The Actuarial Review

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New Fellow Karen M. Commons (right) accepts her diploma and a handshake from CAS President John J. Kollar.

INSIDE THIS ISSUE

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CAS Welcomes New Affiliates

Diego F. Antonio
Ernst & Young LLP
Hamilton, Bermuda
Fellow, Colegio de Traductores Publicos de la Ciudad de Buenos Aires (Argentina)

Sylvie Hulin
Deloitte Consulting LLP
Chicago, IL
Fellow, L'Insitut des Actuaires (France)

Help Locate CAS Members

The CAS has lost contact with the following members. If anyone knows of the whereabouts of or how to contact these members, please contact the CAS Member Resource Center at MRC@casact.org.

Erika Lee Anderson
Chandler P. Benson
David R. Bradley
Karen D. Derstine
Kirsten A. Frantom
Mingyue Li
Laura Smith McAnena
Timothy C. McAuliffe
Meredith R. Ong
Justin Radick
Robert M. Sandler

Sponsors Support the 2009 RPM Seminar

The CAS appreciates the support provided by the sponsors of the 2009 Ratemaking and Product Management (RPM) Seminar:

- Padfolio Sponsor—EMB
- Lanyard Sponsor—Pinnacle Actuarial Resources, Inc.
- Pen Sponsor—Pryor Associates Executive Search

The 2010 RPM Seminar is scheduled for March 2010 in Chicago. Contact Mike Boa at the CAS Office (mboa@casact.org or 703-562-1724) for details on sponsorship and exhibitor opportunities for the 2010 event.

On the Road to…

One of the key functions of the president, and to a lesser extent the president-elect, is representing the CAS at the senior level with counterparts at other actuarial organizations. This can involve substantial travel, and phone calls at odd hours. From an ERM perspective, international travel can involve risk as well as opportunity. Frequently there is the challenge that arises from different languages, food, and culture. While English may be the international language of business, it may be necessary to listen very carefully to people who make a great effort to speak English as their second or third language. My speaking slowly can also improve communication. Hand gestures can be helpful, but they can have very different meanings in different cultures.

The CAS international leadership has recognized the need to sensitize our international representatives to cultural differences in many countries. Coming from North America introduces many other complexities into international relationships. Perceptions of national/personal wealth, economic power, etc. will sometimes cause people to have unfair preconceived notions about us. Flexibility, patience, and humor can generally win over most people. One compliment that I valued was, "You're not bad for a gringo."

IAA Meeting in Dublin, Ireland (October 2007)

The IAA (International Association of Actuaries) is an association of actuarial associations. It can be viewed as the United Nations of actuaries. There was a lot of buzz about a $5 million donation to foster actuarial education in underdeveloped nations. Unfortunately the funding has not yet materialized due to downturn in the world economy. While many other issues were addressed at the meeting, arguably the most important was the adoption of a Statement of Intent to establish a global ERM qualification. This actually occurred at the Presidents' Forum, which is technically not part of the IAA. The Forum provides an arena for presidents of organizations to address various issues that are generally not part of the IAA agenda. Presidents of six organizations signed the statement at the Forum with the CAS president-elect and SOA president signing that they would seek the support of their organizations. This marked the official starting point of the quest for a global actuarial ERM designation.

IAA, CAS, CIA, SOA Meetings in Quebec City (June 2008)

The morning part of the Presidents' Forum focused on UN-like issues. Each member association would be entitled to one seat at the inner table. In addition, each member association would be entitled to two seats at the outer (non-voting) table. The Presidents' Forum devoted the afternoon to discussing a global ERM designation making it all worthwhile. I somehow became chair of the task force that would be responsible for developing the agenda for the next Forum meeting.

IAA Meeting in Limassol, Cyprus, with London Stopovers (November 2008)

In London I was able to meet with some of the leaders and staff on the U.K. actuarial profession (UKAP, i.e., the Institute of Actuaries and the Faculty of Actuaries). I also had some subsequent meetings with general insurance actuaries. The focus of the discussions was on how the CAS and the UKAP could grow our relationship and partner on areas of joint interest. For example, the CAS could work with UKAP actuaries on research projects to help satisfy research needs for all three of the organizations. Also the joint administration of professionalism courses in other countries could spread the cost over several actuarial organizations.

I actually met the two UKAP presidents in Cyprus at the IAA meeting. (The two UKAP organizations, Institute and Faculty, are voting on a possible merger with the outcome to be determined by the time this article is published.)

The IAA decided to issue statements in a number of countries regarding the global financial crisis. These statements would promote the role of actuaries in dealing with risk. The financial crisis statements neatly complemented the discussions on ERM. There were three special meetings on ERM in addition to the discussions at various committees and the Presidents' Forum.

I managed to survive my presentations at the Presidents' Forum between bouts of coughing and came home with bronchitis.

Australian Biennial Meeting (April 2009)

As leading proponents of a global actuarial ERM designation, the leadership of the Institute of Actuaries of Australia were interested in CAS and SOA ERM developments. There were many ERM discussions involving representatives of the Institute, the SOA, and the CAS during and around the meeting.

The Institute's Biennial meeting, which was relocated before the meeting from Perth to Sydney, was well attended with many excellent sessions. Sponsors were recognized many times during

From the President, page 4

You might be an actuary…

Dear Editor:

Continuing the observations about pizza in the "Humor Me" column of the current issue of the *Actuarial Review* (May 2009):

1. If you let r_L be the radius of the larger pizza and r_S be the radius of the smaller pizza and let p be the ratio between what you would pay for a unit area of entirely topped pizza and what you would pay for the same area of untopped pizza, and base your decision on the quantity

$$\frac{p(r_L - 1)^2 + 2r_L - 1}{p(r_S - 1)^2 + 2r_S - 1},$$

then you just might be a professor of actuarial science.

2. If you attempt to improve upon the above formula by taking into account the downward concavity of the utility functions for topped and untopped pizza, then you are probably an economist.

—*Homer S. White*

Professor of Mathematics and Director,
Academic Honors Program
Georgetown College, Georgetown, KY

Dear Editor:

You might be an actuary if it takes four of you to come up with just eight actuarial jokes.

—*Irene K. Bass, FCAS, MAAA*

AR *Editor in Chief Paul Lacko replies:*

Or five actuaries to come up with just nine.

Dear Editor:

You may be an actuary if at the first grade book sale, you challenge the volunteer's sale tax calculation.

—*Jeremy P. Pecora, FCAS, MAAA*

Dear Editor:

I have long suspected that most actuaries don't pay much attention to the *Actuarial Review* but I labored under the misimpression that the editors, at least, read it.

Does the Young, Swartz, Adler, and Lacko "Humor Me" article bear more than a passing resemblance to the May 2008 "Random Sampler"?

—*Charles McClenahan, FCAS, MAAA*

The Editor in Chief replies:

There's more than a passing resemblance, we must admit. Readers can see for themselves in your "Random Sampler" ("You Might be an Actuarial Consultant," Actuarial Review, *May 2008).*

It's entirely not the result of conscious intent. We attend closely to spelling, punctuation, grammar, word count, and all that. We often forget the content before an issue goes to the printer. Obviously, some of the best material stays in the backs of our minds for a long time!

We've come a long way…

Dear Editor:

I was pleased that you revisited my puzzler of 25 years ago ("25 Years Ago in the *Actuarial Review*," *AR*, May 2009). I remember it well.

In re-reading it I recalled why I chose the first name, "Reggie." I did it to invalidate any suspicion of "sexism." There was a member of the CAS named Regina Berens, and of course, "Reginald" is a man's name.

Female CAS members may remember that I welcomed their presence. In one of my articles for the *Review*, I listed the growth in the number of women members as the second (of ten) most important developments by the CAS. The "first" was growth (in size) of the CAS.

—*Charles C. Hewitt Jr., FCAS*

Editor's note: Mr. Hewitt served as CAS president in 1972. Ms. Berens is still an active member of the CAS.

From the President, From page 3

opening remarks before plenary sessions and with banners next to the podium highlighting their support.

IAA Meeting in Tallinn, Estonia (May 2009)

Each day brought another non-agenda global ERM designation meeting. This was in addition to the scheduled ERM meetings that tied into the global financial crisis. While the treaty was not finalized at the meeting, there were only a few remaining points to address.

The IAA has done excellent work in advancing the profession globally. Some of the major initiatives include:

- support the establishment and qualification of new actuarial organizations
- establish minimum educational requirements
- recognize organizations when they satisfy educational requirements
- provide model international actuarial practice standards
- pursue supranational relationships (i.e., relationships with other international bodies, such as the World Bank)
- advocate continuing professional development

I think I'll remain in North America for a while.

Actuaries Play Crucial Role In Helping Insurers Deal With Climate Change

HAMILTON, Bermuda—"There are important ways actuaries can contribute to the debate about climate change, from helping our employers and our industry understand the risks to quantifying the pricing and risk management implications," said Douglas Collins, a consulting actuary with Towers Perrin. Mr. Collins addressed the attendees of the CAS Seminar on Reinsurance, which was held on May 18-19.

Likely Effects of Climate Change on P&C Insurance and Reinsurance

Mr. Collins observed that property/casualty insurers and reinsurers are likely to see effects of climate change across many aspects of their business, including:

1. property claims, particularly for wildfire, flood, and drought.
2. wind, especially hurricanes and tropical storms, if climate change causes increased frequency or severity or both.
3. litigation activity affecting D&O liability related to (a) proper disclosure and assessment of climate risks, and (b) potential environmental liability claims against customers in the energy and automobile industries.
4. increased costs in (a) responding to regulators' and rating agencies' requests, and (b) becoming environmentally responsible or "green" companies.

New products that are being developed or underwritten to encourage green behavior include pay-as-you-drive auto insurance and discounts for drivers of hybrid cars.

Climate change may also affect investment strategies as companies decide whether to support technologies that are environmentally friendly. "The bottom line is that the insurance and reinsurance community can handle worsening climate because by definition it is a long-term phenomenon. What will challenge us as an industry are aspects of climate change that may not be considered by our models, particularly if we see more frequent severe property events or significant liability claims," Mr. Collins added.

Predictions Are Problematic

Katharine Hayhoe, research associate professor in the Department of Geosciences at Texas Tech University, told attendees that the climate today is changing in ways that cannot be predicted by the past.

"If we only consider natural factors, we cannot explain how climate has changed over the last 50 years, nor can we predict what will happen over the rest of this century. For the first time in history, humans have actually taken over the reins.

"That's not to say there aren't natural factors that still affect climate—there certainly are—but when one term in that equation gets much larger than the rest, it dominates. And that

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The Polls Are Open!

Fellows are reminded to cast their ballots for the 2009 CAS elections. Voting opened on July 31, 2009.

Ralph S. Blanchard

Ralph S. Blanchard has been nominated as CAS president-elect for 2009/2010. Mr. Blanchard currently serves as the CAS Vice President-International. Candidates for director positions are Robert Anker, Cara Blank, James Christie, Beth Fitzgerald, Richard Goldfarb, Clive Keatinge, Arlie Proctor, and Ken Quintilian.

On July 1 a "Meet the Candidates" section on the CAS Web Site was opened for Fellows to learn about the candidates. Candidates provided a one-page biography, an additional page of relevant biographical information, a short statement titled "Why I Want to Serve," and a brief statement identifying their positions on issues of special interest to them.

Completed election ballots must be submitted by August 28, 2009.

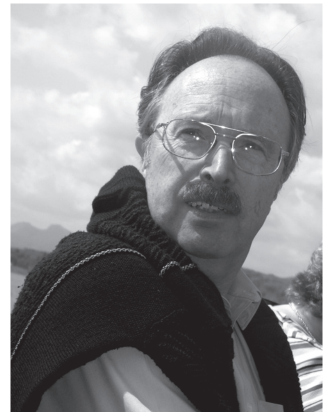
Mack Awarded 2009 Hachemeister Prize

Thomas Mack has been honored as the 2009 prizewinner of the Charles A. Hachemeister Prize for his paper, "The Prediction Error of Bornhuetter-Ferguson."

Designed to promote property/casualty-oriented papers published in an international forum, the Hachemeister Prize was created to honor Charles Hachemeister's many contributions to Actuarial Studies in Non-Life Insurance (ASTIN) and his efforts to establish a closer relationship between the CAS and ASTIN. As a result, eligible papers for the prize must have appeared in the previous year's *ASTIN Bulletin* or been presented at the previous year's ASTIN Colloquium.

A new CAS Research & Development committee, the Hachemeister Prize Committee, was created in 2008 to oversee the selection of the prizewinner. Under the guidance of chairperson Atul Malhotra, the committee culled one winner from a list of nearly 100 eligible papers to one winner by way of a systematic process conducted over a two-month period earlier this year. Criteria considered when judging papers includes impact to the industry, practicality of application, originality, readability, and completeness.

"The Prediction Error of Bornhuetter/Ferguson" effectively describes a formula for calculating the prediction error for one of the most popular claims reserving methods—something that had been missing in actuarial literature up to this point. Therefore, the paper definitely filled a gap. Also, the approach described was very practical and implementable. The committee concurred that Dr. Mack's paper would have a decided impact on the work of casualty actuaries in North America.



Thomas Mack

Dr. Mack was honored at the 2009 ASTIN Colloquium in Helsinki, Finland in June. He has also been invited to present his paper at the CAS Annual Meeting in November in Boston, MA.

Three papers that scored well in the review process were acknowledged with an "Honorable Mention." Those papers are: "Allocation of Capital between Assets and Liabilities" by Yingjie Zhang; "Credibility for the Chain Ladder Reserving Method" by Alois Gisler and Mario Wüthrich; and "Robust Bayesian Analysis of Loss Reserves Data Using the Generalized-t Distribution" by Jennifer S.K. Chan, S.T. Boris Choy, and Udi E. Makov. These three papers provide excellent educational value.

Dr. Mack also won the first ever Hachemeister Prize in 1994 for his paper, "Which Stochastic Model is Underlying the Chain Ladder Method?"

Estonian Actuarial Society Celebrates its 10th Anniversary

In celebration of its 10th anniversary, the Eesti Aktuaaride Liit hosted the 2009 IAA Committee Meetings and the Presidents' Forum, held last June.

