The Actuarial Review

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In Celebration of CAS Volunteers:

VOLUNTEER HONOR ROLL

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The Actuarial Review is the quarterly newsletter of the Casualty Actuarial Society.

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Editor's Notes

We wish to apologize for several errors in the August issue of the *Actuarial Review*. First, we incorrectly stated that Roger M. Hayne was *selected* to serve as CAS president-elect for 2008/2009. Former CAS president Thomas Myers pointed out that Mr. Hayne was *nominated*, not selected, by the Nominating Committee.

Second, we incorrectly identified Allistair Chapman, a new Fellow by Mutual Recognition, as a member of the Institute of Actuaries of Australia. Mr. Chapman is a member of the Institute of Actuaries (U.K.).

The picture on page 18 shows a bearded Jerry Miccolis wearing sunglasses. That should have given us enough clues to recognize Jerry in the picture on page 19, where he is kneeling, second from the right.

C. K. Stan Khury notes that our use of the term "honored" in connection with the admission of new Fellows and Associates overstates the fact. Certainly, new Associates and Fellows deserve to feel proud of what they have achieved, and it is an honor to be recognized for it. The article, however, does not describe any honors bestowed, only that new Fellows and Associates have been admitted.

"More Family Ties" on page 4 assigned Donald Gould a daughter he never had and Stephanie Gould Rabin a father not her own. We apologize to both of you. We believed our source to be fully credible. We will apply a much higher standard for full credibility going forward.

Virginia Prevosto meets this higher standard. She reported one more wife-and-husband actuarial family tie to us—Virginia Prevosto and Mark Whitman. Joseph R. Lebens and John P. Lebens are, indeed, brothers. And with recognition of the well-known and highly respected twins Michael A. Walters and Mavis A. Walters, we bring the "Family Ties" to a close. AR

Appalachian State University—Faculty Position Available

The Department of Mathematical Sciences at Appalachian State University invites applications for a tenure-track, nine-month faculty position beginning August 2009. Preference will be given to candidates with expertise to contribute to our actuarial science program. Candidates with a Master's degree only but significant actuarial experience will be considered.

Send a complete application to Dr. Mark C. Ginn, Chair, Department of Mathematical Sciences, Appalachian State University, Boone, NC 28608. The initial review of complete applications will begin December 12, 2008, and will continue until the position is filled. Visit www.mathsci.appstate.edu for a complete job description. AR

Moving Forward

As I wind down my term as president, I look back on the events of the past few years and look forward to the future of this great organization. Permit me to share a few random thoughts as I have a short moment to reflect.

The Casualty Actuarial Society has two major missions in support of our members and the profession within the property/casualty sector. These roles, which are not constrained by any political boundaries, are education and research.

Our basic education process continues to evolve. The revised syllabus for the exam series is being finalized for a 2011 rollout. The varied levels of testing (familiarity, understanding, and mastery) will be new to us all. Our growing use of technology in the testing area will continue through increased use of computer-based testing (as we now have with Exams 1 and 2) as well as the use of online learning tools for the familiarity topics. The core material on the examinations will continue to be as rigorous as ever but the topics will focus upon the items such as ratemaking, reserving, and other risk analysis areas that distinguish CAS members as experts in our field. In addition to the changes in the exams themselves, I am excited about the release of the new commissioned educational material on ratemaking and reserving (aka estimation of unpaid claims), which has been specifically developed to help candidates master the topics using consistent terminology and structure. Historically, the readings were primarily written to share and document concepts and research with other practitioners rather than be used in the traditional learning or testing environment. My hope is that through the rigors of the exam process, today's candidates will develop a deep understanding of the key actuarial concepts, becoming inquisitive enough to diligently review rather than blindly accept the internal processes within the spreadsheets and emerging techniques using generalized linear models and catastrophe models. These models are becoming integral to our analysis. Understanding the underlying calculation process of our actuarial models is what allows more informed decisions and selections.

We need to embrace the fact that exam completion in no way ends our need to continue the learning process.

In continuing education, we are considering changes in seminars, sessions, and even delivery mechanisms with the goal of keeping our meetings, seminars, and Webinars some of the best values in the industry in spite of increased travel and hotel hosting costs. We need to embrace the fact that exam completion in no way ends our need to continue the learning process. Just as other professions have established post-credential certificate programs and continuing education requirements, our profession is making strides in that direction. I have to ask, "How much material on our current preliminary exams are you familiar with?" and "Is achievement of the FCAS or ACAS credential enough to provide the users of our work products with consistent levels of up-to-date expertise?"

The CAS Board has recently made a major commitment to funding future research projects. Changes in our profession and industry have occurred over the past 20 years that require different analytical techniques and approaches. In the early 1980s, the actuarial community was relatively small and much more willing to share concepts, ideas, and research—especially from those employed by insurers. Our world has become more competitive, and the proprietary nature of our technical developments has expanded greatly. The CAS continues to have the need and desire to foster various levels and types of research. In the past, our research was typically in the form of calls for papers with associated monetary prizes and, more recently, through the Working Party concept borrowed from our general insurance friends in the United Kingdom (GIRO). Grant programs through and in coordination with the Actuarial Education and Research Foundation (AERF—part of The Actuarial Foundation) typically have provided the academic community with funding for projects they wished to explore. The newly increased level of available funding should allow the CAS to provide grants for the specific projects, undertaken both within the academic community and within the business community, that the CAS membership and leadership have identified as necessary to lead us forward.

From the President, page 5

CLRS ASOP 43 Contest—Everyone Is a Winner

As part of the 2008 Casualty Loss Reserve Seminar (CLRS), a contest was held to raise awareness of the guidance and responsibilities contained in Actuarial Standard of Practice (ASOP) 43 "Property/Casualty Unpaid Claim Estimates." Contest participants were provided with data and information on a realistic but fictional acquisition of an insurance company and were asked to provide an analysis and report including unpaid claim estimates that were compliant with ASOP 43.

Thirty-four individuals participated in the contest, some of them working in teams. The Joint Program Committee for the CLRS and Raji Bhagavatula, who served as the moderator for the ASOP 43 sessions at the CLRS, would like to thank all the participants for their hard work. The entries were all well thought-out and provided a wealth of information on how the standard is being interpreted in practice. This information guided the Joint Program Committee in structuring the CLRS general and concurrent sessions on ASOP 43 so that all actuaries could gain insight from practical examples.

The Joint Program Committee for the CLRS awarded prizes to the following participants whose entries best exemplified overall compliance with ASOP 43:

First prize ($1,200)—(team)

- Charles Dal Corobbo
- Roy K. Morell
- Christopher Olsen
- Min Yao

Second prize ($600)—(individual)

- Bonnie Maxie

Third prize ($300)—(tie between two teams)

First team

- Shelley Davidson
- Stuart Hayes
- Landon Sullivan

Second team

- Gary Josephson
- Charles Mitchell
- Brad Parker
- Valerie Smeshko

The committee would also like to acknowledge the following for participating in the contest:

Shawna Ackerman
Larry Artes
William Carbone
Brian Clancy
Smita Dave
Derek Freihaut
Joe Herbers
Dennis Henry
Todd Hoivik
Julie Joyce
Jason Kurtz
Richard Maguire
Chaim Markowitz
Laura Martin
Jonathan Parad
Greg Poirier
Christina Rozenzweig
Stefanie Seiman
Mark Shapland
Rick Sutherland
Paul Vendetti
Mark Zanecki

For those of you who were unable to attend the CLRS , another session on ASOP 43 will be held at the 2008 Annual Meeting in Seattle. Make your plans to attend! AR

CAS Releases Exposure Draft of Continuing Education Policy

The CAS has released the Exposure Draft of the CAS Continuing Education Policy and invites members to submit comments. Please visit the CAS Web Site (www.casact.org/CMS/pdf/CPD-Exposure-Draft_1.pdf) to review the draft and for instructions on submitting comments. AR

Results of 2008 CAS Election

Kollar to Become CAS President; Hayne Voted President-Elect

Arlington, VA—Roger Hayne has been elected CAS president-elect. John J. Kollar, who was voted in as president-elect in 2007, will become CAS president at the close of the 2008 CAS Annual Meeting.

Balloting for the 2008 CAS election closed on August 29, 2008, and the CAS tellers verified the election results. A total of 1,219 Fellows voted in this year's election, or 37% of the Fellows. This compares to 1,118 Fellows or 37% for last year.

Mr. Kollar is a 1975 Fellow who has served on the CAS Board of Directors from 1998 to 2001 as well as vice president-admissions, vice president-ERM, and on numerous CAS committees. Mr. Hayne just completed a term as the CAS vice president-research and development and is currently a member of the Leadership Development Committee.

CAS Fellows elected Eugene Connell, Wayne Fisher, Alice Underwood, and Mavis Walters to the board of directors. Immediate Past President Christopher Carlson will chair the CAS Board. The following members were elected or re-elected by the board to serve as vice presidents:

- Kenneth Quintilian, Administration
- David L. Menning, Admissions
- Kevin G. Dickson, ERM
- Ralph S. Blanchard, International
- Patricia A. Teufel, Marketing and Communications
- Andrew E. Kudera, Professional Education
- Louise A. Francis, Research and Development

These Fellows will take on their positions at the close of the 2008 Annual Meeting.

