuart C. Rowe, Keith Jeremy Sunvold, Kirk D. Bitu. **Second row, from left:** Erik J. Steuernagel, Kelly K. Cusick, Simon Guenette, Christine Cadieux, Victoria K. Imperato, David A. Gelberg, Jonathan K. Yu, Garcy C. Wang, Peter M. Shelley, Jacqueline Lee Neal. **Third row, from left:** Michael D. Sowka, Laurence R. McClure, Scott R. Hurt, Micah Grant Woolstenhulme, Nicki C. Austin, Jennifer Graunas, Anh Tu Le, Steven T. Knight. **Fourth row, from left:** Brian O. Haaseth, Camilo Mohipp, Yi Zhang, Trevor C. Handley, Ryan Yin-kei Ho, Thomas Marie Cordier, Hazel Joynson Luckey, Jonathan L. Ankney, Steven Manilov.

New Fellows not pictured: Frank J. Bilotti, Linda Jean Bjork, Tara E. Bush, William Brent Carr, Hao Chai, Patricia A. DeoCampo Vuong, Natasha C. Gonzalez, Donald B. Grimm, James Christopher Guszcza, David Lee Handschke, Tina Tuyet Huynh, Henry Joseph Konstanty, Charles B. Kullman, Thomas P. Langer, Jenn Y. Lian, Jing Liu, Kee Heng Ng, Mitchell S. Pollack, Rick C.H. Tzeng, Jennifer L. Vadney, Richard Alan Van Dyke, Robert, S. Weishaar, Joseph C. Wenc, Linda Yang.

New Associates not pictured: Brian C. Alvers, Thomas C. Bates, Matthew E. Butler, Jason T. Clarke, Amy L. DeHart, Peter L. Forrester, Gregory Evan Gilbert, John S. Giles, William G. Golush, Kimberly Baker Hand, Young Y. Kim, Bradley S. Kove, Hayden Anthony Lewis, James P. McCoy, Richard U. Newell, Janel M. Sinacori, Christine Seung Steer, Esperanza Stephens, Liana St. Laurent, Dominic A. Tocci, Hanny C. Wai, Andrew F. Yashar.

cant impact on consulting actuaries. In general, under SOX, products and services provided by actuaries in accounting firms may not overlap with those products and services that are being opined on by the same firm. Additionally, clients' audit committees are now required to pre-approve budgets for consulting services provided by the auditor. Therefore, consultants must continually monitor their services to stay within the pre-approved guidelines.

Jacobsen: At the recent CLRS in Chicago, SOX was an extremely hot topic. In one of the sessions I attended, it was stated that the actuaries can do the work and advise on SOX but cannot sign off. Only the CEO, the CFO, or the appointed actuary can sign off on the financial controls and statements.

Milkint: The silver lining of Sarbanes Oxley is that we, as recruiters, all knew the capabilities of the actuary. Now what would have been seen as an actuary in a nontraditional role is becoming a role absolutely central to the enterprise's health and well-being. Actuaries are now being looked to for measurement towards goals and performance. The role of the actuary is being broadened and today actuaries are taking their place at the leadership table in increasing numbers.

Coleman: There are more instances of actuaries being brought into the annual business planning cycle from the start of that process. Actuaries are also instrumental in quarterly and monthly forecasts where they work with the finance people to coordinate GAAP and statutory reporting. It's a definite role expansion for actuaries.

Milkint: We see more activity like this in personal lines.

Coleman: On another topic, the hiring cycle used to be around 60 days, now it's converging on 90 days. There's increased candidate competition, and companies are taking the time to evaluate candidates more closely, and to secure agreement at all appropriate management levels prior to extending offers.

Jacobsen: The hiring managers though are often overwhelmed by their workloads and therefore it's taking longer. Also, there tend to be more steps in the hiring process, but also more courting is needed by the companies to attract the candidates.

Milkint: Candidates are coming under a higher level of scrutiny. More employers are asking for background checks. We live in a post-Enron world. Employers do not want to make mistakes. So there are many more checks.

Reimer: More employers now require extensive background checks. This can include a criminal check and a credit check. One reason for the credit check is that employers eschew candidates with personal bankruptcy filings.