An informal recognition ceremony took place the day before the IAA Meetings at a special educational seminar hosted by the Estonians. In recognition of this milestone event, the CAS contributed $500 U.S. to the IAA Actuarial Fund, and the Society of Actuaries matched the gift. It was through a grant from the IAA Fund that the Eesti Aktuaaride Liit was able to organize and fund operations.

CAS President John Kollar (left) and Marika Guralnik, President of Eesti Aktuaaride Liit.

CAS to Award the ERM Designation CERA

ARLINGTON, Va.—Following its March 2009 decision to pursue an enterprise risk management (ERM) designation, the CAS Board approved the recommendation to adopt the Global ERM Designation, CERA, during a special board teleconference held on June 23. The board authorized the CAS president to sign the Global Enterprise Risk Management Designation Treaty (Global Treaty) establishing the credential, when the treaty is finalized.

As described in the May 2009 *Actuarial Review* article "CAS to Pursue an ERM Designation," CAS leadership was considering multiple possible courses of action in developing an ERM designation for the CAS, including:

1. working with international actuarial associations on the development of a global ERM designation;
2. discussing with the Society of Actuaries (SOA) the appropriateness of CERA as the ERM designation;
3. pursuing efforts to reconcile the global credential and CERA such that there would be a single ERM designation for the CAS, SOA, and other actuarial associations in North America and possibly globally.

The third approach was the preferred option because an ERM credential supported by several actuarial associations likely would carry greater weight in the marketplace and such a partnership would strengthen ties between the actuarial organizations.

That option became more likely when the SOA Board voted in early June to support the adoption and implementation of a global ERM credential and expressed its intention to sign the Global Treaty when it is finalized. In addition, the Canadian Institute of Actuaries Board met on June 17 and voted in favor of signing the Global Treaty. At least ten actuarial organizations outside North America are expected to sign the treaty when it is final, with others to follow in later years.

An international steering committee has been established and charged with resolving the issues necessary to finalize the treaty. Kevin Dickson, CAS Vice President-ERM, is the CAS representative on this committee. Various issues on governance, quality assurance, and legal matters are expected to be finalized promptly so that the formal treaty can be executed. In the meantime, CAS Admissions Committees are already working on the learning objectives, syllabus, and requirements for attaining the ERM designation, within the parameters of the treaty. Details will be released to the CAS membership as soon as they are available.

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is what we are seeing with the human influence on climate," she said.

According to Ms. Hayhoe, this means that the amount of change expected over the rest of the century depends on the choices we make today. "Some degree of future climate change is inevitable," she said, "because of the heat-trapping gases we have already put into the atmosphere. But by making smart choices that limit future production of heat-trapping gases, the most severe consequences of human-induced climate change can be averted."

In terms of the impacts of climate change, a major area of uncertainty is how climate will affect hurricanes. "If I look at all of the areas in which climate change may affect us and pick the top three most uncertain areas, hurricanes would be on that list," she said.

Ms. Hayhoe said the more you look at the connections between climate change and hurricanes, the more uncertainty there is. She gave the example of warming oceans. "There is no question that ocean surface temperatures have warmed. This is a concern because it means we are increasing the amount of energy available to tropical cyclones or hurricanes.

"If this were the only thing we were looking at we would expect there to be more powerful hurricanes."

However, she said a number of other factors need to be considered that may affect the frequency and severity of storms, including the impact of El Niño events and vertical wind shear.

"In any given year there are factors that act to decrease the frequency and intensity of hurricanes and there are other factors that increase that," Ms. Hayhoe added. "But there are many other areas where we are very certain about the direction of change."

Other climate changes that scientists are certain about include higher temperatures, more temperature swings, rising sea levels, and more flooding. Such events can increase claims for insurers, she noted, affecting coastal and urban infrastructure, human health and welfare, and energy use and the economy.

Requirements for ACAS to Issue NAIC PC Opinions Clarified for the 2011 CAS Syllabus

By Mary Frances Miller and David Menning

The CAS Board recently approved changes to the CAS Syllabus that will be effective in 2011. It is important that candidates be aware of the fact that the exam requirements for ACAS will not cover all of the basic education requirements for actuaries issuing statements of actuarial opinion on loss and loss expense reserves in compliance with the Property and Casualty Annual Statement Instructions, which are issued by the National Association of Insurance Commissioners (NAIC PC Opinions). This article is intended to clarify the interaction among the regulatory requirements for appointed actuaries issuing NAIC PC Opinions, the U.S. Qualification Standards, and the admissions requirements of the CAS.

The regulatory requirements are set out in the Annual Statement Instructions. Per the instructions, a "qualified actuary" is a person who is

i. A member in good standing of the Casualty Actuarial Society, or

ii. A member in good standing of the American Academy of Actuaries who has been approved as qualified for signing casualty loss reserve opinions by the Casualty Practice Council of the American Academy of Actuaries.[1]

It's clear, then, that the regulatory requirement is met by all members of the CAS. However, while membership in the CAS may meet the NAIC Annual Statement instructions, being a CAS member is necessary, but not sufficient to qualify an actuary to sign NAIC PC Opinions. CAS members who wish to sign NAIC PC Opinions are subject to *both* the regulatory requirements and the U.S. Qualification Standards. Precept 2 of the Code of Professional Conduct requires that members be qualified and meet applicable qualification standards, and the Academy is the Recognized Actuarial Organization that issues such standards for the United States.

The U.S. Qualification Standards require the actuary to meet both the general qualification standard for all statements of actuarial opinion and the specific qualification standard for NAIC PC Opinions. The actuary must meet requirements in three areas: basic education, experience, and continuing education. It is also important to note that the basic education and experience requirements need to be met only once.

Basic Education

All CAS members by definition meet the basic education requirements under the general qualification standards. However, the actuary must meet the following additional education requirements under the specific qualification standard, either through successful completion of examinations or through alternative education.

Successful Completion of Examinations

The actuary should pass relevant examinations offered by either the CAS or the Academy on the following topics (The Academy does not currently offer examinations, so the CAS exams are the requirement.):

- policy forms and coverages
- underwriting and marketing
- principles of ratemaking
- statutory insurance accounting and expense analysis
- premium, loss, and expense reserves
- reinsurance

Under the 2009 and 2011 syllabuses, these required topics are covered by the following examinations:

Required Topic	2009 CAS Syllabus	2011 CAS Syllabus
Policy forms and coverages	Exam 5	Internet Course Module 1
Underwriting and marketing	Exam 5	Internet Course Module 1
Principles of ratemaking	Exam 5	Basic Ratemaking & Reserving Exam
Statutory insurance accounting and expense analysis	Exam 6 and Exam 7-U.S.	Internet Course Module 2 + Regulation & Financial Reporting Exam—U.S.
Premium, loss, and expense reserves	Exam 6	Basic Ratemaking & Reserving Exam
Reinsurance	Exam 6	Advanced Reserving, Reinsurance, & ERM Exam

[1] State authorities have also approved others to act as appointed actuaries, although this has become increasingly rare as the supply of qualified actuaries has grown.

Under the 2009 CAS Syllabus, most actuaries who meet the exam requirements for ACAS under the current syllabus will meet the basic education requirements for the NAIC PC Opinion. The possible exception is an actuary who took Exam 7-Canada. Although this exam includes material related to U.S. law and regulation, its coverage is not at the same level of depth as the U.S. exam. The Specific Qualification Standards do not explicitly state that the actuary must have passed the U.S. version of the examination. The fact that there are different nation-specific versions of the exam, however, would imply that the expectation is that the "relevant" exam is the U.S. version. Actuaries who chose to take Exam 7-Canada, then, would be advised to ensure that they have mastered all of the topics on the U.S. version of the exam through alternative education (as discussed below).

Actuaries who attained membership in the CAS under prior syllabus requirements are advised to ensure that all of the required topics were covered. Any missing topics should be mastered either by passing additional CAS examinations or through alternative education (as discussed below).

Beginning in 2011, the CAS syllabus has minimum exam requirements for ACAS that will not cover all of the basic education requirements for the NAIC PC Opinion under Section 3.1.1. of the U.S. Qualification Standards. In order to meet the specific qualification standard for NAIC PC Opinions, an ACAS will need to either pass the *Advanced Reserving, Reinsurance, and ERM Exam* or cover the reinsurance topic at the same level of mastery through alternative education (as discussed below).

Alternative Education

There is an alternative education option for an actuary who has not passed all of the relevant CAS exams. The requirement may be met through self-study and work experience, but requires a signoff by an actuary who is qualified to sign an NAIC PC Opinion. Obtaining such a signoff is intended to be specific to the knowledge and understanding about the required topic(s) on the exam(s) that the ACAS has not passed. A sample attestation statement is provided as an appendix to the qualification standard. While the alternative education option may be appropriate to fill in the gaps for CAS members who passed Exam 7-Canada, this option would *not* be appropriate in most cases to fulfill the required reinsurance topic for someone who has met only the minimum exam requirements for an ACAS under the 2011 syllabus.

Experience

The actuary must obtain at least three years of relevant responsible experience under review by an actuary who was qualified to issue NAIC PC Opinions. The experience does not need to be recent, but it should be relevant. This requirement has not changed. The reviewer does not need to be the actuary's supervisor, and it is not necessary that the two actuaries have the same employer, for example, in cases where the reviewer serves as a consultant to the actuary's employer. It is expected that the relevant experience would include a significant amount of reserving. For example, an actuary whose experience was restricted to ratemaking assignments would most likely not meet the experience requirement.

Continuing Education

The actuary must meet the continuing education requirement in the general qualification standard. As a part of the actuary's continuing education, the specific qualification standard requires 15 hours of continuing education that must be directly relevant to the specific basic education topics discussed above, and that six of those 15 hours be obtained through activities involving interactions with outside actuaries or other professionals. The total number of hours (30) is not changed.

Mary Frances Miller, FCAS, MAAA, is a member of the Casualty Practice Council of the American Academy of Actuaries. David Menning, FCAS, MAAA, currently serves as the CAS Vice President-Admissions.

Disclaimer: The American Academy of Actuaries Casualty Practice Council believes this article accurately reflects the interaction between the CAS syllabus and the U.S. Qualification Standard. However, an individual actuary must review the Qualification Standard and determine whether or not the actuary is qualified to issue the NAIC PC Opinion.

PDR Opinions: Not "Why" but "Why Not?"

By Ken Quintilian

Last year I wrote an article ("In My Opinion—What Exactly Are Our Core Skills, Anyway?" *Actuarial Review*, August 2008) in which I touched, among other things, on the Premium Deficiency Reserve (PDR) and how much actuaries could bring to the table in estimating its value. I favor the establishment of a formal opinion for this reserve, and that article lists some benefits that I think the industry would gain from this. More recently there has been activity at the NAIC on the issue; the Casualty Actuarial Statistical Task Force (CASTF) has begun to consider just such a requirement for a Statement of Actuarial Opinion on property/casualty company PDR. As of this writing (early June 2009), draft instructions have been circulated for comment. The tentative date for the first opinion has been set for year-end 2010. Much is still in flux. Many of these factors are likely to change before the requirement is finalized, but now is the time for the actuarial community to begin thinking about, discussing, and commenting on this proposal.

The PDR is a part of the statutory Unearned Premium Reserve (UPR). It has been explicitly required by SSAP #53 since Codification in 2001, and by GAAP for longer than that. Its purpose (stated simply, as it applies to short-duration contracts) is to provide for the shortfall in UPR that will arise from a substantial inadequacy in charged rates. If rates are inadequate, the UPR alone (combined with the charges to income from prepaid expenses and the like) may not be sufficient to yield an accurate and timely picture of the company's economic well-being. Although this will eventually be corrected (when premium is earned and loss reserves established), the PDR advances this recognition to the time of premium writing. Certain credits (particularly for designated prepaid expenses and investment income) are allowed at the time of booking the PDR to avoid what might be an unduly onerous requirement. The reserve is to be examined and analyzed "in a manner consistent with how policies are marketed, serviced and measured" and offsets between lines of business are not permitted.

Up until now, the reserve has not been the subject of close scrutiny and is usually set by accountants with little or no input from actuaries (one survey at year-end 2008 found 10% of PDRs being set or evaluated by an actuary). This is true in spite of the fact that actuaries—already extensively trained in the principles of ratemaking that are fundamental to the PDR estimate—are the single group of professionals who most obviously have the expertise to estimate the value of the PDR.

Likely in part because of the lack of actuarial input, a serious look at line-by-line rate adequacy does not seem to be a routine part of the estimation of this reserve, even though rate adequacy is the basis upon which the PDR must supposedly be set. The pervasiveness of zero PDRs through soft and hard markets is the strongest evidence supporting this conclusion. Reasons for this seeming lack of rigor might include accounting tradition for this reserve, lack of detailed understanding of by-line rate adequacy issues by the accountants or others estimating the PDR, acceptance at face value of underwriting assertions of rate adequacy on current business, and a perception of lack of materiality.

A positive PDR is very rarely established. For instance, a recent survey by a regulator in a major domicile found no instances of a positive PDR in that state for 2008. That means that not one line of business in one company was deemed inadequate enough to require a PDR.

Other aspects of current practice also evidence either a lack of understanding by practitioners or a casual approach to the setting of a reserve that has been mostly overlooked by auditors and regulators until now. For example, a widely reported practice is that of evaluating the PDR for only two divisions of business: all commercial lines combined and all personal lines combined. This is hardly the level of detail at which companies monitor the profitability of their business.

The need to correct this shortcoming is obvious. An actuarial opinion on the PDR (not aggregated with the loss reserve or the UPR or any other reserve) will bring the proper attention to this important analysis. Requiring an opinion for small and even for zero PDRs will eliminate the "materiality" safe harbor that currently keeps PDR off the auditing radar screen. And it will place a simple metric on the Annual Statement that gives regulators and management valuable actuarial insight into the adequacy of the company's rates.

This is perhaps the most important reason for this reserve. Many will argue that if more scrupulous practice results in positive PDRs being larger and more numerous, the reserve will still rarely be material. Even if this proves to be true, the importance of this reserve will transcend materiality considerations. The PDR will be another arrow in management's (and regulators') quiver to monitor price adequacy in a broad sense, helping to anticipate and respond to the pricing cycle that adds so much volatility to industry and company results. The supporting actuarial analysis will also provide line-by-line details to help drill down to the sources of the shortfall.