John Kollar

Roger Hayne

According to the election procedures approved by the Board, all vote counts are released to the membership.

President-Elect	
Roger Hayne	1,042

Director	
Alice Underwood	763
Mavis Walters	599
Eugene Connell	530
Wayne Fisher	517
James Christie	457
Chester Szczepanski	451
Richard Fein	447
Clive Keatinge	408

From the President, From page 3

I would be remiss not to mention that the CAS is not alone in our continued quest in the casualty research and education area. I recently attended the meeting of GIRO—the general insurance (P&C to us) section of the Institute and Faculty of Actuaries in the U.K. These folks are working on the same problems and issues—only speaking a different version of English. As my term ends, I'll meet and present to another group engaged in general insurance education and research in Australia. Through the efforts of many CAS members, we are fostering much closer ties with these international actuarial organizations with major general insurance sections and are succeeding in moving towards fulfilling part of our Centennial Goal to be a leading global resource and partner.

Our roles in property/casualty actuarial education and research are a major key to our Society moving with good pace into its second century. The recent efforts of the CAS in these areas as highlighted above should get us off to a quick, wonderful, and exciting start. Thanks for letting me be a participant in the process. It has been a true privilege to serve as president and an experience I will truly treasure forever.

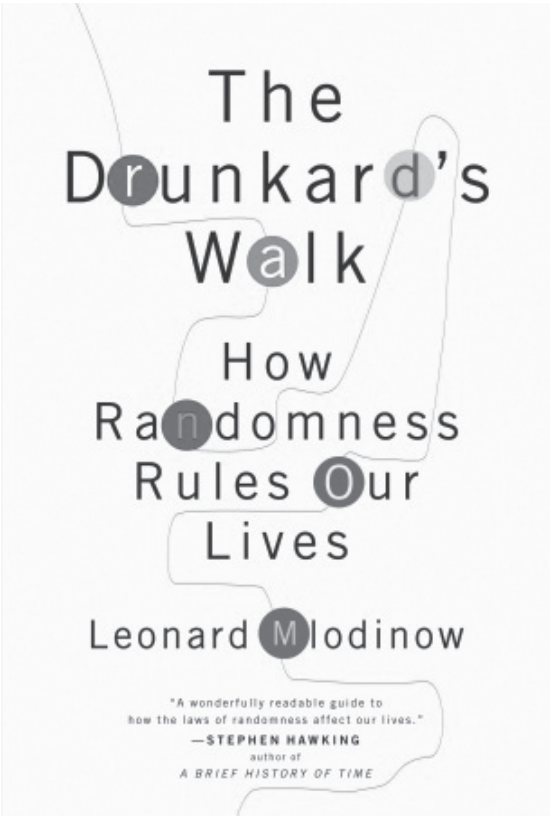
Long live the Casualty Actuarial Society!

DOUGLAS W. OLIVER

A History Lesson on Probability and Statistics

The Drunkard's Walk: How Randomness Rules our Lives by Leonard Mlodinow (Pantheon, 2008, $24.95)

When I accepted the position of Book Review Editor for the *Actuarial Review*, I envisioned doing just that: editing. I pictured a regular flow of book reviews written by others from within the Society, all generally well written, and providing me with a large portfolio of reviews from which to select for each quarterly publication. I assumed that my reading of the summaries and synopses of numerous actuarially related books would enlighten me and that the readers of the *Actuarial Review* would benefit from my selections.



Fast forward almost a year now and I have yet to see any voluntarily submitted reviews to which I could apply my editing skills, and as a result, I have been reading (and reviewing) selected books myself. The benefit of this dearth of activity is that I have been doing more personal reading of a professional nature. While Tom Clancy and Stephen King still catch my eye at my local bookstore, I do find myself looking for other interesting titles to share with *AR* readers. My personal tastes lend themselves to less than technical texts, but hopefully with enough application to actuarial science and/or our profession to be of some benefit to the readership.

The other benefit of my editorial position is the need to finish books. Like many others, I suspect, certain writing styles, when combined with content that may not be what I expected, sometimes lead me to curtail my reading of some books well before the last page. Had I not been reviewing *The Drunkard's Walk* for this issue of the *Actuarial Review*, it too would have likely met with this same fate.

I selected the text for review because the title intrigued me. Randomness is, after all, the nature of the actuarial profession. Without an understanding of how one anticipates and provides for random events, ratemaking and reserving actuaries would be out of a job. So when the title of the text further went on to clarify its intent: The Drunkard's Walk: How Randomness Rules Our Lives, I snapped it up at a recent trip to Barnes & Noble. Perhaps the fact that the text was on the "bargain" table, despite being published in 2008, should have been an early tip off.

What *The Drunkard's Walk* offers in its 272 pages is more of a history lesson on the development of probability and statistics, primarily being shown as measurement tool for randomness. I found the writing a bit slow and dry (maybe that can be said about any text on probability), but needing to read the entire book (as good reviewers do), I was pleasantly surprised in regard to a number of items. For most actuaries who have passed any of the first few exams, *The Drunkard's Walk* will offer no new technical insights nor actuarial methods, but will provide a generally entertaining read, sprinkled with (at least for me), quite a few "I didn't know that" and "hmmm, interesting" moments.

For example:

- Blaise Pascal (of Pascal's Triangle fame), at the age of 13, joined a Paris-based math think tank that included Rene Descartes and Pierre de Fermat.
- There were actually four Bernoullis (Jakob, his brother

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Why Can't We All Do Continuing Ed?

Effective January 1, 2008, the American Academy of Actuaries (AAA) implemented a revised Qualification Standard that not only increases the continuing education hours requirement for U.S. actuaries (to the widely discussed 30 per year), but also expands the range of actuaries subject to its requirements. The AAA did this by extending the types of "actuarial opinion" that will subject an actuary practicing in the U.S. to the continuing education (CE) requirement.

In doing so, however, the AAA stopped short of a universal requirement, which could have been accomplished by including all members performing "Actuarial Services," or pursuing the actuarial profession. Instead, they exempted all those who do not provide the laboriously defined "Statements of Actuarial Opinion." Many practicing actuaries (e.g., those who avoid formal responsibility for their work by yielding to a more senior actuary such as the one signing the report) arguably do not provide opinions.

If we do not widen the net of the CE requirement, we will be lagging behind our peers in other societies.

The CAS recently released an exposure draft of a CE Policy that adopts the same approach. This draft, which is still open for comment from the membership, would defer to the AAA for actuaries in the U.S., effectively extending the new CE requirement only to CAS members practicing in certain non-U.S. jurisdictions, and continuing to exempt those who do not make Statements of Opinion. I think this is a short-sighted approach that does not serve the best interests of the public or the profession.

The Society of Actuaries has recently finalized its own new CE requirement, which becomes effective January 1, 2009. Under this approach the SOA now requires CE compliance by *all members* who wish to remain in good educational standing with the SOA. This is the approach I recommend the CAS also take.

If we do not widen the net of the CE requirement, we will be lagging behind our peers in other societies, and not only the SOA. The Conference of Consulting Actuaries (CCA) already requires 30 hours a year of all its members. The Canadian Institute of Actuaries (CIA) effectively requires *50* hours a year. (Note that these stricter CCA and CIA requirements also already apply to those many CAS members who are members of these other societies.) Pension Enrolled Actuaries also have a universal CE requirement. Other societies internationally either have, or are actively considering, significantly broadened requirements.

Why has there been so much activity on the CE front lately? I attribute it to recent challenges to the credibility of actuaries and the world-wide, profession-wide self-examination that has followed. From the Morris Report (prompted by a major insolvency in the U.K.) to the now-infamous S&P report (published as a reaction to the many large reserve deficiencies being uncovered in P&C insurers at the time), actuaries have come in for an unprecedented amount of scrutiny. Internal reviews such as CRUSAP (Critical Review of the U.S. Actuarial Profession, commissioned by the AAA Board) have been no more sparing in recommending changes than have the outside reviews. On the topic of CE, CRUSAP went so far as to recommend that the profession as a whole "require active members of the actuarial profession to meet consistent continuing education requirements." I couldn't agree more.

No single area is more quickly identifiable as a hallmark of a profession's commitment to excellence as the quality of its continuing education program. The CAS has made it clear that the CRUSAP report will be taken seriously and its recommendations implemented where reasonable and appropriate. It seems to me that this one is within our reach.

Many opponents of a broader CAS-specific CE requirement argue that all practicing actuaries already issue opinions. I do not believe this is true. The AAA standard contains a list of rules defining at great length a statement of actuarial opinion, and

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> Johann, Johann's son Daniel, and Jakob's nephew Nikolaus), who all had a hand in developing sampling theory, the law of large numbers, and planetary motion concepts. It also seems as if none of the Bernoullis liked each other, and were generally thought of as unpleasant and ill-willed (hopefully not a trait of all mathematicians or actuaries).