Jacobsen: If there's a filing for bankruptcy, that's a negative for that candidate because the candidate is seen as being financially irresponsible and the company views the person as a risk. Everyone (especially if you work at an accounting firm) needs to have a clean background.

> **We live in a post-Enron world. Employers do not want to make mistakes. Employers now require extensive background checks.**
> *—Margaret Milkint*

Coleman: If an actuary is convicted of a felony or other significant crime, his or her actuarial career will be very limited looking forward, as a result. Companies view such circumstances as potential exposure that they are usually unwilling to incur.

Reimer: More employers are now requiring a drug test.

Milkint: More employers are now requiring psychological assessments. Sometimes these are online, sometimes face-to-face with a psychologist. These are increasingly required even for positions with mid-level management responsibilities.

***Schwartz**: What opportunities are there for retired actuaries, part-time actuaries, and for telecommuting actuaries? Are opportunities in any of these three areas growing or declining and why?*

Coleman: There are essentially three options for retired actuaries to consider. In the first, the actuary retires and leaves the profession totally—in fact, retires. They prefer to spend their time with their family or to pursue other personal choices. Secondly, the actuary retires but transitions into consulting for their former employer, and maybe takes on some small external projects. Third, the actuary retires and opens a competitive consulting practice. These are often one-person shops. They may already know their clients with whom they may have built strong personal relationships over many years.

Reimer: For part-timers, we see opportunities in reinsurance in helping with 1/1 renewals, so they may be hired on a part-time or temporary basis in the 4th quarter. Also, some insurers need help with their year-end Annual Statement reporting work.

Coleman: In part-time positions, we most often see credentialed women who are starting a family. However the number of opportunities we see like this is very small, well below one percent.

Jacobsen: We also do not see many opportunities for part-time positions. When it does occur it's usually where a person has built a reputation with a company and wants to work from home. Rarely do we get requests to look for a part-time position from an employer.

Coleman: Part-time work may offer an acceptable transition to a reduced workload toward retirement or family matters. However opportunities are very limited.

Milkint: Our company has created a new division to deal with interim (part-time) staffing. It's the fastest growing division at Jacobson Associates. We think it makes the workplace more interesting and allows employees more flexibility. A lot of actuaries could retire at say 55, but they have a great deal of excellent experience. When you bring in someone like this on a part-time basis, they can be seen as a "learned statesman" who can offer prac-

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Nonactuarial Pursuits of Casualty Actuaries

It's All in the Numbers

by Marty Adler

How would you like to have the best seat in the house at your favorite sporting event and get paid a small stipend to perform a task you love? That has been the good fortune of one of our Fellows for the past 22 years, ever since he was a senior in high school. It helped to know Jiggs McDonald, the television announcer for the New York Islanders at that time. Our Fellow convinced Jiggs that he could add a lot to the telecasts by feeding him statistics about the team and the game.

He was only eight years old when the Islanders were formed and immediately started following them avidly. When he became statistician for the telecasts, the team was in the midst of a run of four straight Stanley Cups. "Riding in the Stanley Cup Parades, touching the Stanley Cup. What a thrill for a high school kid!"

He became a broadcaster at Union College in Schenectady, New York. He was "The Voice of The Dutchmen" for football and hockey, called three National Championship games, and was the voice of the "Final Four" when Union hosted it in 1985.

College, however, did not interrupt his service as statistician for Islanders home telecasts. He somehow found time to drive home for a number of games. One time he drove four hours to Montreal for an Islander game the day before his parents were flying him home for his birthday. His folks were quite shocked when his uncle heard Jiggs name him on the air.

"Howie [Rose] frequently authenticates the statistics by saying, 'We know this is right because he is an actuary.'"

Over the years, he has met many of hockey's greatest names, including those he rooted for and against as a youngster. "I had a funny encounter with Bobby Clarke, the legendary Philadelphia Flyer (now their general manager), in the crowded Coliseum press box one evening. I backed up into

Photo courtesy of Eric J. Horick.

Eric Hornick (left) with sports announcer Howie Rose.

someone and knocked him a bit off-balance. When I turned to apologize, a sheepish smile came over my face as I said to Clarke, 'Fifteen years ago I would have given anything to do that.' He shook my hand and said simply, 'Fifteen years ago I would have hit you back.'"