The expense (actuarial fees, etc.) that will be incurred by complying with this requirement will not seem onerous to companies that are comprehensively monitoring their profitability already. The additional analysis necessary to complete a PDR is fairly straightforward, for companies that have a good idea of their loss ratios by line and state.

This requirement could also improve the loss reserve setting and monitoring process since the information gleaned from the PDR exercise would yield valuable input to the estimation of loss ratios for the more immature reserve years. This communication between the reserving and ratemaking functions has to yield positive fruits for the health of the companies and the industry.

All of the comment letters received by the CASTF to date (and the proposal itself) can be viewed at the NAIC Web Page (www.naic.org/committees_c_catf.htm). The American Academy of Actuaries through the COPLFR Committee submitted a letter generally opposing this requirement. Why would the profession not consider this requirement to be in their principals' best interests? Among COPLFR's arguments were:

- Actuaries don't routinely do these analyses so we don't have the experience.
- There is no general standard for setting these reserves so we need to be told how to do it.
- Non-zero PDRs are very rare so they are presumably unnecessary. Why do an opinion on a non-issue? The benefits don't justify the cost involved.
- This kind of an analysis should be considered a joint effort between the accountants and actuaries. Maybe the actuaries should steer clear of such elements as investment income and underwriting expenses.

None of these seem like strong arguments to me. Our profession wants to do enterprise risk management (ERM). We want to be the ones issuing a world-recognized credential and we want the opportunity to lead company ERM efforts inside and even outside the insurance space. PDR is analysis, quantification, and disclosure of a major risk to the company—one that is already recognized as falling squarely within the purview of actuarial responsibility (ratemaking/underwriting). I don't think we can in good conscience move into ERM if we can't handle (by ourselves) this basic actuarial silo, this slight stretch beyond what we already do every day. If measuring risk is important, expense is going to be incurred measuring it. We can't hide behind other professions or just wave our hands in an implicit "hear no evil, see no evil" posture and expect to be taken seriously as big-picture analysts of corporate risk. This is one of our core skills. We have to take a risk ourselves. We have to step forward and say, "This should be measured, and we are the ones to do it."

We have to step forward and say, "This should be measured, and we are the ones to do it."

Many details remain to be worked out. The analysis does not have to be piled on top of an already overburdened financial reporting season. It would be very reasonable to establish a different time table for this reserve, such as June 30 or some other date either before or after year-end. And the requirement could allow for the reserve to be opined upon by a different actuary—say, the chief of pricing—rather than the appointed actuary for loss reserving. Reinsurance must be addressed; although the current proposal is silent on the issue, I think that, like the loss reserve, the opinion should be expressed on two bases: direct and assumed, and net.

PDR is part of the fiduciary responsibility of running a company: examine, track, and report to stakeholders on the health of the company's business. It's not even a new requirement, only a more rigorous, expert review of something companies are supposedly already doing. As a profession, we should support such requirements as being in the corporate and public interest—good medicine even if some of our principals don't like it—and we should *insist* on being the ones to do the work. There are enough of us. More are minted every six months. This is an area where we know we can contribute positively. This is what we entered this profession to do.

Ken Quintilian is Chief Actuary of MLMIC, a medical professional liability company in New York, and is currently serving as the CAS Vice President-Administration. The views he expresses are his own and do not represent an official position of MLMIC or of the CAS.

CAS Shows You the Best of Boston at the 2009 Annual Meeting

Join CAS in Boston for the 2009 Annual Meeting. Scheduled for November 15-18 at the The Westin Boston Waterfront. This meeting offers a variety of continuing education sessions, opportunities to sharpen your business skills, and ample time for casual discussion. With two receptions and a dinner, you'll be able to catch up with old colleagues, make new acquaintances, and simply socialize with actuarial peers.

This year's featured speaker will be Senator Paul Sarbanes, who will discuss his co-authoring of the Sarbanes-Oxley Act and what it means for American business. The former senator will focus on how transparent business practices have strengthened the economy and markets, and why it is important for the United States to advocate strong business regulation and ethics.

Four General Sessions Offered

Federal regulation has been debated for years. With the recent changes in the political landscape, federal regulation has become a hot button issue resulting in several insurance companies being in favor of it and others strongly opposed. One general session will feature the two differing viewpoints in a debate format with each side presenting their case and then allowing their opponent to respond. We will wrap up the session with questions from the audience.

With two CAS actuaries convicted of violating securities and criminal laws, it is important to review our legal obligations to the public. A second general session reviews the case against five AIG and Gen Re insurance professionals, focusing on the accounting of reinsurance contracts. The facts of the case are reviewed and the audience is walked through the relevant securities and criminal laws. It is an eye-opening presentation that will educate actuaries on how important documentation is, how important it is to be conscious and precise in communications, and other pertinent professionalism considerations.

A third general session will focus on the NAIC's Climate Risk Survey Disclosure requirement and the climate risk disclosure inquiries that are now appearing on the rating agency (AM Best, Moody's, S&P, etc) questionnaires. The discussion will include what the current requirements are and from whom, and what future requirements are likely to appear. The discussion will then address what this means for the actuarial profession and our risk management role in climate change.

The NAIC has started a wholesale review of how they regulate insurers, called the Solvency Modernization Initiative. How does U.S. solvency regulation compare with Solvency II in Europe? Our fourth general session features Kathryn Morgan of the U.K. Financial Services Authority and deputy chair of the Institute of Actuaries' General Insurance Practice Executive Committee and Terri Vaughan, ACAS, ASA, MAAA, who is the current CEO of the NAIC. Ms. Morgan and Ms. Vaughan will discuss Solvency II, the NAIC Solvency Modernization Initiative, and how the concepts of Solvency II may or may not work in the U.S.

Concurrent Sessions

Concurrent sessions will delve into various topics like the underwriting cycle, workers compensation and national health care reform, predictive modeling, reserve ranges, usage-based pricing, fair value and international accounting, and professionalism.

Location, Location, Location

A quick cab ride from the heart of Boston, the AAA Four Diamond award-winning Westin Boston Waterfront serves as the perfect gateway to the city. Take a quick trip over to Back Bay or the Financial District to experience Boston's unique blend of history and the arts. Or go for a jog along the tree-lined streets with a *Runner's World* map, offered by the hotel, designed to show you the best of Boston.

Don't miss this CAS tradition convening this year in historic Boston. Register today on the CAS Web Site! AR

Join the CAS in Chicago for the CLRS!

Don't miss your chance to earn up to 15 continuing education credits, network with other loss reserving professionals, and explore the heart of the windy city at this year's Casualty Loss Reserve Seminar (CLRS), which will be held at the Chicago Marriott Magnificent Mile Hotel in downtown Chicago, IL on September 14-15.

This year's CLRS will feature many hands-on and interactive sessions including a variety of case-studies as well as a mock trial. Attendees are guaranteed to leave this year's seminar better able to understand, evaluate, and manage risk.

The CLRS is an opportunity to present and discuss significant loss reserving issues and their related financial reporting implications. The CAS, the American Academy of Actuaries, and the Conference of Consulting Actuaries have devised this year's program to include a range of topics to interest professionals and students from a wide array of disciplines, including insurance, accounting, and risk management. Moreover, the seminar meets the continuing education needs of actuaries and other professionals whose responsibilities include loss reserving.

With sessions offered in a variety of areas, CLRS attendees will get updates on current issues and learn new techniques. Featured topics include lines of business, financial reporting, variability and ranges, international issues, catastrophes and mass torts, reinsurance, professional development, and emerging issues. Some of the planned sessions include a general session titled "Performance Testing for Claim Reserves: How Robust Are Your Selected Methods?" which will present a performance testing methodology that can be used to evaluate the robustness of actuarial methods employed to ensure adequate claim reserves. A second general session titled "Dirty Data: Anathema to Best Estimates!" will examine both the prevalence of data quality issues and the significance of those issues.

Additionally, the CLRS will offer basic and intermediate reserving sessions, which are primarily targeted to those attendees who are not members of the CAS. A variety of people, such as underwriters, agents, and brokers, can benefit immensely from these introductory sessions.

Attendees at this year's seminar can explore one of the top tourist cities in the country from the newly renovated Chicago Marriott Magnificent Mile Hotel. Fresh from a multimillion dollar transformation, the hotel boasts contemporary surroundings and sophisticated amenities. Situated on Michigan Avenue's Magnificent Mile among world-class shopping, restaurants, and entertainment, it is within walking distance to the windy city's top attractions, including Navy Pier, American Girl Place, Shedd Aquarium, Millennium Park, and Theater and Museum Districts. With the perfect combination of luxury and proximity, guests will undoubtedly enjoy the best that Chicago has to offer.

Register now for this interactive opportunity to learn more about loss reserving!

Exhibit at the 2009 CLRS

The CLRS organizers encourage companies to exhibit their products and services to professionals who collect, compile and analyze data on loss reserving. This seminar will give exhibitors the opportunity to show how their products or services can help solve the loss reserve professional's problems. To learn more about this opportunity, visit the CAS Web Site.

New Seminar Focuses on the Underwriting Cycle

Join the CAS on October 5-6 in the Washington, DC metro area for an exciting new seminar: "In Focus: The Underwriting Cycle Seminar."

This seminar will examine the underwriting cycle in an effort to better understand its implications for various aspects of the industry. Attendees will consider the effects the cycle has on pricing and rate adequacy, and on reserve analyses. In addition, a wide range of other topics including cycle management, lessons learned from prior cycles, and reinsurance and rating agency effects on cycles will be covered. In addition, sessions will be offered related to professionalism and the underwriting cycle.

Two general sessions offer attendees a chance to dig deeper into issues surrounding the underwriting cycle. Titled "Risk Perceptions and Their Impact on the Cycle," the first general session looks at different ways that individuals view risk and the process of shifting risk perception. With a unique four-point view of risk perception, this session will help attendees develop strategies for managing expectations and influencing actions. The second general session, "Balance Sheet Integrity: Point—Counterpoint" will feature a round table of actuaries from various areas within the industry discussing their professional views and experiences regarding balance sheet strength through the underwriting cycle.

Held at the Westin Alexandria in Alexandria, VA (located across the Potomac River from Washington, DC) attendees will have the best of Washington and its surrounding areas close at hand. Nestled in the exclusive Carlyle section of Old Town Alexandria, the hotel is a short walk from the King Street metro station allowing visitors easy access to the heart of DC. Visit the Capitol, tour the Smithsonian museums, and enjoy the city's best restaurants before returning to the hotel's calm oasis.

Visit the CAS Web Site for more information and to register!

Photo Credit: Ben Fink

Reinsurance LAS Set for London!

The CAS is pleased to announce a new limited attendance seminar on property/casualty reinsurance. "London CARe Seminar: Pricing and Issues in Today's Market" will be held on September 15 at Waterman's Hall in London, England.

Multiple sessions will be offered with topics including the impact of the global financial crisis on the reinsurance industry, an assessment of financial crisis liabilities, U.S. trend sources and techniques as compared to European methods, treatment of increased limits factors and policy limits, and more.

Be sure to join the CAS in London for this exciting new seminar! To register now, visit the CAS Web Site.

The Actuarial Summer Block-Buster Movie Guide

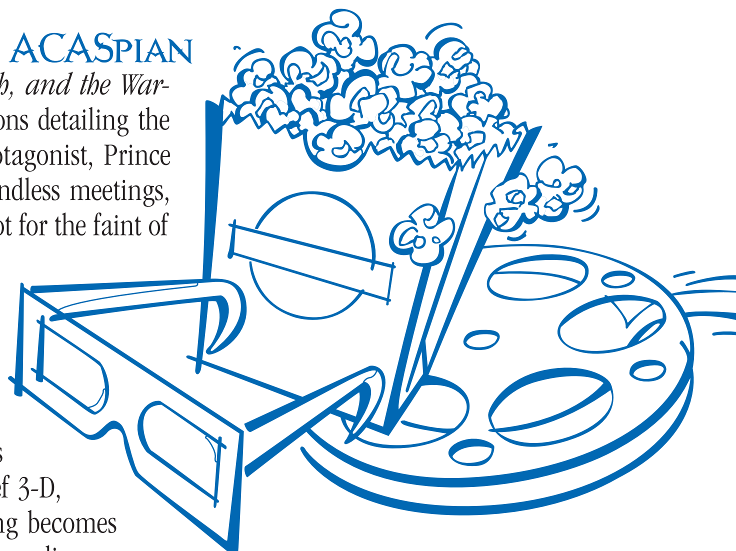
Land of the Lost

In this remake of the 1970s television show, Will Ferrell plays an actuary who becomes stranded in ancient Florida, filled with sinister reptilian creatures and misguided regulators and legislators. In the movie's big hurricane scene, the amazing special effects almost make you believe that surplus could be entirely wiped out by one big storm. Special subsidized ticket price for coast-line residents: $1. Release date: sometime between June 1 and November 30, 2009. Rated "NC-17" for horrifying amounts of exposure.

Up

The latest animated film from Pick-sar follows the adventures of a cranky old actuary and his floating integer calculator. Delightful and humorous without being sappy, we come to see how the LDF picks of some older actuaries tend to be so high. Features the voices of Ed Asner, Christopher Plummer, Jordan Nagai, and John Ratzenberger. Release date: May 29, 2009. Rated "X" for multiplicative methods.

The Chronicles of SarBox-ia: Prince ACASpian



The success of *The Chronicles of SarBox-ia: The Sighing, the Twitch, and the War-Room* certainly ensured we'd be seeing a sequel of Orwellian proportions detailing the excruciating monotony of Sar-Box documentation. Watch as the protagonist, Prince ACASpian leads a band of plucky young interns through a maze of endless meetings, complex guidelines, marathon walk-throughs, and snapping binders. Not for the faint of heart. Release date: Not soon enough. Rated "PG-13" for gratuitous paper cuts, pinched fingers, and some rough auditor language.

Monsters vs. Aliens

The first animated film ever produced about re-insurers. Watch as good-hearted Monsters from America attempt to verify the surplus and capacity of reinsurers from all continents. Filmed in true high-def 3-D, the difference between reinsurance accounting and deposit accounting becomes stunningly apparent. Release date: August 5, 2009. Rated "G" for captive audiences.