In addition, the text is scattered with some nice quotations for use in future speeches at actuarial seminars or upcoming commencement exercises, such as, "Making wise assessments and choices in the face of uncertainty is a rare skill. But like any skill, it can be improved with experience," and, "It is dangerous to judge ability by short-term results." In and of themselves, however, quotes and math trivia do not a recommendation make.

Unfortunately, when moving past the history lesson (the first two-thirds of the book) and into applications of the measurement and testing of randomness, Mlodinow gets no more technical and provides no new real information. In fact, he gets too philosophical and waxes a bit poetic about the "proper" interpretation of statistical results. For example, when describing how randomness affects our current lives, Mlodinow states, "For like the granules of pollen floating in Brownian fluid, we're continually nudged in this direction and that one by random events," and concludes his treatise with the thought that, "We ought to identify and appreciate the good luck that we have and recognize the random events that contribute to our success," while we should also "appreciate the absence of bad luck."

After finishing this book, I did look back and agree with one of the central points trying to be illustrated: random events do have an effect on how we do things. Hindsight may be 20/20, and while the understanding and appreciation of how current events came about from seemingly random past actions may be entertaining, the effort to try and estimate future events from prior observations is the bigger challenge.

Would this book review be here but for the title of the book (and a flashy cover jacket) on the top of the bargain table at my local Barnes & Noble? Maybe. Maybe not. But is it possible to predict future book sales by statistics on historical placement, title, and binding color? If it were that easy, as they say, everyone would do it (and there would be no need for actuaries)!

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thus specifying who is subject to the CE standard. This same list applies under the proposed CAS CE Policy as well. Many reasonable analytical souls will conclude that with many words go many loopholes. And if there are loopholes, real or imagined, some actuaries will use them.

I am not implying that these members are guilty of laziness or unethical behavior. These same members would comply with the requirement if simply told, "The requirement is universal and you must comply." We should say so in a few simple words, to eliminate both real loopholes as well as the chance for misinterpretation and misunderstanding of the rules. Otherwise, many actuaries (often at the direction of their employers) will discover and employ any of a number of seemingly legitimate tactics, such as deferring all opinions to their bosses, to avoid the time and expense of what appears to them unnecessary and cumbersome compliance.

An appeal to the Code of Conduct does not help here. Although the Code prescribes that actuarial services should only be performed when the actuary is "qualified" based on "continuing education and experience," that subjective standard begs the question of what *objective* measure should be used to evaluate compliance. Objective standards help practitioners apply and interpret subjective ones, which are elusive and nebulous and therefore of limited practical usefulness in the majority of cases.

There is also a concern about the cost to members of attending organized activities. However, there is already a wide variety of alternatives available, such as Regional Affiliate meetings and interactive Webinars, to help reduce the cost and time burden of obtaining all those hours. The CAS could also include additional mechanisms for obtaining credit, as the SOA has done in their new requirement. Although organized activities are certainly important, there are affordable ways to perform them.

Such a revision of the proposed CAS CE Policy to extend the CE requirements to all CAS members would be first and foremost an effort to improve the education, competitiveness, and preparedness of CAS members in the face of current and future challenges to be surmounted in our work. In the process, we could not help but burnish our image in the eyes of the public, take steps to preserve our "turf," and improve our service to our various stakeholders. These strike me as laudable goals.

Ken Quintilian is currently the CAS Vice President-Administration. The views he expresses are his own and do not represent an official position of the CAS.

Going Beyond the Theoretical

2008 Bornhuetter Loss Reserve Prize Winner Chosen

By Gloria A. Huberman, Member, CAS Committee on Reserves and
Cheri Widowski, CAS Research Manager

Today, more than ever, the reserving arena is receiving a great deal of attention. Complex issues that are challenging the property/casualty insurance industry affect the actuarial profession and the reserving process within our profession. To help actuaries enhance their reserving knowledge, the CAS Committee on Reserves (CASCOR) sought papers on a variety of relevant topics for its 2008 Call Paper Program. It was a prolific year, as we may have received the most submissions for a Call to date.

Overall, the committee accepted 17 of the papers submitted for this Call, which asked for papers on opinion issues, best estimates, variability, ranges, methodologies, unique or changing exposures, and any other matters affecting reserving. Some of the submitted papers focused on such topics as hierarchal growth curve models for loss reserving, reserving for non-insurance company warranty products, and jointly modeling paid and incurred losses. Note that, in a bid for the Bornhuetter Prize, Thomas Mack boldly wrote a paper titled "The Prediction Error of Bornhuetter-Ferguson." Many of these insightful papers were presented at the 2008 Casualty Loss Reserve Seminar (CLRS) held in Washington, DC on September 18-19, 2008.

A select number of these accepted papers were forwarded to a specially appointed review committee, which judged these papers on the basis of originality of ideas, clarity of presentation, contribution to the literature on loss reserving, and thoroughness of analysis. The Ronald Bornhuetter Loss Reserve Prize, which commemorates the work of Ronald Bornhuetter, FCAS, is awarded to the author or authors of the best paper submitted in response to a call for papers on reserves, whenever such call is conducted by the CASCOR. During the CLRS opening session, James Guszcza, FCAS, MAAA, was awarded the 2008 first place prize for his paper titled "Hierarchical Growth Curve Models for Loss Reserving." David R. Clark, FCAS, MAAA, was also recognized for his paper, "Reserving with Incomplete Exposure Information."

All 17 accepted papers can be viewed online in the Fall 2008 E-Forum (www.casact.org/pubs/forum/08fforum/). We encourage everyone to take some time to read these thought-provoking papers that go beyond the theoretical, providing valuable insights and suggestions to help improve the reserving function. AR

D.W. Simpson Makes CAS Trust Donation

The Trustees for the CAS Trust (CAST) are pleased to announce that D.W. Simpson & Company donated $10,000 to the Trust in October 2008. This brings the total contribution of the D.W. Simpson & Company to the Trust to $130,000 over the past several years. The CAS sincerely thanks D.W. Simpson & Company and its employees for this milestone contribution toward advancing actuarial science. AR

CAS Career Center

The Place for Property & Casualty Actuarial Jobs and Resumes

Job Seekers: Find your dream job

The CAS Career Center is the best place for property & casualty actuarial jobs and resumes. It's where job seekers go to land the perfect position and where employers find the most qualified casualty actuaries, from entry-level candidates to experienced Fellows. Since its inception in spring 2008, over 100 jobs have been posted and dozens of resumes have been purchased.

Advance Your Career

- Organize you job search for maximum results.
- Save job postings for quicker reference.
- Sign up for job alerts to make sure you don't miss the perfect opportunity.
- Post resumes anonymously. Prospective employers only find out who is behind the resume when the job seeker responds to the employer.
- Access an array of professional development tips and tools.

Job seekers are saying…

- "It's easy to work with and updated regularly."
- "The CAS Career Center…provides new jobs in [your] e-mail box. It also provides an easy way to send [your] profile to the company or prospective employer."
- "It is the best source for P&C jobs."

Visit http://careers.casact.org to find your ideal position today!

Attend the First Ratemaking and Product Management (RPM) Seminar

In response to a recent review of the Ratemaking and Predictive Modeling Seminars, the CAS is offering a new educational opportunity that combines the best of both seminars: the Ratemaking and Product Management (RPM) Seminar!

"Predictive modeling is a tool that is being used in ratemaking and we were seeing more of an overlap in these seminars," explained Tom Hettinger, chair of the task force that recommended the creation of the new program and chair of the RPM Seminar Planning Committee. "We expanded the scope of the new seminar to product management to consider how these two areas are influencing each other, including the use of predictive modeling techniques in both."

The first RPM Seminar will be held March 9-11, 2009, in Las Vegas. The seminar will kick off with a full day of workshops to help attendees "transition to the main seminar and learn from complimentary sessions," according to Hettinger. The next two days will boast dynamic keynote speakers and a range of interactive sessions covering product development, product management, pricing, underwriting, and marketing. Registrants can opt to attend the seminar workshops only or sign up to attend both the workshops and RPM Seminar.

"We hope to provide attendees with a broad range of topics that are related to their daily work and give them the means to understand how they can expand to the next level of ratemaking or predictive modeling," said Hettinger. The seminar, which will recognize and reflect how the role of the actuary has expanded over the past twenty years, will benefit actuaries, actuarial students, underwriters, insurance analysts, and insurance company management alike.

More details and registration information will be available on the CAS Web Site soon. Please note that this seminar will be replacing the Ratemaking and Predictive Modeling Seminars and that those seminars will no longer be offered. If you have benefited from those seminars in the past, make sure to register for the first RPM Seminar. AR

ERM Symposium Returns to Chicago in 2009

Over 500 senior executives, directors, and risk management experts gathered at the 2008 Enterprise Risk Management (ERM) Symposium in Chicago to present the latest on ERM thinking and practices. The 2009 ERM Symposium, sponsored by the CAS, the SOA, the CIA, and the Professional Risk Manager's International Association (PRMIA), returns to Chicago on April 29-May 1.