In the broadcast booth he supplies the statistics of the game such as shots on goal. But he goes well beyond that with observations such as, "This will be the first time since 1989-90 that the Islanders have won seven straight home games." Jiggs, a Hockey Hall of Fame Broadcaster who now calls the games for the Florida Panthers, says our Fellow dazzled him with some of the most unusual statistics. Jiggs joked that our Fellow fed him off the wall things such as the Islanders' 7-1-0 record when a

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Roundtable Discussion

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tical know-how. On a part-time position, some organizations are looking for someone to work 20 to 25 hours a week. Many organizations are more open than ever to a telecommuting option. Telecommuting greatly benefits new parents.

Reimer: Over the past ten years, I have not seen much of an increase in telecommuting within the insurance industry. There are usually two occasions when this commonly does occur: first, when there's the birth of a new child; second, when there's a relocation necessitated by a spouse's job. Sometimes we'll see a situation where the organization relocates but the employee, often for personal reasons, cannot easily do so and so the company offers its current employees an opportunity to telecommute in an effort to retain those individuals in its employ.

Jacobsen: It helps if you are already an employee and if the organization values your work and knows your abilities. Then, in general, they will accommodate. But right off the bat telecommuting positions are rare.

Milkint: Yes, it helps if they know who you are. We see this often in underwriting and claims positions as well as actuarial.

Reimer: Also, consulting often involves travel, possibly from one-third to one-half of one's time. Thus a consulting firm is more likely to accommodate a telecommuting option.

Coleman: Telecommuting is offered on a limited basis by larger, multinational companies or where the work lends itself to low personal interaction with team members. This may also be an option with difficult-to-fill positions. Again, largely driven by the level of face-to-face interaction needed in the position.

Schwartz*: Thank you all for a great discussion!*

(Editor's Note: Part Two of the Roundtable Discussion will continue in the May issue starting with a topic that's been increasingly in the news: employers' EEO policies.) ■

25 Years Ago in *The Actuarial Review*

by Walter C. Wright

Count on Norm Bennett

Finding interesting material in old issues of the AR *is sometimes a challenge. Fortunately, many of the old issues contain a "Maunderings" column by Norman J. Bennett…the columns always have good material. Today's readers may be amused by Norm's New Year Resolutions from 1979.*

This year I resolve to make an honest attempt to read a standard **Charlie Hewitt** paper thoroughly. I'll check the integrations, test the limits, and hunt for that tiny invisible flaw. My reward will come at some meeting when he is steeled for my usual banalities and I come on casually with, "Charlie, I noticed that the latent roots of your multinormal dispersion matrix are…"

I resolve to get someone, anyone, interested in organizing a search for the negative binomial. The lifeblood of a quarter generation of our brightest actuaries was shed in capturing and taming this endangered species and now it's disappeared entirely. Not so long ago it was déclassé for the modish actuary not to have at least two or three moments of this little distribution on his person at all times. Now it's gone. Even **Les Dropkin g**ave me a blank stare when I asked about it.

I most firmly resolve for my own reputation to remember that when a young actuary refers to the "good old days," she means calendar year 1974.

I resolve to stay out of the puzzle business and leave it to the experts. Actually, I understand that this resolution has already been made for me by the puzzle editor.

I resolve to do my best to persuade Hiram Tanaka and Karen Kashiwabara of the Hawaii Insurance Department that my on-the-scene presence is necessary to explain to them some obscure point in our ratemaking methods. Naturally I would hope that the point would not be too obscure and that the question would arise during the colder months in the Northeast. ■

Tales of Examinations—Tell Us Your Stories

Do you have a humorous story or anecdote about taking the CAS exams? This can cover such areas as studying for exams, taking seminars (including instructors and fellow students), things that happened on the day of the exam, or exam study partners. If you do (we ***know*** you do!), please send your story to Arthur J. Schwartz at aschwart@ncdoi.com. Arthur will compile your stories (taking care to protect the innocent!) and publish them, for our mutual enjoyment, in a future issue of *The Actuarial Review*. ■

Nonactuarial Pursuits

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public address announcement stated that a car in the parking lot had been left with the lights on and the motor running.