The FASB and the Furious

The fourth film in *The FASB and the Furious* franchise, this one takes place between the 163rd and 164th pronouncements. When Tom "IRIS-test" Doretto returns to L.A., he once again comes into conflict with accounting regulations. But soon he is forced to work furiously to restate his company's assets under fair value accounting. Release date: July 1, 2009. Rated "TI" for the temporarily impaired.

The Incredible Bulk-IBNR

Marvel Comics takes on what has long been a difficult plot line to bring to life. This action-oriented film portrays the story of a lone actuary, made to work long hours and forced to hide excess profits in the company's reserves. After a particularly frustrating call with an insurance commissioner, he turns from mild-mannered actuary into his alter ego, The Incredible Bulk. Larger than life and full of scenes of office cubicle destruction, this Technicolored superhero can stuff more money into reserves than any human possibly could. Release date: July 1, 2009. Rated "R" for strong reserving. AR

GLENN MEYERS AND DAVID CUMMINGS

"Goodness of Fit" vs. "Goodness of Lift"

As actuaries continue to become increasingly sophisticated in building predictive models of insurance losses, we also need to build straightforward ways to assess the value of these models. Recently, we have considered a question that many of us have faced as we try to select the best predictive models. The question is whether selecting a model based on statistical measures of goodness of fit will ensure that we will pick the model with the best lift.

Goodness-of-fit measures are familiar to us in regression models. These measures compare the observed data we are trying to fit to the estimates produced by the model. In ordinary least squares regression, goodness of fit is often measured by the total squared error. In generalized linear models (GLMs), goodness of fit is typically assessed through measures of *deviance*. Deviance is the difference between the log-likelihood value of a saturated model (i.e., a model that estimates one parameter for each observation and thus perfectly replicates the observed data) and the log-likelihood value of the estimated GLM.

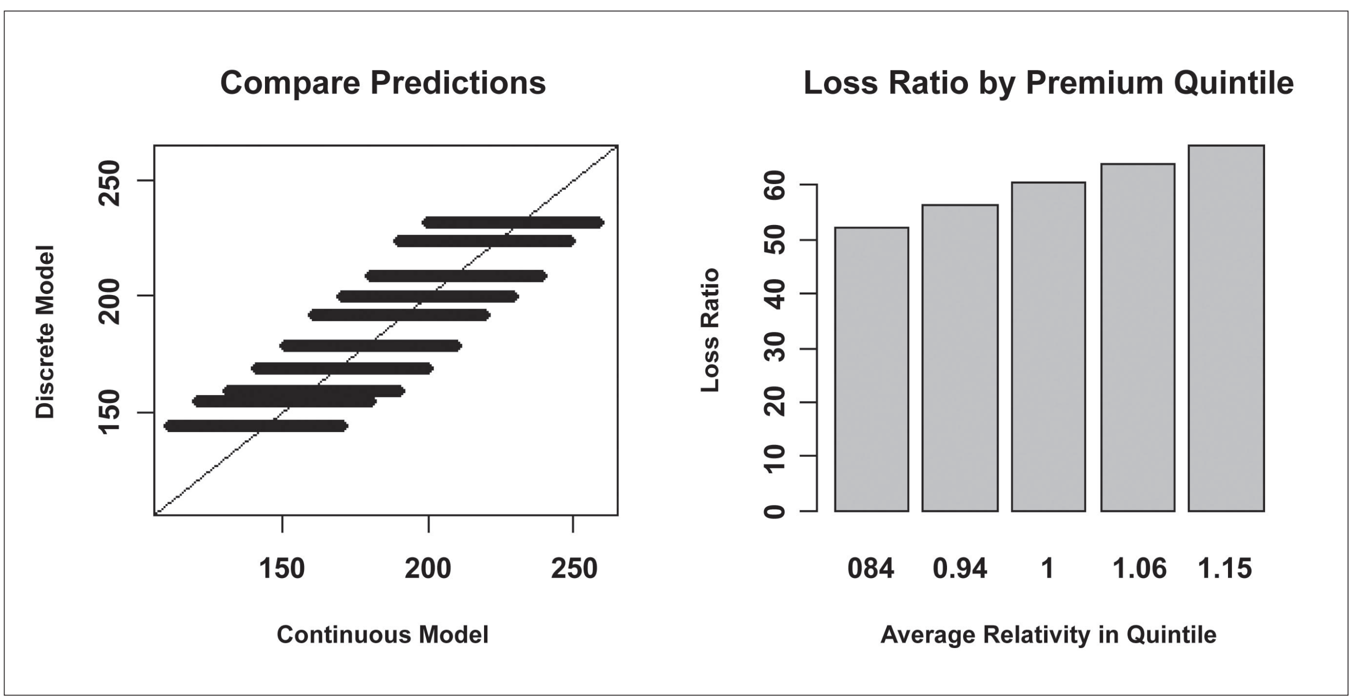
Just like the total squared error, the deviance is a measure of how well the GLM predictions match the observed data. In fact, when you fit a normal model with a GLM, the deviance is equal to the total squared error.

But "goodness of fit" is not the same as "goodness of lift." Why? Because, in ratemaking, the goal of predictive modeling is not to predict the observed loss. The goal is to create accurate estimates of the *expected value* of losses (which is unobserved). Because there is significant variability in insurance data, a model that provides accurate estimates of expected value may demonstrate relatively low "goodness of fit."

To illustrate this phenomenon, we created the following example. We created a simulated dataset containing 100,000 losses generated from a Tweedie distribution with a continuously varying mean.[1] We then fit two different GLMs to this data. The first GLM (discrete model) is analogous to a traditional class plan, with discrete classifications that roughly (but imprecisely) classify risks according to increasing expected value. The second GLM (continuous model) is analogous to a more refined rating plan, and uses a predictor variable that is closely related to the actual mean. Because of this, the continuous model is able to provide more accurate estimates of the expected value of the observed losses.

The left chart compares the predictions of these two models. This chart shows that the discrete model roughly approximates the continuous model.

[1] See the February 2009 Brainstorms column in the *Actuarial Review* for a description of the Tweedie model.



The deviance for the discrete model equals 38,571,996 and the deviance of the continuous model is slightly less at 38,522,307. Imagine a meeting where you say that as a result of your predictive modeling project, you have decreased the deviance by 0.1%.

Now let's look at the lift. One way to measure lift is to calculate the relativity, which is equal to the ratio of the rate you would charge using the continuous model to the rate you would charge using the discrete model. We then group the observations into five equally sized buckets ranked by the relativities. The right chart shows the loss ratios for each bucket when rates are calculated using the discrete model. The buckets with lower average relativities have significantly lower loss ratios. We have lift.

If you were to base your rates on the discrete model, a competitor using the continuous model could compete on price and potentially take away your most profitable risks. In previous columns, we described a statistic, called the Value of Lift (VoL), which quantifies the potential profits lost due to this adverse selection.[2] In this example the VoL is equal to $7 per risk. This could amount to big money if your company writes millions of risks.

While goodness-of-fit measures are useful in the estimation of statistical models, measures of lift help to assess the true value of improved accuracy of loss estimates.

Note: The R code that generated this example accompanies the Web version of this article.

[2] See the May 2008 and December 2008 Brainstorms columns in the *Actuarial Review*.

New CAS Committee Formed

The CAS recently created the Climate Change Committee, which is charged with recommending, supporting, and performing research on climate change, and assessing the potential risk management implications for the insurance industry. Susan K. Woerner chairs the committee.

25 Years Ago in the *Actuarial Review*

Financial Forecast

By Walter Wright

Dr. William C. Freund, senior vice president and economist of the New York Stock Exchange, was the keynote speaker at the Spring 1984 meeting of the CAS. Here are some highlights of his speech, as reported by Mary Lou O'Neil in the August 1984 issue of the Actuarial Review, *with some irreverent comments following each quotation.*

"All forecasts are fallible but to err is human and to get paid for it is divine."

His wisest comment?

"There is a serious and dark cloud on the horizon—the federal deficit. In 1984 the deficit is $180 billion and is expected to increase by $200 billion and more in the future. A deficit of $326 billion is projected by the Congressional Budget Office for 1989."

Oh! The good old days!

"He offered the 'Freund Plan' to achieve the deficit reduction... raising taxes ($30 billion), reducing military spending ($30 billion), putting a lid on entitlement programs ($30 billion)."

The article doesn't say whether he identified any potential political problems associated with his plan.

"The bases for his favorable long-term economic outlook include. . . the energy problem has been overcome."

Wow! If only he had been right!

"On deregulation, Dr. Freund noted that financial services regulation developed over three periods of time: the Civil War; the Panic of 1907, which brought about the Federal Reserve; and the depression of the 30s which resulted in many regulations. He stated that these regulations no longer meet our needs. In fact, many are being circumvented and/or rolled back...."

In fairness to him, how could he have foreseen the mortgage crisis?

"In closing, Dr. Freund stated that the future will be more exciting, the status quo is over."

He was right on this!

MARTY ADLER

Peakbagging

Through the years, some of my subjects have undertaken a challenge to complete a list of specific activities, such as running a marathon in every state or riding every roller coaster he came across. We now add another: climbing to the summit of every 4,000-foot mountain in New England. The term for this kind of activity is "peakbagging." Eric Savage has not only accomplished this, he is now chair and corresponding secretary of the Appalachian Mountain Club (AMC) Four Thousand Footer Committee.

Eric got an early start on mountain climbing. His father, who was generally more interested in the botany than the peaks, was a member of the AMC and took Eric on many hikes. On some of the hikes, Eric heard about the lists of peaks from other participants, who also talked about the more difficult trailless peaks. These lodged in his mind like mythical places of legend. Later he hiked in the White Mountains as a Boy Scout and was introduced to backpacking, i.e., multi-day trips. After high school, he pursued the White Mountain 4,000-Footers (the basic list). It took three summers. By that time he was hooked on the pursuit and moved on to the next lists.

While membership in the AMC is open to anyone who pays the annual dues, to qualify for one of the Four Thousand Footer clubs you have to hike on foot to and from each summit on the current list. The clubs are open to nonmembers of the AMC. There are three official lists recognized by the Four Thousand Footer Committee at this time:

- New Hampshire Four Thousand Footers (White Mountains): 48 peaks
- New England Four Thousand Footers: 67 peaks, including the 48 from New Hampshire
- New England Hundred Highest: 100 peaks, the 4,000-footers plus 33 lower peaks

There is separate recognition for those who complete a list in winter. A winter ascent must occur between the precise hour and minute of the winter solstice and the vernal equinox. The committee resolves technicalities such as when it is appropriate to use a bike and what qualifies as a legitimate starting point. There is no time limit for completing a list. Under the honor system, applicants simply record the dates of their hikes, along with any comments or companions on an application form, and submit an application fee. They also submit an essay on a topic related to their 4,000-footer experience, often a description of the final trip. As corresponding secretary, Eric reads over 400 applications a year.

The primary challenges are the distance and elevation gain. While a few of the peaks can be reached in a 4.5 to 5 mile round trip, a more typical day is closer to 10 miles. The elevation gain is anywhere from 2,000 to 5,000 feet, which makes even the short trips challenging because they are that much steeper. Several peaks are 11 or 12 miles one-way, often climbed on multi-day excursions. Other peaks are close enough to one another that a 10-12 mile hike can get you two or three peaks in one day. To distinguish "real" mountains from shoulders and spurs, the committee ruled that a peak had to rise at least 200 feet from the ridge connecting it to a higher neighbor to be added to the list.

Concerns about weather, footing and, for some lists, lack of trails add to the challenge. It is colder at higher elevations, even in the summer and can also be raining or snowing on the mountain when it is nice elsewhere. Unless you are very picky about the days that you hike, you need to be prepared for the unexpected with a certain amount of extra clothing. The highest peaks are above tree line, i.e., nothing can grow very tall at that elevation, causing even more exposure, especially high winds. Mt. Washington holds the record for highest recorded wind speed. The trails in New England are also rugged with rough footing and frequently include challenging scrambles up ledges. Above tree line on some of the highest peaks, there is nothing but a jumble of rocks to walk up and across.

Climbing trailless mountains adds the challenge of off-trail navigation, a.k.a. "bushwhacking." It requires excellent map and compass skills. Some people now use GPS, but it can't always be relied on in the thick woods prevalent at these elevations. The absence of trails also means that you have to find your way through, over, or under the woods. Above an elevation of 3,000-3,500 feet, most of the woods consist of dense evergreens. Adding to the challenge are blowdowns, trees that have died and have fallen or been blown over. When the blowdowns are hiding in a stand of young spruce, you can't see the obstacles until you are right in front of them, and new trees often grow where old trees have come down and left an opening in the canopy. On a recent trip, the blowdowns were stacked two or three high in some places. It was like climbing over a series of split rail fences while pushing through a "car wash" (a descriptive term for the experience of pushing through the intertwined branches of a stand of young spruce, unable to see where you're going). The art of bushwhacking is finding the path of least resistance that still gets you to the top of the mountain. Sometimes there is no good way, just a less nasty way, to get there.

Winter adds the challenges of extra distance on unplowed access roads and shorter days, which often means starting and/or ending a trip in the dark, rougher and more unpredictable weather, and more extensive gear and clothing, with a significantly larger pack to hold it all. There are two notable advantages, however: no black flies and mosquitoes, and better footing, as rocks and roots are covered with a thick layer of snow.

Peakbagging requires proper boots, enough of the right kind of clothing to deal with whatever weather you encounter, a large backpack, sticks or trekking poles, map, and compass. For longer trips, you should have extra clothing and enough gear, including a stove in the winter, to spend the night out in the woods in case something happens and you or someone in the group is unable to make it back to the car. Winter hiking requires specialized foot gear, notably snowshoes and crampons.

Eric completed his first list (White Mountain 4,000-Footers) by traversing the Presidential Range, which includes the five highest peaks in the Northeast. Instead of backpacking, he finished in style with two good friends by staying in the AMC huts (mountain lodges that provide a bunk as well as dinner and breakfast). They had "an incredible time."

Eric's longest one-day hike was doing the Bonds in winter (a set of peaks in New Hampshire consisting of Mt. Bond, West Bond, and Bondcliff). In addition to hiking 22.6 miles with less than 12 hours of daylight, they also faced nearly hurricane-force winds on an open ridge on the way back. They had to crawl on their hands and knees to cross the ridge without getting blown over. On that trip, he learned where the line is between doable and unsafe.