The Symposium will provide an ideal learning opportunity for those interested in emerging risk management techniques and trends, both within the insurance industry and beyond. A range of topics has been covered at previous symposia including ERM and the role it plays in a particular company or industry, risk and capital management, and the theoretical foundation of ERM. Upcoming presentations will include discussions of financial and operational risks, value creation through ERM, and interactions between risks. Original research, generated by a call for papers, will also be presented.

Sessions will feature the top risk management experts offering their perspectives on key risk issues and the latest ERM topics. Additionally, several pre-program workshops will be offered to demonstrate hands-on applications that are essential for ERM practitioners.

The Symposium also offers several refreshment breaks and receptions that give actuaries and other risk professionals the chance to renew and expand their network of colleagues. Companies who wish to showcase their ERM knowledge and services to key decision makers from insurance and other industries can do so by being a sponsor or exhibitor.

Visit www.ermsymposium.org to learn more about this opportunity to broaden your skills and keep up with the latest ERM developments. AR

CAS Career Center

The Place for Property & Casualty Actuarial Jobs and Resumes

Employers: Find the Perfect Candidate

The CAS Career Center is the best place for property & casualty actuarial jobs and resumes. It's where job seekers go to land the perfect position and where employers find the most qualified casualty actuaries, from entry-level candidates to experienced Fellows. Since its inception in spring 2008, over 500 jobs seekers have signed up.

Fill Your Positions Quickly and Effectively

- Search a database of resumes from qualified professionals in the field.
- Stand out among a sea of competitors through banner advertisements.
- Manage job openings more efficiently by having access to a host of administrative tools, including the ability to create a company profile.
- Receive reminders before postings expire.

Employers are saying…

- "The job postings allow for a search by a candidate independent of a recruiter."
- "It's a good resource. It's easy to use."
- "[The CAS Career Center provides the] ability to network with non-credentialed candidates."

Posting Rates

Product	Duration	Credits	Cost
45-Day Job Posting	45 days	NA	$275.00
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In Celebration of Volunteers: the CAS 2008 Volunteer Honor Roll

We are an association of people, professionals, and friends.

Since the founding of the CAS in 1914 volunteers have been the main life force sustaining the society through its various dimensions of growth—in the examination process and in the variety of continuing education activities as well as in supporting the sheer growth in membership. As a result members of the CAS through their numerous volunteer activities essentially direct all phases of CAS operations.

In one particular year, 902 CAS members volunteered to fill 1,359 positions. An effort of this scale, which is quite typical, generates a continuous need for volunteers. Each year about a third of these positions become available through normal rotation. These positions include the entire range of CAS activities: the examination committees, research and development activities, liaison representatives, and various program committees and speakers, who serve as faculty for these programs. We'd also like to thank AAA volunteers, meeting and seminar speakers, and Regional Affiliate program participants not listed here. We recognize that none of these activities can take place without the active participation of the many CAS volunteers and for this we thank you.

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David J. Watson
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Jo Dee Westbrook
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Timothy G. Wheeler
Amanda Jane White
Charles Scott White
Jeffrey White
Jonathan White
Lawrence White
Patricia Cheryl White
Steven B. White
Wyndi White
Arthur Scott Whitson
Peter G. Wick
John Spencer Wideman
William B. Wilder
Peter W. Wildman
Ronald Harris Wilkins
William Robert Wilkins
Kendall P. Williams
Robin M. Williams
Shauna S. Williams
Catherine M. Wilson
Ernest I. Wilson
Steven M. Wilson
William Wilt
John J. Winkleman
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Brandon L. Wolf
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Simon Kai-Yip Wong
Toby Wong
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Jie Xiao
Jianlu Xu
Tong Xu
Xinxin Xu
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Grace Huey-wen Yang
Linda Yang
Yi-Chuang (Sylvia) Yang
Yulai Yang
Yuanhe Yao
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Andrew Yershov
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Nora J. Young
Heather E. Yow
Jonathan Kam Yu
Arvelle D. Zacharias
Ronald Joseph Zaleski
Anton Zalesky
Michael R. Zarember
Navid Zarinejad
Doug A. Zearfoss
Xiangfei Zeng
Juemin Zhang
Lijuan Zhang
Yingjie Zhang
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Wei Zhao
Yue Zhao
Kan Zhong
Hongbo Zhou
Yu Zhou
Alexander Guangjian Zhu
Xi Zhu
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Steven Bradley Zielke
Joshua A. Zirin
Eric Zlochevsky
Rita M. Zona
Barry C. Zurbuchen

CAS 2008 Employer Honor Roll

The CAS is grateful for the support of employers who encourage their actuaries to volunteer their time and effort to the CAS. Here are two "snapshots" of these employers:

Top Ten Employers with the Largest Number of Fellows Volunteering

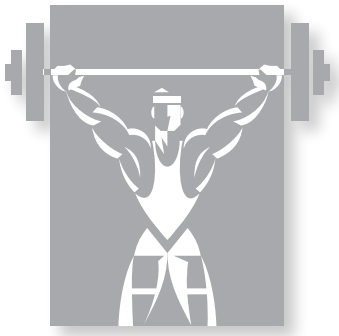
Towers Perrin
Milliman, Inc.
The Travelers Companies, Inc.
Liberty Mutual Group
The Hartford
Allstate Insurance Company
Swiss Re
CNA Insurance Companies
ISO
Zurich

Large Employers with at Least 50% of Fellows Volunteering

Pinnacle Actuarial Resources, Inc.
Willis North America Inc.
Ernst & Young
EMB America LLC
ISO
Deloitte & Touche LLP
Towers Perrin
KPMG LLP
Benfield
Milliman, Inc.
Allstate Insurance Company
Guy Carpenter & Co. LLC
National Council on Compensation Insurance
CNA Insurance Companies
Munich Reinsurance America, Inc.
Oliver Wyman
United Services Automobile Association
PricewaterhouseCoopers LLP
Aon
One Beacon Group

MICHAEL D. ERSEVIM

Potential Future Olympic Events for Actuaries



Feats of Strength!

- The Sarbanes-Oxley Binder Toss
- Bare-Handed Squaring of the Iron Triangle—"The Ultimate Challenge"
- Co-Ed Reserve Strengthening
- The 250 kg Heavily Weighted-Average Clean and Jerk
- The 100-Sheet Manual 3-Hole Punch (qualifiers)
- The 200-Sheet Manual 3-Hole Punch (finals)

Feats of Speed!

- Reserve Speed Stair-Stepping (over 50 flights!)
- The 100-Meter State Filing Dash
- The 200-Meter Regulatory Hurdles

Feats of Poise and Dexterity!

- The "Responsiveness vs. Stability" Balance Beam
- Synchronized Earnings & Reserve Movements (Team competition)
- The Pricing Pommel Horse
- Asset-Liability Matching
- Enterprise Risk Management Interpretive Dance-Off

Feats of Endurance!

- 3-Day Marathon: Exam Grading
- The Highly Modified McCauley Duration Challenge
- The Excel 2007 Familiar Features Hide 'n Seek Contest (with a "ribbon cutting" ceremony at the end!)
- The grueling "Race to FCAS" (winners to be announced at future Olympic award ceremonies; losers to be found at their cubicles.)

Start training for these exciting events today! AR

GLENN MEYERS

Beyond GLMs

As the European Union works toward implementing Solvency II, a number of insurers are participating in a series of "Quantitative Impact Studies" to learn about and to test the various proposals contained in its provisions. One of the more interesting concepts in these proposals goes under the name of "proxies." To quote one of their documents[1] on the subject, "The term 'proxy' is used to denote simplified methods for the valuation of 'technical provisions' [close to what we call loss reserves] that are applied when there is only insufficient data to apply a reliable statistical actuarial method, or when there is insufficient actuarial expertise available to the insurer." In reading through their documents on the subject, the terms "benchmark" and "credibility" appear often.

Here in the United States, we have a strong tradition of using benchmark data. For example, each insurer is required to submit ten-year loss triangles by line of insurance in Schedule P of their NAIC Annual Statements. Also, insurers are required to submit more detailed data to regulators through a statistical agent. So we have a lot of potential benchmarks.

This column describes a proxy method for loss reserves that could work with the data we have here. The examples that follow are for real insurers on some fairly old commercial automobile data.

For "benchmarks" these examples use a list of 5,000 scenarios representing the expected loss ratio, *ELR*, and ten incremental paid loss development factors {*Dev*} by settlement lag. I will talk about the source of these scenarios and the other assumptions later, so please bear with me as I describe the method. An insurer will supply data consisting of earned premium and incremental paid losses by accident year for a Schedule P line of business. Usually this will consist of the upper part of a standard incremental paid loss development triangle.

The method uses the data to calculate the likelihood of each scenario, i.e., the probability of the data given each scenario. Making the assumption that each scenario is equally likely, one can use Bayes' Theorem to calculate the posterior distribution of the scenarios, i.e., the probability of each scenario given the data. Figure 1 shows the prior and posterior probabilities of the expected loss ratio, in buckets rounded to the nearest 5%, for a medium-sized insurer. For the same insurer, Figure 2 shows plots of the paid loss development paths for a random sample of 500 of the original 5,000 scenarios, and for those scenarios with the highest posterior probability that make up 99% of the posterior distribution of the scenarios.