Our Fellow has worked with Howie Rose for the past nine seasons, currently on Fox Sports New York. According to Howie, it didn't take long to reach that "zone" where they can read each other's mind about what piece of information is needed and when. "Quite simply, he is the best at what he does." In a recent game, the Islanders broke a long scoreless drought against New Jersey, scoring their first goal against the Devils. Immediately, our Fellow had the information that it was the Islanders' first goal against New Jersey in 201:44, sixteen seconds shy of the club record. Howie frequently authenticates the statistics by saying, "We know this is right because he is an actuary."

In addition to his television duties, our Fellow is a reliable source for several of the teams' beat writers and he writes two regular columns for newyorkislanders.com, the team's official Web site. "This Week on the Isle" looks ahead to the coming games. "The Skinny" is prepared after each game and expands on a segment that was featured on telecasts in the early 1990's. Although he has not been on the air during games since college, he was recently interviewed on the radio to promote his columns.

Before that he wrote to various e-mail groups from his personal e-mail address "forever 1940@yahoo.com." It seems that the Islander fans had serenaded the New York Rangers and their fans with the cry "19-40," reflecting the year of the Rangers' last Stanley Cup. However, the Rangers won the Cup in 1994. Islander fans will tell you that that Cup was "bought" and not "won," thus the derivation of the e-mail address.

Eric Hornick's day job is vice president of Centre Insurance Company. He

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Ethical Issues Forum

How Low Can You Go?

Editor's Note: This article is part of a series written by members of the CAS Committee on Professionalism Education (COPE) and the Actuarial Board of Counseling and Discipline (ABCD). The opinions expressed by readers and authors are for discussion purposes only and should not be used to prejudge the disposition of any actual case or modify published professional standards as they may apply in real-life situations.

ABC Insurance Company (ABC) is a publicly traded stock company domiciled in the State of Uncertainty. ABC plans to raise additional capital over the course of the next year to expand its operations into other states and lines of business. Sue Smith, FCAS, MAAA, is Chief Actuary of ABC. Sue has completed a projection of the required loss and loss adjustment expense (LAE) reserve for ABC as of December 31, 2003. Sue's best estimate of the required loss and LAE reserve is $10.0 million, with a reasonable range of $9.6 million to $11.0 million.

Because the president of ABC believes that "actuaries are always conservative" and would like to avoid showing an underwriting loss, a reserve of $9.7 million is recorded on ABC's annual statement. A reserve of $9.7 million produces a zero underwriting profit. The $9.7 million is designated as management's best estimate.

Steve Signer, FCAS, MAAA, is a consulting actuary who has been appointed by ABC's Board of Directors to provide an actuarial opinion on ABC's loss and LAE reserve as of December 31, 2003. Steve completes his analysis and estimates a best estimate reserve of $10.2 million, with a reasonable range of $9.7 million to $11.2 million. After Steve's analysis is completed but before the Statement of Actuarial Opinion (SAO) is issued, Sue shares her reserve analysis with Steve and they both express satisfaction that their estimates are so close.

Should Steve issue a "clean" opinion in this case?

Yes

ASOP No. 36 states that "*(w)hen the stated reserve amount is within the actuary's range of reasonable reserve estimates, the actuary should issue a statement of actuarial opinion that the stated reserve amount makes a reasonable provision for the liabilities associated with the specified reserve*."

Since $9.7 million is within Steve's reasonable range, a "clean" opinion is warranted.

No

While Steve would not technically be in violation of ASOP No. 36, it is problematic to issue a clean opinion related to a reserve that is below both his best estimate and the best estimate of the chief actuary. Issuing a clean opinion related to a reserve that both credentialed actuaries expect to be deficient does not fulfill the profession's responsibility to the public as defined in Precept 1 of the CAS Code of Professional Conduct:

"An Actuary shall act honestly, with integrity and competence, and in a manner to fulfill the profession's responsibility to the public and to uphold the reputation of the actuarial profession." ■

CAS Awards Woodward-Fondiller and Dorweiler Prizes

David L. Ruhm and **Gary G. Venter** were awarded top CAS prizes for papers written for the *Proceedings of the Casualty Actuarial Society*.