His first major bushwhack was on Scar Ridge, also in New Hampshire, a trailless peak on the New England Hundred Highest list. Not appreciating the full extent of the challenge, he and a friend tried a point-to-point compass course to tag all eight subpeaks of the ridge. It was an epic ordeal through thick spruce, blowdowns, and all of the other challenges of bushwhacking. They managed to tag six of the eight knobs, including the only one with any view, before deciding to get out of the woods before dark. After that, almost every other bushwhack seems easy.

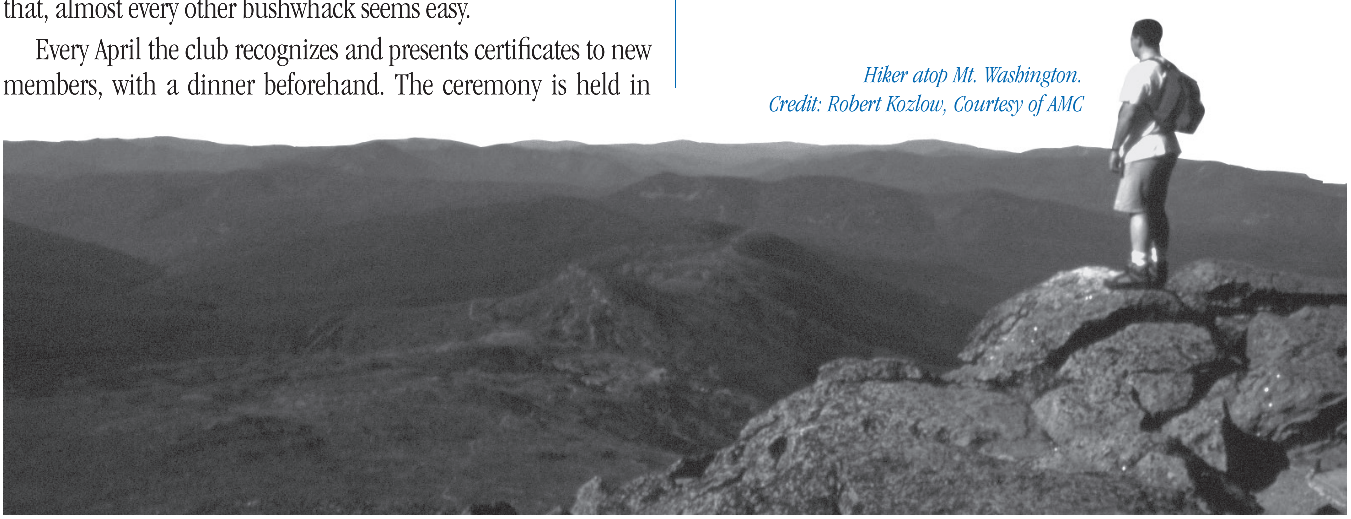
Every April the club recognizes and presents certificates to new members, with a dinner beforehand. The ceremony is held in April because it is mud season, and the event won't interfere with a good hiking day. For the first few years as corresponding secretary, he was studying for an exam while processing last-minute applications and preparing for the awards ceremony. Despite help with many of the preparations, it was an incredible exercise in time management (and required a lot of understanding from his wife and kids). This was never more so than the year he took Exam 7, scheduled only three days after the awards night.

Eric most enjoys the scenery, the exploration, the sense of accomplishment, and just getting away from civilization and mundane concerns—particularly after exams! The views from many of the summits are absolutely incredible. Often the trails go through beautiful forests and follow along brooks and streams, some with waterfalls. There are often outlooks on the way up, as well as at the top.

He has also become something of a celebrity. He has created two unofficial lists. One lists all 3,000-footers with trails in New Hampshire and is posted on a hiking Web site. He has heard from several people who are pursuing it. Once, when teaching at an AMC hiking workshop, his group stopped on the slopes of one of those 3,000-footers. A couple of men came hiking up the trail and struck up a conversation. When Eric introduced himself, one of them reacted as if he'd just met a celebrity and said that he was on this very hike because he was working on Eric's list. A similar incident occurred in his previous career as a teacher, when one of his colleagues put two and two together in the faculty room one day and suddenly said "Wait, you're *that* Eric Savage?" The man had apparently been using Eric's unofficial Web site as a source of information in his own pursuit of the list and didn't realize at first that he was working alongside its creator.

Eric Savage is an Actuary at RiverStone Resources.

Hiker atop Mt. Washington.
Credit: Robert Kozlow, Courtesy of AMC



Webcast To Focus on ERM Best Practices

Global Actuarial Community Sponsors Event

Enterprise risk management (ERM) is a unique field that is developing in all parts of the world, creating a global community of practitioners. The Global Best Practices in ERM for Insurers and Reinsurers Webcast, scheduled for December 1, 2009, will outline emerging ERM practices from different geographical regions. This Webcast will include speakers from Asia-Pacific, Europe, and the Americas, who will offer insight into ERM best practices.

The objectives of this Webcast are to

- disseminate and promote global ERM best practices to the actuarial community,
- offer accessible information about ERM to actuaries, and
- facilitate the discussion of practical and theoretical ERM issues and possible solutions.

The Webcast is designed for:

- actuaries who are currently employed or consulting in the ERM area for insurers or reinsurers
- actuaries and actuarial students who wish to get exposed to ERM practices so they can better participate in ERM programs in the future
- nonactuarial risk officers

The Webcast is the cooperative effort of the global actuarial community. Sponsoring organizations include the Faculty and Institute of Actuaries in the United Kingdom, the Institute of Actuaries of Australia, the International Actuarial Association, the Institute of Actuaries of Japan, the Actuarial Society of Hong Kong, and the Joint Risk Management Section of the Casualty Actuarial Society, Society of Actuaries, and Canadian Institute of Actuaries.

Stay tuned for more details. More information will be available soon and announced in the CAS weekly e-mail bulletin and on the CAS Web Site.

Actuarial Foundation Update

The Actuarial Foundation

Foundation Helps High School Students Prepare for Their Financial Futures

At a time of widespread economic turmoil and financial challenge, it is more important than ever that children are given the knowledge and skills they need to manage their money wisely and to make smart decisions for the future. In response, the Actuarial Foundation has released "Building Your Future," an engaging and relevant financial literacy curriculum to help teens master the foundational elements of personal finance and to prepare for life after high school. To find out more about this new curriculum visit www.actuarialfoundation.org/publications/BuildingYourFuturePR.shtml.

ERM Research Excellence Award Winner Announced

Each year, The Actuarial Foundation presents an award of excellence for the best overall paper submitted in response to a call for papers issued in conjunction with the ERM Symposium. The award not only recognizes excellence but also significant contributions to the growing body of ERM knowledge and research.

B. John Manistre, FSA, FCIA, MAAA, won the 2009 Actuarial Foundation's ERM Research Excellence Award for his paper "A Risk Management Tool for Long Liabilities: The Static Control Model." To download the paper, visit The Foundation's Web site at www.actuarialfoundation.org.

It's Back to School for Many Actuaries….

Every fall, actuaries across the U.S. gear up for the start of another new school year. Actuaries have been mentoring students in math classrooms through The Actuarial Foundation's Advancing Student Achievement program for over 10 years. From playing math games with elementary school kids to helping high school students prepare for math competitions, there is a wide variety of programs out there. To learn about programs near you, visit www.actuarialfoundation.org/programs/youth/mentors_needed.shtml or contact asa@actfnd.org.

The Joy of International Trade

Some of the following questions do not have a unique answer, but I've had so much fun playing with them that I think you might too. Jon Evans suggested the puzzle.

Countries A and B both produce and consume only televisions (TVs) and recreational vehicles (RVs). The happiness in each country is the number of TVs consumed times the number of RVs consumed in that country. For example, 1,000 TVs and 4,000 RVs provide the same happiness as 40,000 TVs and 100 RVs. A country must consume some TVs and some RVs, or there is no happiness in the land. However, neither country cares about the happiness of the other country.

Country A can produce 10,000 TVs or 2,000 RVs or any linear combination, 10,000a TVs and 2,000(1 - a) RVs for $0 \leq a \leq 1$. Country B can produce 100,000 TVs or 10,000 RVs or any linear combination, 100,000b TVs and 10,000(1 - b) RVs for $0 \leq b \leq 1$.

Here are the questions:

(a) If there is no trade between the countries, what is the optimal production and consumption in each country, and what is the total happiness in each country?

(b) Show that with trade the happiness in both countries can be greater than without trade.

Optional questions:

(c) If A and B agree to trade under the rule that average prices of all goods exchanged between them are equal to their final market prices, what is the maximum happiness in A and B under optimal production, consumption, and trade?

(d) Under trade, but without the exchange price constraint in (c), what do you think will happen? How much will each country produce, trade, consume? How happy will each country be? Or, what is the range of possibilities?

Liars, Truth Tellers, and Random Answers

The puzzle was that you are at a fork in the road and you want to know which of two roads leads to the village. Three natives are present, one who always tells the truth, one who always lies, and one who answers at random, but you don't know who is who. How can you ask two yes-or-no questions, each question addressed to one particular native, and determine which road leads to the village?

David Uhland's solution uses the first question to make it possible to direct the second question to a native that you know is *not* the random answerer. David's solution is to ask the first person, "If I were to ask you 'Does the second person give random answers?', would you say 'yes'?" Either the first person is the random answerer or the answer reveals the random answerer's position. You direct the second question to whichever of the second and third persons is indicated to not be the random answerer. The second question could be: "If I were to ask you 'Does the path on the left lead to the village?' would you say 'yes'?" Whether you ask the truth teller or the liar (but not the random answerer, who has been eliminated), a "yes" answer indicates that the left path leads to the village and a "no" answer means the path to the right leads to the village.

Christopher Allard, Russell Fisher, Alexander Kozmin, Ben Kraus, and Jason Russ also submitted solutions.

ROGER M. HAYNE

"May you live in interesting times"

Although often quoted as a curse, the title of this column is music to an actuary's ears—it reflects our *raison d'être*. We are skilled at assessing and quantifying the financial effects of uncertainty ("interesting times"). However, we are not immune from risk aversion and often want and need to know what is coming next. In the next few paragraphs we'll randomly sample some items, not necessarily in the order of importance, that will possibly make the lives of casualty actuaries just a bit more interesting in the near future.

ERM Designation

The CAS Board has already approved the addition of the first new CAS designation since the formation of our Society 96 years ago. The new designation will recognize special expertise in enterprise risk management (ERM). The Society of Actuaries already has the Chartered Enterprise Risk Analyst or CERA designation and a number of actuarial organizations are working on a treaty for the establishment of a single ERM designation for actuaries. The CAS, through Steve D'Arcy, has been active in designing the syllabus for this global designation, which will present a robust and substantial educational framework for these ERM experts. By the time this column is published, there will likely be a number of associations who will have signed the treaty, including possibly the CAS itself, as well as the SOA. This treaty will mark the first real step the signing organizations will take to jointly promote the actuarial profession worldwide. The designation, to be called either CERA or ERMA (depending on whether or not the SOA signs the treaty), would be issued by all signing associations to signify significant knowledge of ERM. (see story, page 7.)

Continuing Education

Qualification standards developed by the American Academy of Actuaries, effective January 1, 2008, significantly expanded the reach of continuing education requirements, as well as the level of such education relative to the standards in place before that time. Those new standards now apply to all actuaries practicing in the United States who issue "statements of actuarial opinion." Some of our members in the United States do not see their work product as "statements of actuarial opinion" and hence may not satisfy those continuing education requirements. In addition, roughly one in seven CAS members has an address outside of the United States, and as such may not be bound by these standards. Recognizing that the CAS is an international organization, the CAS Board has just approved the establishment of continuing education requirements applicable to all CAS members (with limited exceptions to be developed by the Executive Council), not just those practicing in the U.S. who issue "statements of actuarial opinion."

A Global CAS

As stated in the previous paragraph, roughly one in seven CAS members has an address outside of the U.S. Many of those residing in foreign countries are U.S. expatriates working there. Asia, though, presents a markedly different picture. A significant portion, if not a majority, of CAS members residing in Asia are themselves from Asia. Although no Asian country as yet has the largest number of CAS members outside the U.S. (Canada holds that distinction), there are a substantial number of CAS candidates with Asian addresses. This means that the Asian population of CAS members is growing rapidly. We are already working to prepare a nation-specific examination for Taiwan to parallel our current Exam 7-U.S. and Exam 7-Canada. With a growing number of our members working outside of the U.S., we will need to be sure we can serve and represent all our members, not just those living in North America.

Future Education Methods

The actuarial profession maintains educational requirements for admission and requires some sort of verification of that education. Some countries allow this verification to be accomplished through university education. Others, such as the U.S. and Canada, generally require passing timed, written examinations as the only route to verify the majority of the educational content of the syllabus. "Generally" is used here to acknowledge that the CAS and SOA allow alternatives to traditional examinations for some subjects through the "validation by educational experience" or VEE. Other major exam-giving actuarial organizations such as the Faculty of Actuaries and the Institute of Actuaries in the U.K. and the Institute of Actuaries of Australia give credit for many of the early examinations to students who pass particular university courses from select universities with sufficiently high grades. The CAS, SOA, and the Canadian Institute of Actuaries (CIA) are jointly exploring a similar waiver program for select U.S. and Canadian universities.

The Global Financial Crisis

The current global financial crisis points up the need for a deep and comprehensive understanding of risk and the application

Random Sampler, page 23

Spring *E-Forum* Papers Available

The 2009 Spring *E-Forum*, which includes the 2009 Reinsurance Call Papers, has been published and is available online. Following is a brief synopsis of the papers you can find in this issue.

Most actuaries learn loss development on the job and pick up whatever techniques are being used by those around them. In "Unstable Loss Development Factors," Gary Blumsohn and Michael Laufer describe a recent survey demonstrating the variety of methods and variability of selections of loss development factors (prior to consideration of the tail) and the variability of the resulting reserve projections.

Existing models of the market price of cat bonds are often overly exotic or too simplistic. Neil Bodoff and Yunbo Gan analyze several years of cat bond prices "when issued" in their paper "An Analysis of the Market Price of Cat Bonds." They describe the market clearing issuance price of cat bonds as a linear function of expected loss, with parameters that vary by peril and zone.