Now for each scenario, one can calculate a "statistic of interest" for the unpaid losses. Examples of these statistics include the mean and standard deviation of the outstanding losses. The "predictive mean" is the posterior probability weighted average of the individual scenario means. The "predictive standard deviation" is the square root of the predictive second moment minus the predictive mean squared.

Also, for each scenario one can calculate the entire distribution of loss outcomes by the collective risk model. This distribution can be calculated by a frequency/severity simulation or by, as I prefer, using Fast Fourier Transforms. The predictive distribution of the outcomes is the posterior probability weighted mixture of each scenario's distribution. Figure 3 gives the predictive distribution for the same insurer in Figures 1 and 2. Figure 4 gives the predictive distribution for a smaller insurer. Both Figures 3 and 4 are on the same relative scale, showing the relatively wider distribution for the smaller insurer. The predictive means for Figures 3 and 4 are $44.5 and $3.5 million respectively. The predictive standard deviations for Figures 3 and 4 are $5.6 and $1.4 million respectively. If the coefficient of variation is described as the standard deviation over the mean, and is a measure of disbursement around the mean, then the smaller insurer has 1.4/3.5 or 40% cv versus 5.6/44.5 or12.6% cv, meaning the small insurers results would be significantly more dispersed around the mean, and more "variable."

As can be said about almost any method, the devil is in the details[2]. While this column is not the appropriate place for details, I can say something about the devils. While some choices I made in constructing these examples are debatable, I think it is best to describe what I did, and see what any feedback brings.

My data consisted of paid Schedule P triangles for commercial auto from 350 insurers. I constructed the scenarios by first calculating the maximum likelihood estimates of the *ELR* and {*Dev*} parameters for the fifty largest insurers. Then using the Gibbs sampler (see my February 2008 *AR* column) I generated 100 scenarios for each insurer assuming a prior distribution of parameters centered on its maximum likelihood estimate. I then randomly reshuffled the *ELR* parameters over all scenarios. My rationale is based on the judgment that this construction would give a supply of industry benchmarks with which to test the insurer's data.

[1] CEIOPS—Groupe Consultatif Coordination Group on Proxies, "Draft interim report including testing proposals for proxies under QIS 4," page 23, November 2007.

[2] The details are similar to those described in my papers "Estimating Predictive Distributions in Loss Reserve Models" (*Variance*, Volume 1, No. 2) and "Stochastic Loss Reserving with the Collective Risk Model" (Fall 2008 E-Forum).

Figure 1

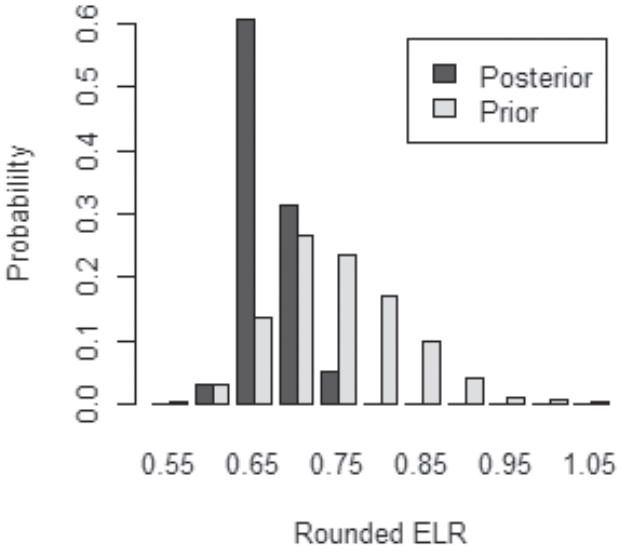


Figure 2

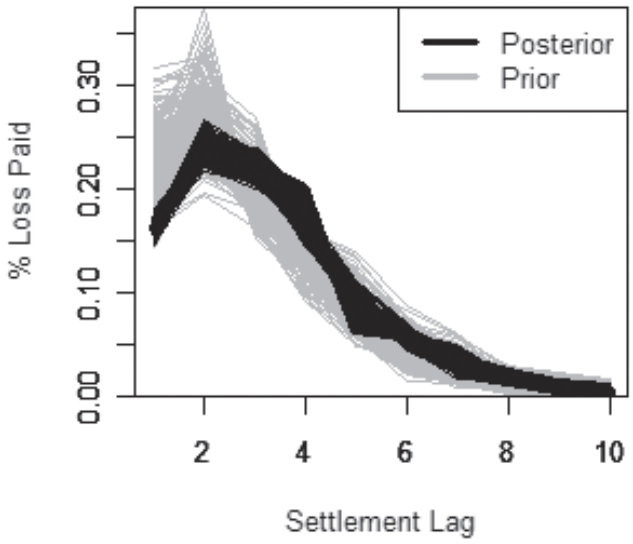


Figure 3

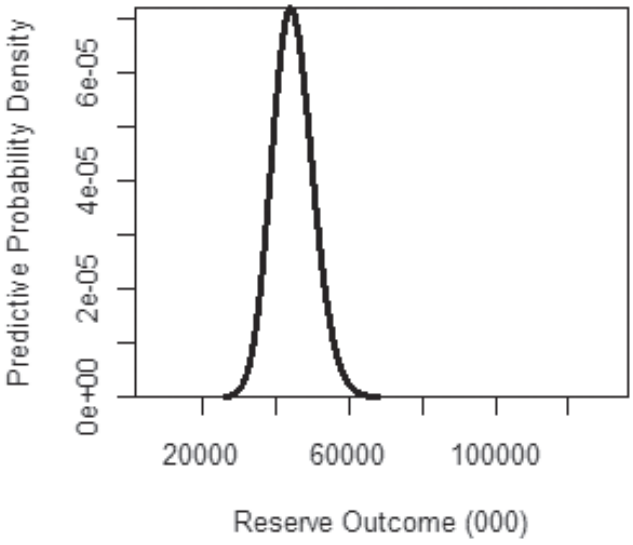
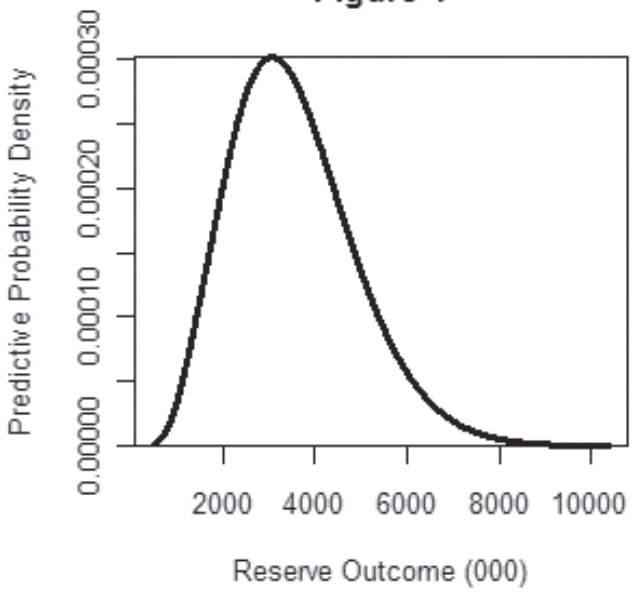


Figure 4



The distribution underlying the likelihood function was given by the collective risk model using a negative binomial claim count distribution. The claim severity distributions, which varied by settlement lag, were supplied by my employer, ISO. The collective risk model allowed for correlation between the claim count distributions within the same accident year.

I believe this method meets the requirement for proxies. One supplies the premium and loss data, and the method gives a predictive distribution of the outcomes from which one can derive a "best estimate" or any other statistic of interest. The assumptions in the underlying model are transparent, and with actuarial expertise, can be modified to match the specific insurer being analyzed. AR

MARTY ADLER

Mathematics for the Blind

In her junior year in college, Janet Cappers was inspired by the instructor of her advanced algebra class. Besides being an excellent teacher, Dr. Irving Bentsen was blind. All of his students greatly admired him and wondered how he had managed to obtain an undergraduate education in mathematics let alone a doctorate. He had been blind while pursuing his college education. The rumor was that his future wife, also a math student, read to him the many textbooks he needed to learn. Having seen what he could accomplish, Janet decided that at some time she would like to record math textbooks for others who could not see. It would be a way she could use her technical skills to help other people.

Over the years Janet would occasionally talk about it, but did nothing to pursue that interest. Then a couple of years ago a friend started recording books at the Boston office of Recording for the Blind & Dyslexic (RFB&D), a nonprofit volunteer organization founded in 1948 by Anne T. Macdonald. Ms. Macdonald believed that blinded servicemen returning from duty in World War II should have full access to their education benefits under the GI Bill. Currently the organization has over 7,000 volunteers recording textbooks at 29 sites around the United States. Although most of the recordings do not require special knowledge, there are a number of "specialty" books that need to be recorded by someone familiar with the field. These specialties include math, science, computer science, engineering, finance, medicine, and law.