A 1999 Fellow, Ruhm won the 2003 Woodward-Fondiller Prize for his paper, "Distribution-Based Pricing Formulas Are Not Arbitrage-Free," which will be published in the 2003 *Proceedings*. The Woodward-Fondiller Prize commemorates the work of Joseph H. Woodward and Richard Fondiller and is intended to stimulate original thinking and research. The prize is given to the best eligible paper each year submitted by an Associate or Fellow who has attained his or her designation within the last five years.

The 2003 Dorweiler Prize marks the third win for Venter, who also won the award in 1986 and 1999. Venter's paper, "Tails of Copulas," is published in the 2002 *Proceedings*.

The two awards were announced at the 2003 CAS Annual Meeting held last November in New Orleans. Ruhm and Venter's papers are also available in the "Publications" section of the CAS Web site. ■

Actuaries Abroad

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Practices" where they compared Actuarial Standards of Practice, Loss Reserve Opinions, and Accounting Standards in different countries. But way more entertainingly, they included a look at the top ten reasons actuaries on either side of the Atlantic are challenged to understand one another. These included such gems as "football is played with what shape of ball?" and commenting that the letter "u" is not supposed to be used at every conceivable opportunity. My personal "favorite" was "what's the point of playing cricket for five days if nobody wins?" They ended up with "A working party sounds like much more fun than a committee."

As usual, all the papers can be found on the Institute of Actuaries Web Site, www.actuaries.org.uk.

Working Parties are being set up for next year's GIRO on such topics as "Assessing an Insurer's Financial Strength," Reinsurance Pricing, and U.K. Asbestos. Again, a list of proposed working parties can be found on the Web site. I am sure that any CAS members that wish to participate or otherwise contribute would be very welcome.

Of course, the social side of such a large gathering played a substantial part of the proceedings. The fire alarm going off at 5:30 a.m. meant some of the actuaries were actually forced to leave the bar!

Next year's conference in Killarney, Ireland looks to be as informative and entertaining as this year's.

Erin go bragh! ■

Latest Research

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A third development allows analysts to compute line of business betas. Previously, if one wanted to compute a beta for a line of business, say workers compensation, one had to assemble a collection of stock companies that write primarily (and preferably only) workers compensation. Needless to say, few such companies exist and for most lines of business no companies exist. In fact, one of the challenges of estimating a beta for the property/casualty industry is that most companies that sell property/casualty insurance also sell other products, i.e., they are not a pure play on the property/casualty industry. The "full-information" method addresses this issue. The method combines accounting data about the amount of business a company writes in various lines of business (as a proxy for allocated project equity) with financial market return data to derive line-specific betas. Costs of capital were computed using straight averages and market value weighted averages. The value-weighted average can be interpreted as the result for the entire industry, while the straight average is the result for the average insurer. The RPP results based on market-weighted averages indicated that

- the cost of capital was higher for short-tail lines than long tail-lines;
- the cost of capital was higher for commercial lines;
- the cost of capital was higher for workers compensation insurance than automobile insurance, but the difference was not statistically significant;
- the Fama-French estimates show the significant influence of size on the by-line weighted average results.

The first result is unexpected, as long-tailed lines are generally considered to be riskier than short-tailed lines. The authors speculate that the companies that write long-tailed lines may have a "natural hedge" against interest rate risk as their runoff liabilities tend to move in the same direction as interest rates, possibly leading to lower costs of capital. Also, short-tailed lines are more susceptible to catastrophe losses such as hurricanes and earthquakes. It should also be noted that this research represents a first attempt to evaluate differential costs of capital by line and results may have been influenced by the specific time period (1996–2000) of the data.

The team's research has been incorporated into an academic paper "Estimating the Cost of Equity Capital for Property-Liability Insurers," which has been submitted to the *Journal of Risk and Insurance*. Results from the team's research will also be presented at the Ratemaking Seminar in March in Philadelphia and the paper will be published in the 2004 Winter *Forum*. ■

Nonactuarial Pursuits

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is also the current secretary/treasurer of the Casualty Actuaries of Greater New York, a CAS Regional Affiliate. He has worked in the profession for fifteen years, following a short stay at the National Hockey League office in New York City. Before hiring him, Centre's president, also an actuary, was concerned about Hornick's nonactuarial activities, but was convinced to hire him. In an interesting coincidence, Centre had been founded in 1988 by Steven Gluckstern, who briefly owned the Islanders from February 1998 to April 2000. Gluckstern had sold Centre to the Zurich Group but was still on the Zurich Board when Eric joined Centre. ■