Risk transfer analysis has many nuances that can trip up an actuary testing a contract. In "Common Pitfalls and Practical Considerations in Risk Transfer Analysis," Derek Freihaut and Paul Vendetti discuss several of these pitfalls and provide direction on how to address them based on previously published materials from the accounting boards, the American Academy of Actuaries (AAA), and the Casualty Actuarial Society (CAS).

In 1980, Stephen D'Arcy wrote a paper to provide insurers with a strategy to immunize against inflation. Given the threat inflation poses to insurance firms, Richard Krivo's "An Update to D'Arcy's 'A Strategy for Property-Liability Insurers in Inflationary Times'", brings this seminal paper up to date . Over the year 2008, it appeared that inflation was going to be a significant obstacle for the insurance industry on the basis of a sharp increase in the cost of commodities and increasing severity trends for property coverage as a result.

In "Modeling Paid and Incurred Losses Together," Leigh J. Halliwell discusses how the modeling skills of actuaries and academicians have developed to the point of their seeking joint models for paid and incurred losses. The key to such models is covariance; heteroskedastic models cannot serve the purpose. Properly accounting for covariance in the linear statistical model will provide an exact, sound, and elegant solution to the problem.

In "The Cost of Risk: A COTOR-VALCON Discussion," John A. Major summarizes a discussion from the COTOR-VALCON e-mail list on the relationship between an insurer's risk and cost of capital. The paper focuses on the applicability of the capital asset pricing model (CAPM) and the effects of financial frictions.

Property/casualty reserves are estimates of losses and loss development and as such will not match the ultimate results. "Quantifying Uncertainty In Reserve Estimates," by Zia Rehman and Stuart Klugman, provides a comprehensive and practical methodology for quantifying risk that includes three sources of error: model error (the methodology used does not accurately reflect the development process), parameter error (model parameters are calibrated from the data), and process error (future development is random).

To read these and other *E-Forum* papers, visit http://www.casact.org/pubs/forum/.

Random Sampler, From page 22

of that understanding to identifying and managing risks for an enterprise as a whole. Casualty actuaries, with their broad experience in a very wide variety of hazard risks, many of which are not readily modeled, and their deep understanding of risk and uncertainty, bring a unique set of skills to the table for managing such risks. This understanding not only helps identify and manage enterprise risk, but also helps educate regulators in their roles monitoring the solidity of financial and other institutions.

Conclusion

All of these items have a common thread—a shrinking world and the unique role CAS members can play in that world. These truly are interesting times. This simply highlights the importance of our Centennial Goal:

> The CAS will be recognized globally as a leading resource in educating casualty actuaries and conducting research in casualty actuarial science. CAS members will advance their expertise in pricing, reserving, and capital modeling, and leverage their skills in risk analysis to become recognized as experts in the evaluation of enterprise risks, particularly for the property and casualty insurance industry.

Roger M. Hayne is CAS president-elect.

New Fellows Honored at the CAS Spring Meeting

Row 1, left to right: Peter H. D'Orsi, Patrick Beaulieu, Lori A. Moore, HongTao Wang, **CAS President John Kollar**, Malika El Kacemi-Grande, Queenie W.C. Huang, Danielle J. Aufiero, Josy-Anne Tanguay. **Row 2, left to right:** Matthew D. Sharp, Lawrence J. McTaggart, Matthew Miller Crotts, David Matthew Lang, Jason A. Flick, John E. Kollar, Alejandro Morales, Keith J. Champagne, Andrew P. Kempen, Elisabeth Picard-Courtois. **Row 3, left to right:** Alexander Peter Maizys, Karen M. Commons, Frank H. Chang, Xiang Ji, Jennifer Lee Niles, DuoDuo Cai, Maheswaran Sudagar, Eric L. Murray, Emily Christine Barker, Nathan William Root, Zhi Jian Chen, Gabriel Matthew Ware.

New Fellows not pictured: Jason A. Cabral, Michael Keryu Chen, Gregory R. Chrin, Lyndsey J. Schwegler, Bradford J. St. Pierre, Ya-Feng "Felicia" Wang.

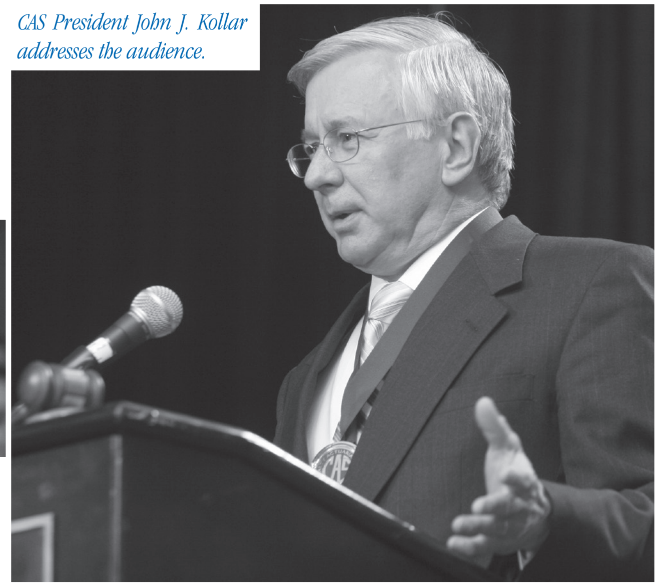
New Associates Honored at the CAS Spring Meeting

Row 1, left to right: Michael Christopher Beck, Jessica Sara Howie, Maria Chang, Joshua Jordan Wykle, **CAS President John Kollar**, Ann Marie Smith, Jesse W. F. DeCouto, Shing-Ming Wong. **Row 2, left to right:** Andrew J. Schupska, Nathan Vea Owens, James R. Weiss, Tak Wai Chan, Sean W. Fisher, Ronald L. Helmeci.

New Associates not pictured: Rachel A. Abramovitz, Christina Marie Boglarski, Chad Alan Davis, Katherine Ann Eenigenburg, Benedict M. Escoto, Rebecca E. Freitag, Donald F.J. Hendriks, Thomas J. Macintyre, Christopher John Morkunas, Quentin Mostoller, Kimberly Roseline Myers, Nurul S. Nurazmi, Irina Viktorovna Odushkin, Haiyan Pan, Douglas E. Pirtle, Katya Ellen Prell, Xiaobo Qin, Michael Joseph Russell, Kevin D. Staples, Richard Carl Sutherland, Yao Wang, Chad P. Wilson.

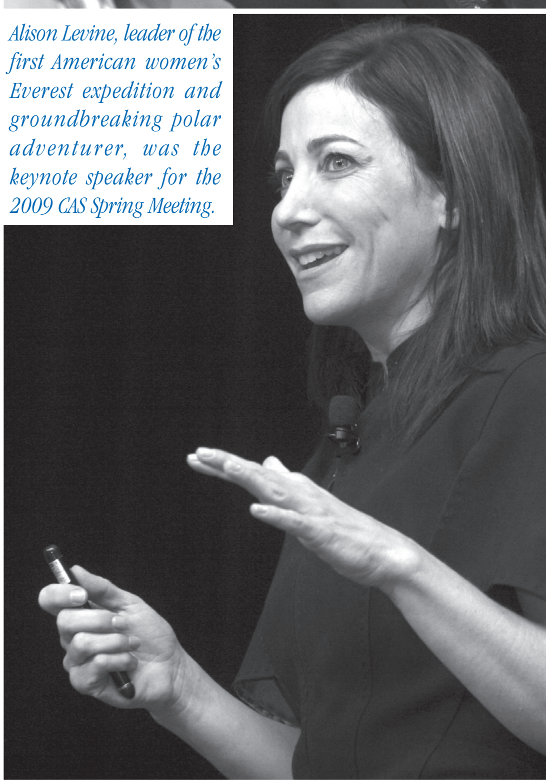
Scenes from the 2009 Spring Meeting

CAS Past President Bob Anker (1996), Chris Carlson (2007), Alice Gannon (1999), and Dave Hartman (1987) listen intently. Mr. Anker delivered the Address to New Members at the CAS Business Session on May 4, 2009. To hear the speech, visit http://www.casact.org/education/index.cfm?fa=podcast, beginning at 30:53.



CAS President John J. Kollar addresses the audience.

New Associates (left to right) James R. Weiss, Nathan Vea Owens, Andrew J. Schupska, and Ann Marie Smith are recognized at the 2009 CAS Spring Meeting during the CAS Business Session.



Alison Levine, leader of the first American women's Everest expedition and groundbreaking polar adventurer, was the keynote speaker for the 2009 CAS Spring Meeting.

The Seasoned Actuaries Section met in New Orleans during the 2009 Spring Meeting and later at Olivier's Creole Restaurant. With over four centuries of "seasoning" present, the evening proved a wonderful opportunity for good friends to get together and share "good times." Seated left to right are Mike Smith, Jerry Degerness, Bob Downer, Glenn Meyers, Roger Hayne, Alice Gannon, Mike Toothman, Wayne Fisher, Joanne Spalla, Pat Teufel, Jeanne Camp, Mark Doepke, and Holmes Gwynn.

CAS Quinquennial Membership Survey Results Show Members Seek Practical Focus

By Nancy Braithwaite, Chairperson, Quinquennial Membership Survey Task Force

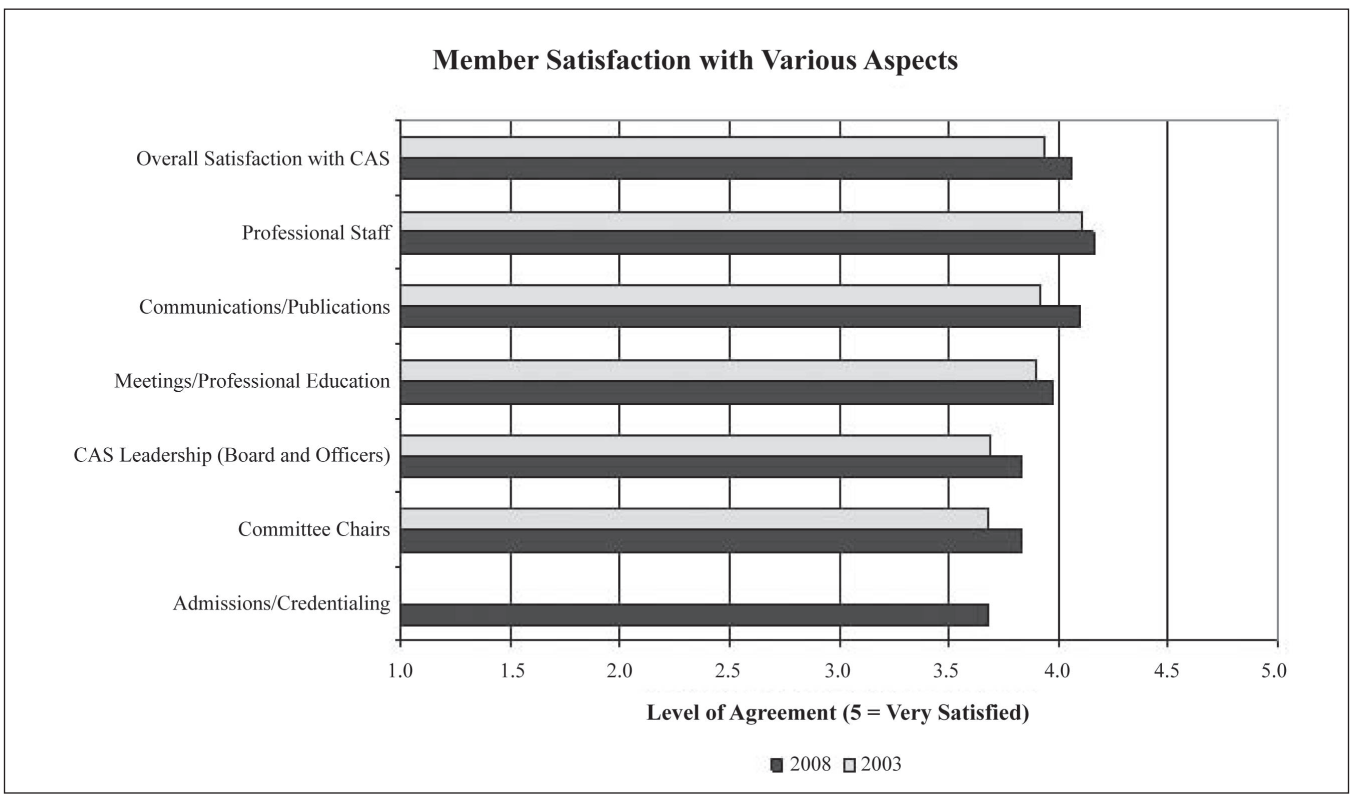
CAS research and education should renew its focus on practical applications, according to the results of the 2008 CAS Quinquennial Membership Survey. Garnering a 50 percent response rate (2,399 members), the survey covered all aspects of the CAS, and one theme consistently emerged: CAS members want the Society to provide more practical solutions that can be readily implemented.

In the areas of research and publications, there appears to be a significant gap between the techniques published and the techniques used in practice. The survey results suggest that the CAS should spend more effort determining how to present published theoretical research in a clear, easy-to-understand, practical-to-implement manner that members can more readily employ in their work. For example, respondents suggested making more spreadsheets used in research papers available on the CAS Web Site.

When asked about continuing education, members again suggested that the existing CAS educational focus is too theoretical and not sufficiently practical. In the suggestions for topics to be offered at future meetings and seminars, the most frequent response was for more practical applications of the newer theories and methods, and the most popular specific suggestions included ERM, predictive modeling, stochastic reserving, and generalized linear models.

Despite the desire for a more practical focus, members' overall satisfaction with the CAS climbed from 2003 levels, the last time the CAS conducted a survey of this magnitude. Almost 80% of the respondents were somewhat satisfied or very satisfied with the CAS. CAS staff once again garnered the highest satisfaction ratings, followed by communications/publications and meetings/professional education. Similar to the findings in 2003, there was a positive correlation in 2008 between the level of involvement in the CAS and satisfaction.