Having taken math all four years in college and passed all ten CAS exams, Janet wondered how difficult it could be to read a math textbook. It turns out that it is quite difficult and experience helps.

At last Janet knew where to go if she ever had the available time to start reading. That time was this past March. She attended their orientation and registered to do a demo reading of an algebra and trigonometry textbook. When she first went to the studio, she took a tour to be sure that she wanted to be a reader. Before you are allowed to start reading, RFB&D needs to make sure you know how to read according to their rules and to use the software that manages the digital recording. After deciding to become a math specialist reader, she was given a written script taken from several different chapters in a math textbook and a CD with a recording of someone reading that material. She took notes on the script for some of the equations that were more difficult to read. She found that the graphs were difficult to describe without writing down everything she planned to say. Although she could have just copied what was on the CD, she decided to write a description of the graph in her own words and then compare it to the CD to be sure she had not omitted anything important. She then read the script many times so that when she did her demo recording she would be very familiar with the material. The recording software was easy to use. If she made a mistake during the recording, she could go back and re-record a section. Errors need to be caught and corrected as you are reading because it is not possible to insert text later. The staff checked her demo recording and relayed any mistakes to her. She was then certified to be a math specialist. The time between her tour and her demo recording was about a week. Now, if she has questions while she is recording, she can ask a staff member or write down a question and have them contact another math specialist.

Having taken math all four years in college and passed all ten CAS exams, Janet wondered how difficult it could be to read a math textbook. It turns out that it is quite difficult and experience helps. Her demo reading also came with some reading guidelines. Since it takes many people to read one textbook, certain conventions must be followed so as not to confuse the listener. Think of the many equations you have encountered over the years with powers and roots, compound fractions, matrices, integrals, parentheses, brackets, and braces. How does one read these so that there is no ambiguity to the person listening? For example, the expression $4x^2y^6/(xy)^{1/3}$ should be read as:

"The fraction with numerator: 4 times x squared times y to the sixth power and denominator: the cube root of the quantity x times y."

Voice inflection is also important in separating different parts of an equation.

In describing a graph one might consider the following checklist:

- label and scale of horizontal axis
- label and scale of vertical axis
- quadrants shown

- shape and direction of curve (concave parabola, ellipse with a horizontal longer end, etc.) (In some cases the curve will need to be described in terms of whether it is moving up or down as it moves from left to right.)
- lines of symmetry
- minimum, maximum, and points of inflection
- asymptotes

Also, if the curve crosses the *x*- and/or *y*-axis, from what quadrant to what quadrant does it move?

Over the last several months Janet has improved at reading. She no longer has to write out exactly what she will say when describing each graph, although she still takes shorthand notes to make sure what she records is accurate. A 1,018-page algebra and trigonometry book was completed between November 6, 2007, and June 19, 2008, by the Boston office, with eight readers participating. They will soon be starting on a 1,400-page calculus book.

Currently Janet works six months a year as a telecommuter from her home in Boston. It is the other six months that allow her the freedom to volunteer. She attends one two-hour recording session a week, which also requires three hours of round-trip travel. If she worked in Boston, she could record for an additional 1 1/2 to 2 hours in the late afternoon or early evening and greatly reduce her commuting time. Some of the reading is so difficult that only 45 minutes of recording time will be completed in a two-hour session.

Janet is pleased that what she does helps others learn more about math, a subject that has obviously been an important part of her life. Perhaps her recording will be a part of the education of someone who becomes another math professor, like Dr. Bentsen, in spite of enormous obstacles.

Janet Cappers is a manager at PricewaterhouseCoopers LLP in Hartford, Connecticut. AR

25 Years Ago in the *Actuarial Review*

Danger, Danger, Danger!

By Paul E. Lacko

According to many op-ed writers in the *Wall Street Journal* recently, much of the blame for the ongoing "credit crisis" is due to mark-to-market asset accounting. I respectfully disagree. Mark-to-market rules were already in place before the financial assets suddenly dropped in value. The fault lies with the risk managers who somehow failed to comprehend that "mark-to-market" rules require a *functioning market.* A functioning market requires sellers *and buyers.*

Have market failures, sometimes known as "bubbles," ever occurred? Yes. Have market failures occurred in the last twenty years? Yes, yes. Was there some risk that a market failure could occur in, say, the financial derivatives market? Yes, yes, yes!

So how did so many finance experts, quants, and risk managers miss so much that seems so obvious in retrospect?

And could it happen to the insurance industry under fair value accounting sometime in the next ten or twenty years? Absolutely, yes. The last several months have demonstrated that even conservative investment portfolios, such as those of insurers, can be heavily damaged when broader financial markets freeze or go into free fall.

The last several months have demonstrated that even conservative investment portfolios, such as those of insurers, can be heavily damaged when broader financial markets freeze or go into free fall.

Reserve discounting poses risks on the liability side of the balance sheet and the outgo section of the income statement. What are the expected cash flows? How certain are they as to timing and amount? How do we know for sure? How do we select an appropriate discount rate? How much capital is necessary to support the risks that real-world events fail to conform to our expectations? Where will this capital come from when we need it the most? Under what conditions can "mark-to-market" concepts fail miserably in the context of insurance liabilities?

The November 1983 Random Sampler article in *AR* by Charles L. McClenahan described some of the risks that must be addressed by insurance companies when liabilities are reported net of anticipated future investment income. Mr. McClenahan wrote:

25 Years Ago in the *AR*, page 28

What's Up in the Rest of the World?

2008 ASTIN Colloquium Held in Manchester, England

By Louise Francis

Among CAS members, ASTIN's colloquiua and publications have an image problem: they are perceived as highly abstruse and theoretical and of little practical value to North American actuaries. However, after attending the 2008 ASTIN Colloquium with its numerous timely, interesting, and practical presentations, I believe this reputation to be quite undeserved.

ASTIN (Actuarial STudies In Non-life insurance) is a section of the International Actuarial Association (IAA) dedicated to actuarial research, particularly in non-life (property and casualty) insurance. Climate change, extreme value modeling, and European Union reforms in solvency monitoring were just a few topics discussed when actuaries from around the world met in Manchester, England, in July for the 2008 ASTIN Colloquium. The world is shrinking and nothing brings that fact home more forcefully than the reality that climate change can affect the entire world—no place is immune.

The world is shrinking and nothing brings that fact home more forcefully than the reality that climate change can affect the entire world—no place is immune.

Kicking off the Colloquium was a presentation on climate change by Julia Slingo, who is the director of the Centre for Global Atmospheric Modeling at the University of Reading in England. Her research strongly supports the hypothesis that we will experience significant global warming in future years, even under relatively optimistic scenarios. Ms. Slingo's models indicate not only significant increases in temperature but also declines in the availability of food and water arising from the climate change.

On a related topic, Anthony Day discussed the concept of "peak oil," the time when the world's maximum rate of oil production (in the aggregate) is reached. After this point, oil production rates will decline. Mr. Day cited a number of authors who believe peak oil has already been reached. His paper presents the implications of a possible energy crisis, not only caused by insufficient oil and other sources of energy but due to the deterioration of the energy infrastructure. Mr. Day's paper contains a number of very plausible scenarios.

One of the tools commonly used to model multivariate extreme values is known as a "copula." Unfortunately much of the published literature on copulas is quite difficult to understand. In his plenary session, "Accounting for Extreme Value Dependence in Multivariate Data," Professor Christian Genest of Canada's Laval University provided one of the more pragmatic and user-friendly introductions to copulas for probability distribution tail modeling. Insurance data is typically heavy-tailed with dependencies for extreme (i.e., extremely large) values and failure to model such scenarios can have a significant impact on actuarial estimates and decisions based on them. Thus, a straightforward procedure for addressing the problem of modeling extreme values by ranking the data is of practical interest to actuaries. Genest covers how to test for extreme values and to parameterize the function used to model correlated extreme values. Had their modelers paid attention to extreme values, Long-Term Capital Management, the hedge fund notorious for almost causing an international financial crisis in the late 1990s, might still be around today, and the continuing subprime meltdown that began in 2007 might never have happened.

Just as in North America, there is considerable interest in quantifying variability in reserve estimates. Hui Liu and Richard Verrall presented their paper on using the bootstrap for quantifying loss reserve variability. Note that the bootstrap is one of the most popular procedures used in Europe to quantify the variability of loss reserves (England and Verrall's 2001 paper describing the approach can be accessed from the CAS Web Site). Liu and Verrall modified the bootstrap procedure by incorporating the Munich chain ladder, a technique that European actuaries are apparently well acquainted with (introduced by Quarg and Mack in 2004).

Following Dr. Quarg's presentation at the 2004 Casualty Loss Reserve Seminar (CLRS), the method Liu and Verrall espouse simultaneously uses both paid and incurred loss development triangles to estimate ultimate losses. The technique is so widely

known outside North America that North American actuaries could benefit by becoming acquainted with it. The Liu and Verrall paper provides a concise summary of the key formulas; however, it does not present some of the motivation and insight into the approach contained in the original Quarg and Mack paper. Fortunately, the Quarg and Mack paper on the Munich Chain Ladder will be published in the next issue of *Variance*, so CAS members can acquaint themselves with the technique.