D.W. Simpson Makes CAS Trust Donation

The Trustees for the CAS Trust (CAST) are pleased to announce that D.W. Simpson & Company has donated $10,000 to the Trust on November 4, 2003. This brings the total contribution of the D.W. Simpson & Company to the Trust to $80,000. The CAST was established in 1979 as a nonprofit 501(c)(3) organization to afford members and others an income tax deduction for contributions of funds to be used for scientific, literary, research, or educational purposes. The CAS is grateful to the D.W. Simpson & Company and its employees for their contribution to the advancement of actuarial science. ■

CAS Trust Scholarships Open For 2004–05

The CAS is once again accepting applications for its scholarship program for students pursuing a career in actuarial science. The CAS Trust Scholarship Program will award up to three $1,500 scholarships to deserving college students for the 2004-2005 academic year. The intent of the scholarships is to further students' interest in the property/casualty actuarial profession and to encourage pursuit of the CAS designation. The CAS Trust Scholarship Subcommittee, chaired by **Leslie Marlo**, administers the scholarship in conjunction with the CAS Office.

To be eligible, an applicant must be a permanent resident of the U.S. or Canada and admitted as a full-time student to a U.S. or Canadian educational institution. Applicants must also have demonstrated high scholastic achievement and strong interest in mathematics or a mathematics-related field. Preference will be given to applicants who have passed at least one actuarial exam.

Applications are available in the "Academic Community" section of the Web Site. Recommendations, transcripts, actuarial exam results, work experience, and written essays will all be considered in selecting the award recipients. Completed applications for the upcoming year are due by May 3, 2004. Additional details on application requirements are available through the CAS Web Site.

Established in 1979, the Casualty Actuarial Society Trust affords CAS members and others an income tax deduction for funds contributed and used for scientific, literary, or educational purposes. Trust donations from 1997 to 2003 from D.W. Simpson and Company have totaled $80,000 and helped the Trust balance reach a level that would support an annual scholarship program. ■

CAS Continuing Education Calendar

Bookmark the online calendar at www.casact.org/calendar/calendar.cfm

March 11-12—Seminar on Ratemaking, Wyndham Franklin Plaza Hotel, Philadelphia, PA

March 24-25—Seminar on Practical Applications of Loss Distributions*, Harbor Court Hotel, Baltimore, MD

April 26-27—Symposium on Enterprise Risk Management, Chicago Renaissance Hotel, Chicago, IL

April TBD—Online Course: Introduction to Financial Risk Management, CAS Web Site

May 16–19, 2004—Spring Meeting, The Broadmoor, Colorado Springs, CO ■

Brainstorms

The Agents Are Coming

by Donald F. Mango

If you have seen the enormously popular software *The Sims*, you were probably intrigued, but you may not have realized that you were looking at part of a scientific revolution involving adaptive agents. Adaptive agents are software entities that, when placed in a computer environment, monitor the state of that environment, and, armed with rules of behavior, interact with it. In the case of *The Sims*, the agents are people of various types, placed in a house or hotel or city, interacting in ways both mundane and hilarious. One of the key elements to the popularity of The Sims is its complete unpredictability. There is literally no way to predetermine the aggregate result of placing a certain set of Sims in a certain environment with certain initial conditions. The only way to find out what will happen is by *watching the situation unfold*.

The adaptive agent paradigm (AAP) is gaining momentum in many areas of science: financial markets, water policy, organizational and network theory, and the military. In fact, leadership methods used in Project Iraqi Freedom were developed using adaptive agents—the "army of one" philosophy. To jump start your exposure, see the outstanding set of papers presented at the National Academy of Sciences 2001 Sackler Colloquium, "Adaptive Agents, Intelligence, and Emergent Human Organization: Capturing Complexity through Agent-Based Modeling," online at www.pnas.org/content/vol99/suppl_3. Another good site is "Agent-Based Computational Economics" at www.econ.iastate.edu/tesfatsi/ace.htm.

> "In the financial and economics world, AAP is developing alongside behavioral finance."