CAS Quinquennial Survey, page 27



New CAS Credit Risk Special Interest Section Created

The CAS has formed the Credit Risk Special Interest Section, a new addition to the CAS Special Interest Sections. The Credit Risk Special Interest Section's purpose include:

- promoting discussion and the exchange of ideas among Section members and subscribers on the subject of credit risk evaluation,
- providing forums for such discussions to take place, and
- advancing actuarial science as applied to credit risk, through both original research and surveys of collective knowledge.

Actuaries from different areas, such as mortgage insurance, financial guaranty, credit insurance, and investment management, evaluate similar types of credit risks in some cases using different methods that are specific to those areas. Section members and subscribers can learn about the variety of approaches to credit risk evaluation used by actuaries and broaden their working knowledge in this field.

To join the Section as a member or subscriber, contact Michael Schmitz at Mike.Schmitz@Milliman.com or David Ruhm at DRuhm@FirstAm.com. For information on other CAS Special Interest Sections, visit the CAS Web Site.

Bodoff and Gan Win 2009 Reinsurance Prize

Neil Bodoff and Yunbo Gan were awarded the 2009 Reinsurance Prize at the Reinsurance Seminar in Bermuda last May for their paper "An Analysis of the Market Price of Cat Bonds." Motivated to address this issue since existing models of the market price of cat bonds are often overly exotic or too simplistic, Mr. Bodoff and Mr. Gan analyze several years of cat bond prices "when issued." In their paper they describe the market-clearing issuance price of cat bonds as a linear function of expected loss, with parameters that vary by peril and zone.

CAS Quinquennial Survey, From page 26

The CAS Board of Directors reviewed the Report of the Quinquennial Membership Survey Task Force in May and directed the executive council to consider the recommendations contained in the report. There are many recommendations beyond those related to increasing the focus on practical applications, most notably in the areas of communications with the members. The task force recommended that the CAS enhance its communications regarding the following:

- international role and goals of the CAS
- nomination and election process
- release of issues of the *E-Forum*
- sources and uses of CAS revenues
- role of the CAS as it relates to professional standards
- opportunities for involvement as well as the benefits of such involvement for retired actuaries

The Quinquennial Membership Survey Task Force offers several other recommendations in its report that touch on professionalism, Regional Affiliates, international activities, admissions, and other areas. The task force encourages members to read the full report on the CAS Web Site or in the CAS Summer 2009 *E-Forum* and extends its thanks to the CAS members who took the time to respond to the survey.

Editor's note: In addition to Chairperson Nancy Braithwaite, members of the Quinquennial Membership Survey Task Force included David B. Bassi, Jacqueline Frank Friedland, Timothy L. Graham, Kenneth L. Leonard, Faith M. Pipitone, Manalur S. Sandilya, Alan R. Seeley, Joanne S. Spalla, David W. Warren, and staff liaisons Todd P. Rogers and J. Michael Boa.

CAS Implements New Sponsorship Program

In recent years, the CAS Board has expressed concerns about increases in dues and meeting and seminar registration fees. To explore new sources of CAS revenue, the board established the CAS Revenue Opportunities Task Force and charged it with considering how to increase non-dues revenue for the CAS consistent with its vision and mission. In particular, the board encouraged the task force to consider implementing a sponsorship program.

To assist with this effort, the task force engaged a sponsorship consultant who conducted extensive research and interviewed CAS leaders, members, and staff, as well as current and prospective sponsors, exhibitors, and advertisers.

Based on the research, the task force focused on developing a sponsorship program that maintained the traditional tone and objectivity of the CAS while allowing for an array of opportunities for exposure to property/casualty actuaries.

In March 2009, the board approved the task force's proposal to launch an integrated sponsorship program. The program is designed to accommodate sponsors of all sizes and types, with a variety of marketing budgets and goals, including general awareness and visibility, product sales, recruitment, and expressions of support for the actuarial profession and the CAS.

The new sponsorship program is built around Society Partners, firms that demonstrate a commitment to the CAS and its mission by making an annual financial pledge to supporting CAS activities. A Society Partnership runs for 12 months from October 1 to September 30, coinciding with the CAS fiscal year. To receive the exclusive benefits of this program, Society Partners must commit to a certain level of support at the beginning of the fiscal year. Three tiers of partnership are offered.

The Society Partners Program provides year-long exposure and maximum flexibility to customize the exposure within the company's annual commitment level. Society Partners may choose exhibit and sponsorship opportunities available throughout the year to suit their budget and marketing mix. Society Partners will enjoy discounts on the cost of these opportunities.

In addition, Society Partners will receive additional exclusive value-added benefits commensurate with their investment level. These additional benefits include complimentary meeting or seminar registrations, distribution of promotional handouts to event attendees, and a complimentary job posting on the CAS Web Site. Also, Society Partners will be recognized as such in the *Actuarial Review*, CAS weekly e-mail bulletin, and during the business sessions of the CAS Annual and Spring Meetings.

Companies that are unable to commit to the level of investment required to become a Society Partner are still invited to take advantage of exposure opportunities at individual CAS events. In 2009-2010, these events include the 2009 CAS Annual Meeting, 2010 Ratemaking and Product Management Seminar, 2010 Reinsurance Seminar, 2010 CAS Spring Meeting, and 2010 Casualty Loss Reserve Seminar. Details on sponsorship and exhibitor opportunities available for these events are available on the CAS Web Site.

The Society Partners Program is designed to help firms build and maintain year-round relationships with CAS members. The new program allows firms to carry out their marketing objectives in ways never available before while developing a unique relationship with CAS members and the actuarial profession as a whole. Visit the CAS Web Site, or contact Mike Boa, Director of Communications and Marketing (703-562-1724 or mboa@casact.org), to learn more.

Rules of Procedure for Disciplinary Actions Revised

The Rules of Procedure for Disciplinary Actions (as amended November 15, 1998) contain instructions for the process the CAS should follow when a recommendation for disciplinary action has been received from an investigatory body. During its May 2009 meeting, the CAS Board of Directors approved a recommendation to revise the Rules. The changes are intended to clarify the process for notifying the appropriate parties when public disciplinary action is recommended. A red-lined version illustrating changes to the 1998 Rules and the revised Rules are available for member review on the CAS Web Site. Visit the "About CAS" section, and then click on "Policies and Procedures" for a link to the Rules.

CAS Launches Online University

According to the results of the recent CAS Quinquennial Membership Survey, members want access to convenient and inexpensive continuing education. Launched in June, the new online University of CAS (UCAS) is designed to meet those needs.

The CAS has repackaged live educational sessions and provides access to these sessions online. This is accomplished by recording sessions from live events, synching the audio with the PowerPoint presentations, and providing online access through an easy-to-use interface.

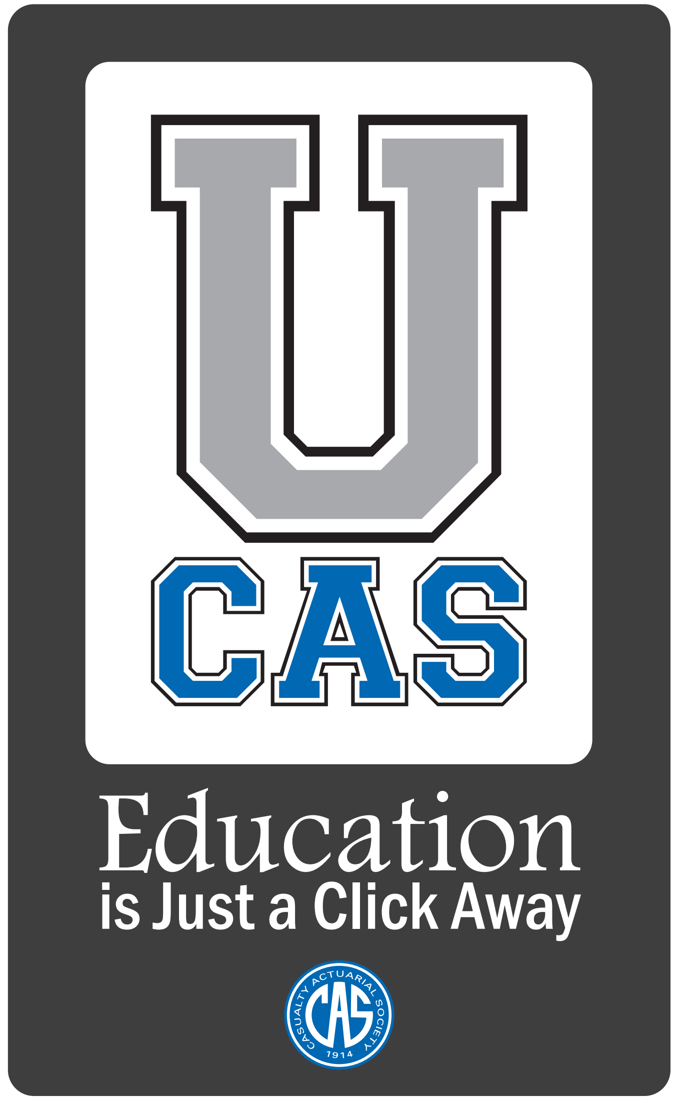
The University of CAS sessions offer many benefits:

- They are affordable and participation requires no travel or time away from the office.
- They provide another great opportunity to meet your continuing education requirements.
- They give you access to more educational resources than ever before, helping you stay current in your areas of practice.

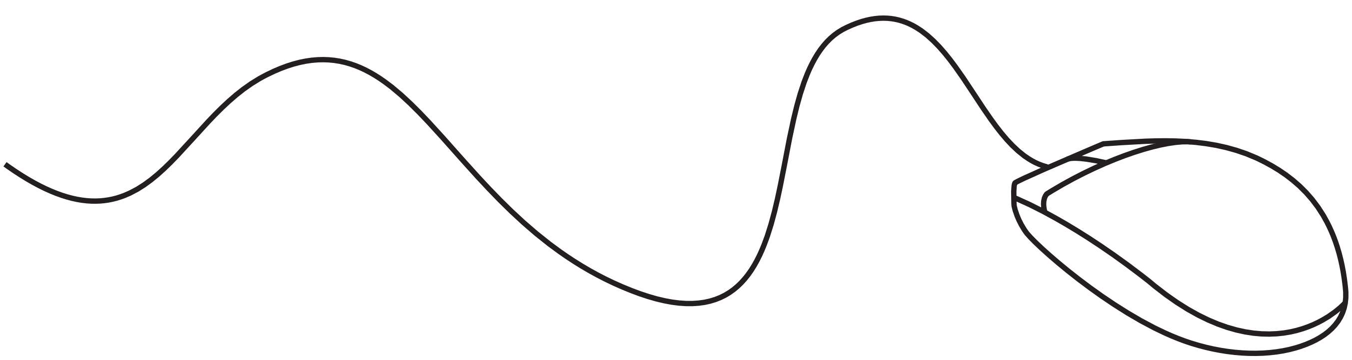
In addition, you will be able to print certificates of completion from the online system as evidence of your participation, and your online UCAS account will allow you to keep a record of sessions attended.

Currently, UCAS includes sessions from the 2009 CAS Spring Meeting and Reinsurance Seminar. Visit the online university often and take advantage of a growing database of sessions from all of the large CAS meetings and seminars, as well as Webinars.

UCAS is part of the CAS's ongoing commitment to provide professional education opportunities to members and others interested in actuarial practice. At UCAS, education is just a click away!



Create an account and log in to begin sessions at UCAS today by visiting www.softconference.com/cas. AR



New Issue of *Variance* Forthcoming

The fifth issue of *Variance: Advancing the Science of Risk* is forthcoming. The complete text of the articles described below will be accessible online at www.Variance Journal.org.

"Capital Allocation by Percentile Layer" by Neil Bodoff describes a new approach to capital allocation. The catalyst for the new approach is a new formulation of the meaning of holding Value at Risk (VaR) capital that expresses the firm's total capital as the sum of many granular pieces of capital, or "percentile layers of capital." As a result, one must allocate capital separately to each layer and perform the capital allocation across all layers. Ultimately, on the practical plane, capital allocation by percentile layer produces allocations that are different from many other methods. At the same time, on the theoretical plane, capital allocation by percentile layer leads to new continuous formulas for risk load and utility.

In **"A Top-Down Approach to Understanding Parameter Uncertainty in Loss Ratio Estimation"** Alice Underwood and Jian-An Zhu define a specific measure of error in the estimation of loss ratios; specifically, the authors focus on the discrepancy between the original estimate of the loss ratio and the ultimate value of the loss ratio. They also investigate what publicly available data can tell us about this measure.

"Property-Liability Insurance Loss Reserve Ranges Based on Economic Value" by Stephen P. D'Arcy, Alfred Au, and Liang Zhang combines loss reserve variability and economic valuation. Loss reserve ranges are calculated on a nominal and economic basis for a simplified insurer to illustrate the key variables that impact loss reserve variability.

"Theory and Practice of Timeline Simulation" by Rodney Kreps discusses simulation in a timeline formulation in theory and practice. It is shown that all the usual simulation results can be obtained and many new forms can be expressed simply. The paper argues that this procedure is more intuitive, physically more real, and technically more correct than the collective risk model.

"The Chain Ladder and Tweedie Distributed Claims Data" by Greg Taylor considers a model with multiplicative accident period and development period effects, and derives the ML equations for parameter estimation in the case that the distribution of each cell of the claims triangle is a general member of the Tweedie family. This yields some known special cases, e.g., over-dispersed Poisson (ODP) distribution (Tweedie parameter $p=1$), for which the chain ladder algorithm is known to provide maximum likelihood (ML) parameter estimates, and gamma distribution ($p=2$). The intermediate cases ($1<p<2$) represent compound Poisson cell distributions with gamma severity distributions. While ML estimates are not chain ladder for Tweedie distributions other than ODP, the paper investigates why they will be close to chain ladder under certain circumstances.

"Adaptive Reserving Using Bayesian Revision for the Exponential Dispersion Family" by Greg Taylor and Gráinne McGuire investigates the practical aspects of applying the second-order Bayesian revision of a generalized linear model (GLM) to form an adaptive filter for claims reserving. It discusses the application of such methods to three typical models used in Australian general insurance circles and considers extensions, including the application of bootstrapping to an adaptive filter and the blending of results from the three models.