In another interesting session, Michael Fackler's paper titled "Uncertainty of Past Inflation" pointed out that the (usually industry-wide) trend and inflation indices that actuaries regularly work with contain a large amount of uncertainty that is typically ignored in measuring variability. The paper demonstrates that the uncertainty from inflation can be quite great and should not be ignored. One surprising result of the paper is that, under certain circumstances, the inflation uncertainty is so large that older historic data should be downweighted in pricing estimates.

Capital allocation, the allocation of actual or notional surplus to segments of an insurance company's portfolio, is an area of active research within the CAS—one with many competing methods and with little consensus on how to do it. Capital allocation is often a step in developing pricing estimates. Neil Bodoff contributes to the debate by presenting a novel approach to allocating capital in his paper, "Capital Allocation by Percentile Layer." The approach is a percentile-based analysis of the contribution of each line (peril, policy, etc.) to the company's value at risk (VaR) at multiple percentiles. In general, implementing the method would require a stochastic model such as dynamic financial analysis (DFA), which can model thousands of scenarios of company performance. The model is relatively straightforward to understand and implement and is used to quantify contributions to incremental changes in the percentiles of the loss distribution. It recognizes that many lines/perils/policies/etc. contribute to the outcome at each percentile and that selecting only one percentile to base capital allocation on can be arbitrary or misleading.

Solvency II was another hot Colloquium topic. A plenary session and a number of papers discussed the actuarial impact of the impending changes to insurance companies and actuaries. Implementing Solvency II regulations will result in insurance companies utilizing DFA models. It should be noted that the International Account Standards Board and the Financial Accounting Standards Board have been developing standards of accounting—some significantly different from U.S. accounting—that all countries are to use in the near future. If, in fact, Canada already has solvency regulations that require a limited form of DFA.

Numerous other sessions featured papers (45 in all) on many topics, including catastrophe modeling, solvency modeling, dynamic financial analysis, VaR, capital allocation, and generalized linear models.

Learn more about what's happening in the rest of the actuarial world. 2008 ASTIN Colloquium papers can be found at www.actuaries.org.

Social aspects of the Colloquium included a visit to the city of Chester and a tour of Tatton Park, an historic estate whose impressive mansion and magnificent gardens were recently featured in the film *Brideshead Revisited*. I also broadened my cultural horizons by visiting with some of the 170 delegates from the 30-plus countries represented. At the dinners and outings, I was generally among people whose first language was other than English, though nearly all of them spoke English well. While at the gala dinner at the Imperial War Museum North, for instance, I was able to swap stories with a Norwegian actuary about our fathers' experiences during World War II. Visiting with delegates from so many different countries exposed me to points of view unlike those I've usually encountered at North American conferences.

I encourage CAS members to learn more about what's happening in the rest of the actuarial world. Accepted papers from the 2008 ASTIN Colloquium can be found at www.actuaries.org/ASTIN/Colloquia/Manchester/Papers_EN.cfm.

Louise Francis is the consulting principal for Francis Analytics & Actuarial Data Mining Inc. in Philadelphia. The CAS Board elected her CAS Vice President-Research and Development. She begins her term this month. AR

Actuarial Foundation Update

THE ACTUARIAL FOUNDATION

Rebuild Math Classrooms Continues—Students Need Your Help!

Many of the middle school students who were affected by Hurricanes Katrina and Rita and relocated to other districts are now entering high school. These high schools are seeing a 20% increase in the number of students. Unfortunately, the current school budgets cannot support these increases. The Foundation has been approached under the Rebuild Math Classrooms program to help provide graphing calculators for their classrooms and for use in their state Algebra I testing. The need is for 150 calculators. Your donation will help fulfill their needs. Please help with a donation today. To donate visit www.actuarialfoundation.org/donor/donor.htm.

Conversions Rock!

Actuaries are helping inspire middle school students to appreciate how ratios, percentages, and fractions interrelate with "Conversions Rock." It's the third in a series of award-winning, free Actuarial Foundation math enhancement programs that help improve achievement scores and get kids excited about math. In this program, The Conversions, a fictional rock band of middle school-age kids with a knack for numbers, help students get excited about using math to help them figure out their CD sales proceeds, touring stats, and the band's budget. Actuaries contributed to and oversaw the development of the program's math applications. To download this program or any of the other math enhancement programs, visit www.actuarialfoundation.org/grant/index.html.

Year-End Appeal

Make a difference today and support the dynamic programs of The Actuarial Foundation. As the only independent U.S. philanthropic organization of the actuarial profession, be proud of the positive impact the Foundation's programs have had on society and will continue to have with your help. Make a gift to the Foundation today. Gifts are 100% tax-deductible. To make a contribution, visit www.actuarialfoundation.org/donor/donor.htm.

Thank you. AR

25 Years Ago in the *AR*, From page 25

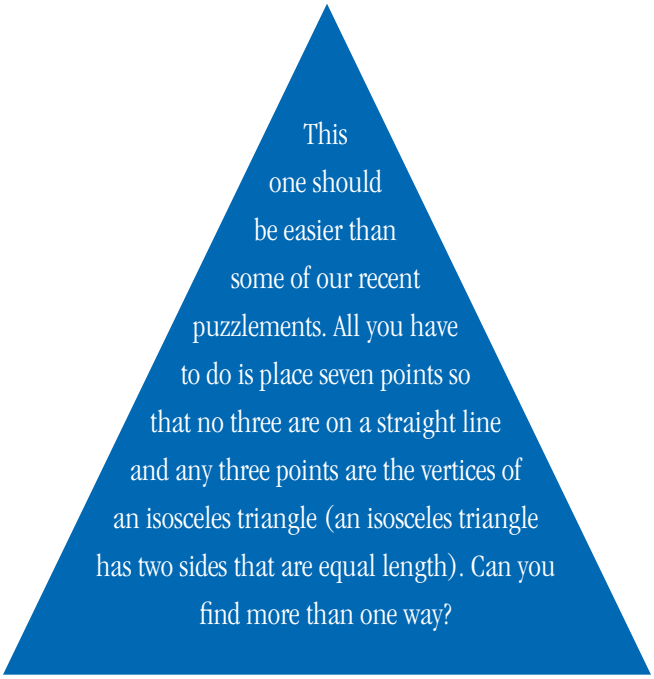
> My concerns relate to . . . the multiple counting of the discount inherent in adequate statutory loss reserves . . . we must be careful to reflect that discount only once. It can be used to offset reserve deficiency or rate deficiency; it can be shared with policyholders or the IRS; it can be added to surplus through a portfolio transfer. But once we have utilized one of these options we must recognize that some portion of the discount is no longer available to the others.

A front-page article in the same issue about the 1983 Casualty Loss Reserve Seminar reported Ruth Salzmann's warnings during her luncheon address to the attendees. According to the article, she said that discounted loss reserve reporting "is dangerous to consider unless estimated loss liabilities can be established at sound levels. 'More refinement in financial reporting will require more professionalism, higher standards, and better scorecards.'" The article closes with the following paragraph:

> In her opening remarks, Miss Salzmann noted that in many big companies the chief executive officer (CEO) has the final word on reserves. At Sentry (her company), however, the senior financial actuary, who reports to the CEO, has the final word. "Though unusual," she said, "the buck stops at the senior actuary's desk on reserves." The senior financial actuary at Sentry is Ruth Salzmann.

Can we do a better job of protecting our policyholders than Wall Street has done of protecting our 401(k) balances? AR

Make Some Isosceles Triangles



Tom and Don

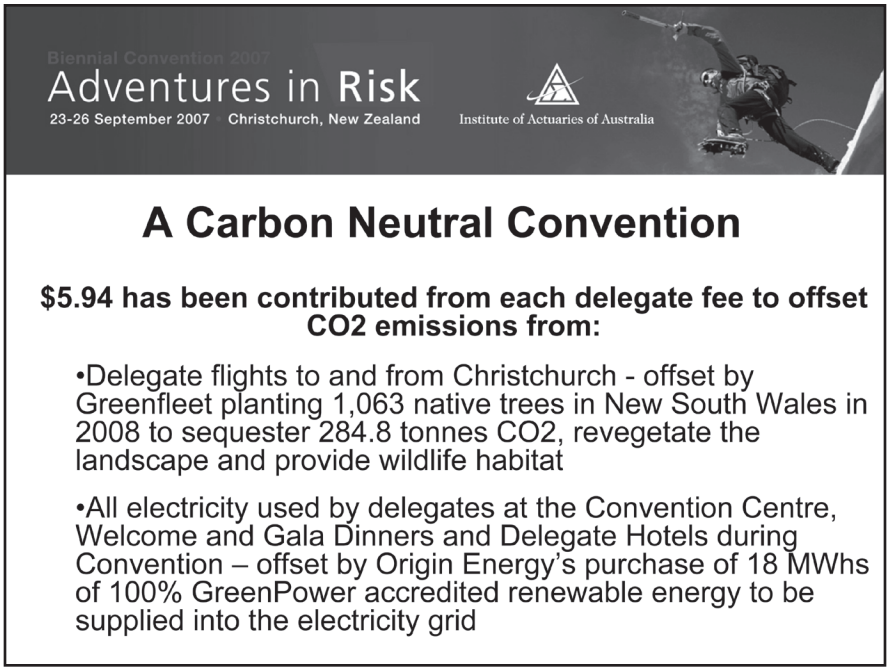
The question was whether the distribution of flecks of ore could be used to determine the original orientation of some sedimentary rock. David Uhland's solution gets straight to the point, so we just pass it along verbatim:

> First, what I expect was the intended solution:
>
> The random flecks cannot be compressed in the vertical direction without also becoming more tightly packed horizontally. Suppose the contrary, i.e., suppose on average the density of flecks in very thin vertical slices were greater than the density of flecks from horizontal slices on average. This can't happen because if you count up all the flecks from all vertical slices, you must get the same number as when all the flecks are counted in all horizontal slices.
>
> Another way of thinking about this is that if random triplets (a,b,c), corresponding to the length, width, and height, respectively, are uniformly distributed throughout (x,y,z), then the triplets (a,b,rc) are uniformly distributed throughout (x,y,rz) where r is any real number, in this case $0<r<1$ to match the compression.
>
> Second, an alternate (purely theoretical) solution:
>
> Since the rock was compressed from pressure above (air and any material lying on top of the rock), the top portion of the rock should end up being compressed less than the bottom portion of the rock, since the bottom portion of the rock has the additional weight of the top part of the rock pushing on it! Therefore, the flecks should be more densely concentrated in the bottom of the rock than the top. Therefore, by looking at the distribution of flecks, not only could one deduce the vertical axis as the puzzle asks, but further one could tell which direction was up originally. Of course in practice, the additional compression at the bottom of the rock is probably not measurable.

Charles Stimler and Dave Skurnick also sent in solutions. AR

Going Green in More Ways than One

As going green moves into the mainstream, many associations are seeking ways to increase the sustainability of their operations, particularly in the area of meetings. The CAS is uniquely positioned to not only strive to "green" its activities, but also to assist its members in understanding how climate change and environmental sustainability issues will affect the risks with which casualty actuaries deal. The CAS Board of Directors recently endorsed "a greener CAS" on both of these fronts.



The information on this slide from the Institute of Actuaries of Australia Biennial Convention in 2007 motivated the CAS to develop and implement its own sustainability practices.

A Greener CAS Office

CAS representatives attending the Institute of Actuaries of Australia annual convention last year were struck by what the Institute had done to offset the carbon emissions that the meeting created—from the electric light in the meeting rooms to the emissions from the planes bringing delegates to New Zealand. Part of the registration fees for the meeting was used to purchase carbon offsets that funded environmental projects such as tree planting.

Inspired, they shared this information with CAS Executive Director Cynthia Ziegler, who in turn challenged the CAS staff to adopt sustainability practices. For example, the CAS Office is now:

- Printing newsletters and brochures with soy-based inks on paper certified by the Forest Stewardship Council. The 2008 Annual Meeting registration brochure was printed in this manner.
- Offering a compressed schedule option for staff members in which ten working days are compressed into nine days in order to reduce commuting and the associated pollution.
- Planning green meetings and seminars, starting with making the events paperless for session presentations (see sidebar on paperless meetings).

The greening of CAS meetings and seminars deserves special mention because of the significant environmental impact of professional education events, which consume energy (particularly non-renewable energy resources), produce waste, and result in undesirable air emissions. A "green meeting" ensures that all aspects of an event—its location, food services, and transportation as well as the manner in which materials are provided—are approached with the impact on the environment in mind in order to reduce this impact.

In addition to going paperless, the CAS is considering a number of ideas for reducing the environmental impact of events, such as

- choosing centrally located destinations that require minimal travel for attendees;
- contracting with facilities committed to being green;
- using china, cloth napkins, and silverware in lieu of disposable products to reduce waste at food and beverage functions;
- exploring ways to balance an event's environmental impact by purchasing carbon offsets.

Why go green? Maintaining a green office and hosting green events provide tangible benefits, including

- conserving energy, reducing waste, and saving money;

CAS Meetings Are Going Paperless!

In an effort to be more environmentally friendly, all CAS meetings and seminars are now paperless. Paperless meetings are meetings in which session presentations and other materials traditionally given to attendees are not printed and are instead available online.

Paperless events have many benefits. In addition to being more environmentally conscious, they make logistics easier for presenters, attendees, and planners. Furthermore, by putting these materials on the CAS Web Site, attendees, as well as non-attendees all over the world, will be able to access them at any time.

Many session presentations are available online at least two weeks prior to the event so attendees can save them to their computer in advance or download them to their USB flash drives at the onsite Cyber Café. There is no need to print anything! Finally, attendees will no longer need to lug around all of the presentations or worry about misplacing them.

In addition to session presentations, lists of attendees will also be provided electronically, though a few hard copies will be available at the registration desk for quick reference. Evaluations will also be administered online. Printed onsite brochures with hotel maps will still be provided to all attendees but they will be printed with soy-based inks on green-certified paper.

The CAS appreciates attendees' support in helping to reduce the CAS's carbon footprint. To do your part in making the world a little greener, remember to download the presentations you want before going to your next CAS meeting or seminar.

- educating meeting and seminar participants, organizers, and suppliers about the benefits of green meetings;
- developing a positive public image;
- attracting and retaining employees drawn to socially responsible organizations;
- improving our chances for long-term sustainability by using fewer nonrenewable resources.

CAS Involvement in Climate Change Issues

According to the GIRO (U.K.) Working Party Report titled "The Impact of Climate Change on Non-Life Insurance,"

> The effect of Climate Change on insurance companies is likely to have a significant financial impact on assets and liabilities over a long term. Non-life insurance actuaries…are well placed professionals to help their employers or clients evaluate the complex future financial risks of Climate Change.

Potential future risks related to climate change exist not only in the P&C arena (floods, hurricanes, drought) but also in health insurance—rising temperatures can create a host of health issues ranging from added stress on individuals to a diminished food supply and increased pollution. Because the issue cuts across practice areas, the profession-wide Image of the Actuary campaign is considering the topic for an actuarial research project that could help showcase actuaries as thought leaders. One idea being discussed is the development of a composite index on climate change related to insurance costs.

Looking to address the issue through its research division, the CAS recently established the Climate Change Issues Task Force, chaired by Susan Woerner. The task force is charged with:

- identifying major climate change-related issues expected to affect CAS members and identifying ways to assist members in addressing those issues;
- considering support of the Image Campaign's objective to highlight actuarial involvement in this issue (e.g., profiling actuaries working in this area on the Image of the Actuary Web Site);
- recommending whether the CAS should establish a standing committee on the issue of climate change.

The issue of climate change provides another vehicle for the CAS to achieve its Centennial Goal. Given the interest in the topic already shown in the actuarial communities in the United Kingdom and Australia, the issue is an excellent opportunity for CAS members to work with actuaries overseas to shape the profession's input on climate change. In addition, climate change affects more than just insurers. With the knowledge and experience gained helping insurers address climate change issues, actuaries can bring their talents to bear on similar issues in enterprise risk management. As CAS President-Elect Designate Roger Hayne observes, "Who better to shed rational light on the entire climate change debate than we casualty actuaries, who are so familiar with risk and quantifying uncertainty."

The CAS Board discussed the association's green activities during its meeting held September 16-17 in Washington, D.C. There was a consensus to continue exploring climate change issues, both internally with regards to operations and meetings and externally with regards to the research and development efforts. Look for much more on the CAS's green efforts in future issues of the *Actuarial Review*. AR

December 3-4, 2008
AAA Seminar on Effective P/C Loss Reserve Opinions
Westin BWI Airport
Baltimore, Maryland, U.S.A.
www.actuary.org/seminars/casualty/opinion08.asp

Dec 10-11, 2008
Global Best Practices in ERM for Insurers and Reinsurers Webinar
Sponsoring Organizations: SOA, CAS, the Joint Risk Management Section, The Institute of Actuaries of Japan, The Faculty and Institute of Actuaries (U.K.), and the Institute of Actuaries of Australia
Event Sponsor: Watson Wyatt Worldwide
www.soa.org/meetings-and-events

March 9-11, 2009
CAS Ratemaking and Product Management (RPM) Seminar
The Mirage
Las Vegas, Nevada, U.S.A.

April 29, 2009-May 1, 2009
Enterprise Risk Management Symposium
Sheraton
Chicago, Illinois, U.S.A.

May 3-6, 2009
CAS Spring Meeting
New Orleans Marriott
New Orleans, Louisiana, U.S.A.

May 18-19, 2009
CAS Seminar on Reinsurance
Fairmont Hamilton Princess
Hamilton, Bermuda

In Memoriam

Ronald L. Bornhuetter
(FCAS 1957) 1932-2008

Harold M. Jones
(FCAS 1939) 1908-2005

Russell B. Wenitsky
(ACAS 1989) 1959-2008

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