In the financial and economics world, AAP is developing alongside behavioral finance. Both schools are challenging the neoclassical economics assumptions of completely rational, homogeneous representative agents, operating in equilibrium, maximizing their utility, resulting in analytically solvable models for the economists. AAP involves concepts of bounded rationality (i.e., potentially inconsistent behavior), heterogeneous agents, and self-organized or emergent complexity (unpredictable patterns and aggregate results) where problems require *computational* solution.

The philosophy of science in general has not caught up with this notion of

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It's a Puzzlement

Mobius Strip

by John P. Robertson

Many of you will recall that a peculiar property of the Mobius strip is that it has only one side. One method of creating a Mobius strip is to take a long rectangular piece of paper, and join the short ends with a half-twist.

Now for the puzzlement: you have a book with a front and back cover, and only one leaf. Equivalently, you have three sheets of paper joined along a single edge. Using just a scissors, cut a Mobius strip out of the book. No taping or gluing is allowed, just cutting.

Interrupted Betting

In **Tom Struppeck's** puzzle, you had bet $100 on a best-of-seven series between two evenly matched teams, A and B, and you had to leave after your team, A, had lost the first game. You gave your agent some money, and some instructions on how to bet on the remaining games. The goal was for the agent to settle up on your behalf when the series ended, and have the agent come out exactly even at that point (although she could be out-of-pocket at intermediate points).

Alex Kozmin's solution is to give the agent $31.25, with the instructions to place bets on team B, following amounts:

1. $31.25 immediately
2. $12.50 if current score is 0:3
3. $25 if current score is 1:3 (either way) or 0:2
4. $37.50 if current score is 1:2 or 1:1
5. $50 if current score is 2:3 or 2:2
6. $100 if current score is 3:3
7. No gambling otherwise!

She will need up to $100 of her money ($37.50 for the third game, another $37.50 for fourth and additional $25 for game five).

Alex also observes that $31.25 is the expected loss given the result of the first game, the above strategy involves an average bet of $31.25 across all possible games, and that the puzzle has roots in SOA course 6 (multi-period immunization, Financial Economics).

Malcolm Handte notes that the amount bet at each point is $100 times the conditional probability that the series will go to seven games.

Kirk Bitu, Robert Lapson, David Uhland, David Westerberg, and Shawn Wright also solved this puzzle. ■

Brainstorms

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computational solution. It potentially represents a third valid "symbol system" for research and scientific communication (the others being Verbal and Mathematical).

Impact on Actuarial Science

What might this mean for our science? Here are some speculations:

1. Forced group interaction (similar to multiplayer gaming): the days of the isolated practitioner are limited.
2. Software as research product: software will have formal recognition as a communication medium. The CAS may institute calls for software alongside calls for papers.
3. Policy analysis: regulators could use this as a means of testing the impact of policy changes (e.g., fair value accounting).
4. Test Impact of Changes: Allow testing of the aggregate effects of changes in rates, class plans, laws, or agent compensation in order to determine *beforehand* the likely impact of changes.

The difficult part in all adaptive agent modeling is modeling the behavioral rules of the agents themselves. For example, in order to model the policyholder retention impact of changes in rates, you might need a demand curve. While it may appear daunting, recent research in behavioral finance indicates that good results are achievable from modest assumptions. Most people's decision processes can be modeled reasonably well by a few simple rules. The key task for actuaries is to begin formulating those rules. ■

In Memoriam

Ward Van Buren Hart Jr.
(FCAS 1956)
December 31, 2003

Robert Anderson Miller III
(FCAS 1986)
January 8, 2004

James B. Gardiner
(FCAS 1948)
December 11, 2003

Robert F. Roach
(ACAS 1975)
date of death unknown

2004 Spring Meeting

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as physical damage), risk-based capital factors revisited, and an array of other current topics.

In addition to two scheduled receptions, attendees and accompanying persons will have the opportunity to enjoy a western barbecue at the hotel on Tuesday evening. For the athletically inclined, The Broadmoor is more than a mile above sea level—so while the ball will travel farther, hiking and biking activities will take place in the thinner air of the foothills of the Rockies.

More information and registration materials will be mailed to members and made available online. Please join us! ■