In **"Prediction Error of the Multivariate Additive Loss Reserving Method for Dependent Lines of Business,"** Michael Merz and Mario Wüthrich point out that, often, in non-life insurance, claims reserves are the largest position on the liability side of the balance sheet, and so the prediction of adequate claims reserves for a portfolio consisting of several run-off subportfolios from dependent lines of business is of great importance for every non-life insurance company. The authors consider the claims reserving problem in a multivariate context, studying a special case of the multivariate additive loss reserving model proposed by Hess, Schmidt, and Zocher (2006) and Schmidt (2006). This model allows for a simultaneous study of the individual run-off subportfolios and enables the derivation of an estimator for the conditional mean square error of prediction (MSEP) for the predictor of the ultimate claims of the total portfolio.

Is Homework Ethical?

Editor's Note: This article is part of a series written by members of the CAS Committee on Professionalism Education (COPE). Its intent is to stimulate discussion among CAS members. Therefore, positions are sometimes stated in such a way as to provoke reactions and thoughtful responses on the part of the readers. Responses are welcomed. 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.

David Dataminer, FCAS, MAAA, works for Giant Insurance Company and has been performing predictive modeling studies for various lines of business. As today's business climate tends to dictate, David works a long day and often feels the need to bring some work home with him. On these days he simply downloads his files and heads for home. Giant Insurance Company is aware of David's work from home and has never expressed any concern regarding the data that David downloads to bring home. This is not surprising to David since he generally only needs aggregated data with no specific personal policyholder information. Even so, David handles the data with care, does not send the files over the Internet, and is sure to keep the files securely in his possession.

For the current workers compensation study that David is working on, he has found some unusual results. He has extracted a subset of individual data to determine whether the data has been sufficiently "scrubbed" for use in this study. Although David did not request all of the specific data fields in the file extract, the programmer included claimant name, birth date, date of hire, salary, job title, injury type, and the claims adjuster status notes. David is facing a tight deadline and would like to take this data extract home over the weekend.

Is it okay for David to bring this data home?

Yes

David's only obligation is to follow his employer's security policy. Giant is aware that David often brings data home and has not expressed any concern. Giant does not have any specific security policies regarding the portability of data. Even so, David is very careful. He doesn't e-mail data and keeps the files securely in his possession at all times. In addition, the data extract does not include social security numbers or credit card information and therefore is not subject to statutory regulation on storage or disposal.

No

David's obligation is not only to his employer, but also to the public. The personal information could be used to obtain additional data items from other sources and the status notes could contain detailed medical information regarding maximum medical improvement and the physical and mental status of the claimant. A breach of this type of data has the potential to put Giant's and David's professional reputations at risk and may be assumed to breach statutes or regulations in some jurisdictions. Many states are proposing and passing laws around "personal data" handling and breaches of data. If the data extract contains claimant information from multiple states, the data security requirements likely vary. In particular, the definition of personal data may vary. To date, there is little case law that deals with protection of personal data.

David is aware of the sensitivity of the data. The public expects companies to keep their sensitive data confidential and actuaries have an obligation to do so under the Code of Professional Conduct. Precept 9 indicates that an actuary shall not disclose to another party any confidential information unless authorized to do so. Although a breach of this data would not be intentional on David's part, Precept 1 requires actuaries to 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. In addition, annotation 1-1 specifies that an actuary's work should be performed with skill and care. AR

Grants Competition Leads to $19,200 in Research Funding

As part of its goal to advance the power of actuarial science through research, The Actuarial Education and Research Fund (AERF), which is administered by The Actuarial Foundation, holds an annual grants competition to seek out new research projects to sponsor. The 2009 Individual Grants Competition brought in many interesting and worthwhile proposals.

As a co-sponsor of the competition, the CAS chooses to partially or fully fund any research projects that seem promising and useful to the property and casualty field. After reviewing all of the proposals submitted by the authors, the CAS AERF Grants Task Force, chaired by Linda Howell, determined that four projects were particularly useful to the CAS and agreed to provide funding totaling $19,200 for these projects.

The four projects receiving CAS funding are:

- "Regime Switching Models: Applications to Mortality Modeling and Pricing" by Andreas Milidonis, Samuel Cox, and Yijia Lin
- "An Empirical Investigation of CDS Spreads using a Regime Switching Default Risk Model" by Andreas Milidonis
- "Copula Regression" by Rahul Parsa
- "Modeling Driver Culpability in Multiple-Vehicle Collisions Using Conditional Regression" by Eric Weibel

Completed papers are expected to be submitted to either *Variance* or the *North American Actuarial Journal* upon completion and will be available on the CAS Web Site.

For anyone interested in participating in the 2010 Individual Grants Competition, letters of intent are due in October. More information can be found on The Actuarial Foundation's Web Site. If you would like to help review proposals for the AERF Grants Task Force, contact the CAS Office.

The Actuarial Foundation is happy to accept donations. Contributions will further the efforts of the AERF and aid in other worthy projects.

CAS Webinars Offer Budget-Minded Continuing Education Credits

Q: What do you get when you cross a computer with a telephone?

A: You get a CAS Webinar!

In the two and a half years since the CAS formed the Webinar Committee, several continuing education offerings have been made available to the membership via this medium. The Webinars have been well attended and have received favorable feedback relating to the quality, value, and convenience that these sessions provide. The goal of the committee is to provide CAS members with high-quality educational offerings at reasonable cost, thereby adding yet another option for members to further their knowledge and gain "organized activity" continuing education credit.

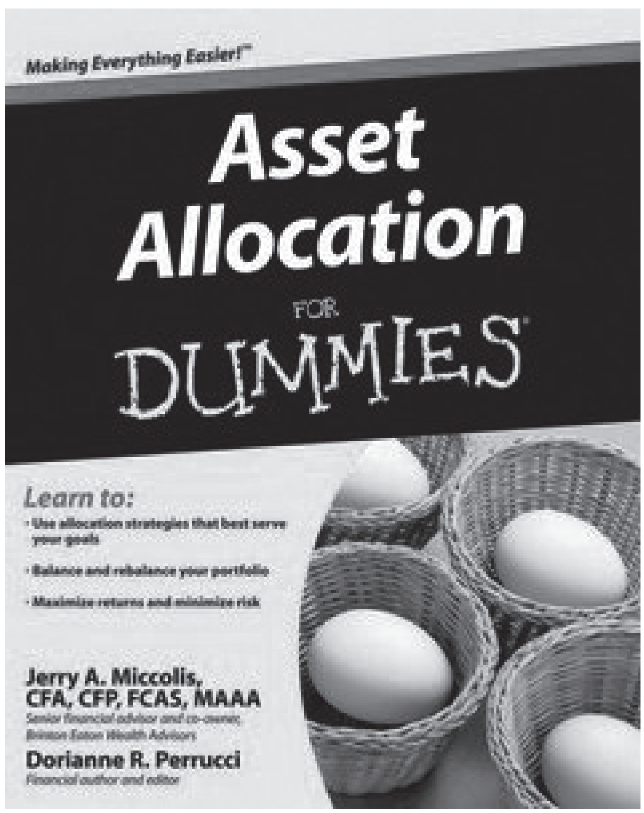
If you haven't had an opportunity to participate in a CAS-sponsored Webinar, keep your eyes on the CAS Web Site or weekly e-mails for links to content and registration information. Better yet, if you have an idea for a future topic, please let us know! Send an e-mail to meetings@casact.org.

PAUL E. LACKO

No "Dumbing Down" Allowed—*Asset Allocation* Effectively Explains Key Concepts

A book titled *Asset Allocation for Dummies* was published a couple months ago. The authors are Jerry A. Miccolis and Dorianne R. Perrucci. Jerry, as you probably know, is a Fellow of the Casualty Actuarial Society with many years' experience in the field of enterprise risk management long before most of us even recognized ERM as a field or thought of making it a syllabus topic. Jerry also has earned professional accreditations as an investment advisor.

Jerry is the professional investment expert. Dorianne is the professional financial writer. Together, they make a good team. Jerry's actuarial background and his experience in risk management both come across in the structure of the material and the commentary.



I have not finished the book, but I already want to recommend it to you. Although the book may be intended for "dummies," it is not exactly light reading. The authors present an almost-overwhelming amount of information. Fortunately, they skip needless detail and summarize important concepts effectively. The early chapters paint a complete picture of how to invest and come out ahead. The later chapters hand you the paintbrush and put you to work.

As an experienced actuary, you already have everything you need to work through the exercises in the later chapters and develop your asset allocation plan. You can calculate means, standard deviations, and correlation coefficients—or your spreadsheet can—and you understand the concept of "efficient frontier." This puts you several steps ahead of the average "dummy," who encounters this material for the first time when he picks up this book.

As an average "dummy" myself in the mid-1980s, I bought and read at least a dozen books about financial markets and personal investing. The one book that most appealed to me at the time presented a simple, straight-forward plan based on statistical analysis of historical experience in the financial markets. The plan was to invest an equal amount of money in each of four different asset classes that were volatile and negatively correlated, and subsequently to move money from one asset class to another so as to maintain that even distribution of total assets among the asset classes over time.

The author, Harry Browne, recommended a money market fund, gold, long-term bonds, and a diversified portfolio of stocks. The earnings in the money market fund would increase when short-term interest rates rose and maintain value during a recession. The dollar price of gold would increase with the inflation rate and increase if the value of the dollar declined against foreign currencies. The zero-coupon bonds would be worth more if interest rates dropped during a period of deflation. And the value of the stock portfolio would increase so long as the economy kept humming along while interest rates, inflation, and the value of the dollar maintained steady levels.

Periodic rebalancing took advantage of four characteristics that are apparent to anyone familiar with market behavior (or the insurance business cycle). First, no appreciating asset class appreciates forever. Second, a "risk-free" return will be outdone over time by inflation. Third, what goes up slowly and steadily for a long time will sometimes crash. Fourth, even when a crash seems inevitable, it's exact timing is unpredictable.

Each asset class has a history of winning under certain conditions. More than two asset classes are highly unlikely to be winners during any single stretch of time. Even experts can't consistently predict when winners will turn into losers (and vice versa). Browne advised the investor simply to watch the accumulated balances in each asset class, and whenever one class grew to more than 30% of the total (current) value of the entire portfolio, move money among the classes to reestablish the equal value invested in each asset class. Some of the gains from today's winners would thereby be shifted to *tomorrow's* winners, and the winnings would grow over time.

With a long enough investment horizon and sufficiently volatile markets, you almost *have* to come out ahead. Rebalancing takes some discipline, but it makes the expected return of the total investment portfolio much higher than the expected return of any single asset class, and it makes the standard deviation of the total portfolio returns over time quite low compared to any of the four volatile asset classes.

Good plan. Sound reasoning. Slow and steady wins the race. I applied a slight variation of Harry Browne's plan to my IRA funds back then, and the results over twenty years were as predicted. (I have also tried other investment plans, including investing without a plan, and none worked very well at all. Live and learn.)

Jerry and Dorianne and recommend the same general approach: diversify among several asset classes with uncorrelated or negatively correlated returns and rebalance according to a predetermined schedule. The authors expose the reader to a broad range of investment classes, many of which were not easily obtained by individual investors 25 years ago or did not even exist then.

Investing today can be as complicated as you care to make it. There are many more asset classes now than ever before, and the variety keeps growing. In the early 1980s, sector mutual funds were relatively new creations, and options on commodity futures were considered exotic. Now, we're all at least a little familiar with concepts such as securitized debt, derivative securities, and derivatives of derivative securities. Financial engineers now design products that are intended to match specific risk/return characteristics, and these are available to individual investors. Do you want a financial asset with two or three times the volatility of some underlying stock portfolio? You can actually get it. (It's amazing to me what some people can do with computers.)

The longer your investment horizon, the greater the risk you can tolerate and the higher the returns you can shoot for. *Asset Allocation for Dummies* explains how to determine your time frame, invest accordingly, and meet your financial goals. Your investment horizon may be much longer than you think.

Please send us a postcard after you settle into a comfortable spot along the efficient frontier!

Asset Location for Dummies by Jerry A. Miccolis and Dorianne Perrucci (For Dummies, 2009, $24.99)

Postcript: A few days after I wrote this, an article about—you guessed it—asset allocation strategies appeared on the front page of the *Wall Street Journal.* "The financial crisis has sent many financial advisers, academics and investors back to the drawing board," reported Tom Lauricella in his report titled "Failure of a Fail-Safe Strategy Sends Investors Scrambling." He wrote that "a number of influential analysts, from managers of massive funds…to those at small school endowments, argue that asset-allocation strategies are fundamentally flawed." These analysts "contend that the problems warrant rethinking those relationships [between asset classes] to account for broad changes in the global economy and financial innovations that change the way people invest." In short, a lot of experts lost a lot of money in 2008 despite all their charts of historical correlation coefficients, volatility measures, and risk/reward trade-offs. Was this a short-term anomaly due to an extreme event? Your guess is as good as theirs.

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

CAS Professional Education Calendar

August 10-14, 2009
22th International Summer School 2009 of the Swiss Assocation of Actuaries on Monte Carlo Methods and Applications in Finance and Insurance Models
University of Lausanne
Lausanne, Switzerland

August 12-13, 2009
Predictive Modeling Limited Attendance Seminar (LAS)
The Deloitte Building
Chicago, IL

August 24, 2009
Testing Loss Reserve Assumptions LAS
The Allerton Hotel
Chicago, IL

August 25-27, 2009
Reserve Variability LAS
The Allerton Hotel
Chicago, IL

September 14-15, 2009
Casualty Loss Reserve Seminar (CLRS)
Chicago Marriott Magnificent Mile
Chicago, Illinois

October 5-6, 2009
In Focus: The Underwriting Cycle Seminar
The Westin Alexandria
Alexandria, VA

November 15-18, 2009
CAS Annual Meeting
The Westin Boston Waterfront
Boston, MA

June 3-6, 2010
6th Conference in Actuarial Science & Finance
Samos, Greece
www.actuar.aegean.gr/samos2010/

In Memoriam

Eli A. Grossman
(ACAS 1940) 1914-2009

Milan E. Konopa
(ACAS 1975) 1947-2009

John K. Nelson
(ACAS 1968) 1937-2009

Frank C. Taylor
(FCAS 1979) 1946-2009

The Actuarial Review always welcomes letters and story ideas from our readers. Please specify what department you intend for your item—letters to the editor, news, puzzlement solutions, etc.

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