The Actuarial Review

THE NEWSLETTER OF THE CASUALTY ACTUARIAL SOCIETY • VOLUME 38, NUMBER 2 • MAY 2011

INSIDE THIS ISSUE

Jack Gibson, FSA, CERA (left) of Towers Watson congratulates Neil M. Bodoff, FCAS, who received the 2011 ERM Research Excellence Award in Memory of Hubert Mueller. See story on page 26.

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New Fellows by Mutual Recognition

Zander Smith
Swiss Re
Fellow, Institute of Actuaries (U.K.)

Panayiotis George Skordi
California State University
Fellow, Institute of Actuaries (U.K.)

Sponsors Support the 2011 RPM Seminar

The CAS appreciates the support provided by the sponsors of its 2011 Ratemaking and Product Management (RPM) Seminar:

- Breakfast, Networking Break, and Luncheon Sponsor—Ernst & Young
- Tote Bag and Cyber Café Sponsor—Pauline Reimer/Pryor Associates Executive Search
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- Lanyard Sponsor—Milliman
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- Program Insert/Giveaway Item—Pinnacle Actuarial Resources, Inc.

The 2012 RPM Seminar is scheduled for March 2012 at the Philadelphia Marriott Downtown. Contact Megan O'Neill at the CAS Office at moneill@casact.org or 703-562-1742 for details on sponsorship opportunities for the event.

Corrections

The February 2011 issue of the *Actuarial Review* contains some errors.

The title of the ninth story in the article "The Top Ten Casualty Actuarial Stories of 2010" should have read "IAIS Changes its Guidelines for Solvency Monitoring." Secondly, information on the IASB and FASB collaborating to standardize accounting for insurance contracts is a separate issue that should not have been included in the solvency story item.

In the story "Spalla, Meyers, and Venter Recognized as Outstanding Volunteers," the paragraph describing accomplishments of Glenn Meyers incorrectly identifies him as being a president of a CAS Regional Affiliate.

The *Actuarial Review* regrets these errors.

A Question of Balance

"An actuary then must be a mathematician, but a mere mathematician will be a very incompetent actuary."

—Arthur Bailey, 1881[1]

The CAS leadership periodically evaluates whether our education system is meeting the needs of its public, both in terms of preparing new members and keeping existing members current and relevant to the marketplace. This is a critical responsibility if the CAS credential is to retain its value. The evaluation process frequently includes both a self-evaluation and a survey of our current employers.

Over the decades (yes, decades) those surveys have provided consistent feedback—actuaries are intelligent people with a strong sense of integrity and strong technical skills, but it would be nice if they communicated better and had a stronger business sense.[2] More recently, self-evaluations have added another concern—are our members keeping up with technical advances in statistics? These advances include the use of generalized linear models (GLMs) in predictive modeling and copulas in evaluating tail risk.

So what should the CAS do about this feedback? Should we focus on communication skills, business skills, or technical skills? Do we need actuaries to communicate more effectively to retain the value of our credential? Or do we need to focus on adding higher-level statistics training to our exams and continuing education offerings?

As the title of this column suggests, I don't see this as an "either or" situation. Instead, it is a question of balance. Actuaries add value to their employers or clients through a combination of skills. Our members are strong analytically and *understand* the operations that underlie the data, but we add value only to the extent that we can communicate what we find in our analysis. A brilliant finding or treatise that is never shared is nothing more than self-amusement. In addition, a brilliant finding with no business connection is nothing but trivia, possibly of value to a game show contestant but not to an employer or client.

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Assuming we agree on the areas of desired improvement, what do we (i.e., the CAS) do about it? Let's tackle that question one piece at a time.

(Caveat – the following discussion is the author's current views of what might be done, and is not a definitive indicator of what will be done. Any of these suggestions would need to undergo extensive discussion at several levels within the CAS before any would be accepted for future implementation.)

Technical Skills

This is the easiest place for most actuaries to begin the discussion. Almost all of us are very strong analytically, and so this is our comfort zone.

For basic education, a likely place to make changes is in the early exams, possibly increasing the emphasis on advanced statistical techniques. An alternative approach might be to rely on a VEE[3]-type requirement to address this, but such an approach seems incompatible with our current exam structure. For continuing education, the CAS already offers Webinars and limited attendance seminars, but perhaps more should be done. Additional suggestions are welcome (including additional topics for continuing education).

Communication Skills and Business Sense

It is easy to defer education in these areas to the employers of CAS members—and this has been part of the CAS response to this issue in the past—but is that the right action for the CAS to take

From the President, page 5

[1] Arthur Bailey's Presidential Address to the Institute of Actuaries (1881), as quoted in John Shepherd's "A Blueprint For An Actuarial Education," a paper presented March 2010 at the International Congress of Actuaries in Capetown, South Africa, http://www.ica2010.com/docs/77_final_paper_Shepherd.pdf .

[2] "Recent" surveys include: (1) CAS Report of the CEO Advisory Task Force, November 1, 1999, http://www.casact.org/about/reports/ceo.pdf; (2) SOA 2009 Employer Study, February 10, 2010, http://www.soa.org/files/pdf/about-2009-employer-study.pdf; and (3) A strategic review ("gap analysis") by the U.K. Profession (2005), as referenced by a paper by David Wilmot presented at the 13th Global Conference of Actuaries in Mumbai, India on February 21, 2011.

[3] Valuation by Educational Experience. See http://www.casact.org/admissions/syllabus/VEE.pdf.

The Potential Harm of "Being International"

Dear Editor:

If "being international" only meant what Ralph Blanchard describes in his "From The President" column ("What Does it Mean to be International?," *AR*, February 2011), then everyone would want to be international. The column covered little other than the wholesome, noncontroversial side of the current issue. Almost no one opposes cooperation on international accounting standards, research conferences, journals, or supporting our members overseas. However, this is like saying that to be a National Socialist means to support full employment and an adequate national defense.

Over the last decade or so, the banner of internationalism has been hoisted up as the main sail to drive a myriad of causes for which the vast majority of CAS members are strongly opposed. Internationalism has been used as an excuse to dramatically weaken our exam system because many other countries, along with having a much smaller and less influential actuarial profession, do not have an exam system and the United Kingdom, with which we adopted mutual recognition, has a long-term plan to effectively eliminate its exam system. We have also been told that we must adopt a rigid bureaucratic set of continuing education requirements, along with a system of audits and penalties, up to and including effectively suspending a member for insufficient compliance, because a lot of our members work in Bermuda. Ironically, the IAA "minimum" educational standards have mostly been used as a maximum ceiling while CAS volunteers have been heavily pressured by the Board to strip down the exam system to a skeleton that would "still meet the minimum standards set by the IAA." There are other examples too numerous to list. It seems like whenever any unpopular proposal to change the fundamental nature of the CAS for the worse is brought forward we are told that we absolutely have to go along because we must be "international."

The most foreboding part of President Blanchard's column was when he described the IAA as "The IAA is the actuarial version of the United Nations, but with more potential teeth to it than the United Nations." We all love the old IAA, which meant things like *ASTIN Bulletin* and seminars in Switzerland with Hans Bühlmann, but few of us support it metastasizing into a brutal authoritarian New World Order. However, this appears to be happening as so many CAS leaders desperately strive to make sure that the CAS is "international."

—Jon Evans, FCAS

Editor's Note: *The U.K. Actuarial Profession (UKAP) was consulted on the aspect of Mr. Evans' letter citing the U.K.'s "long-term plan to effectively eliminate its exam system."*

UKAP is making use of new educational approaches that are shown to be effective. These approaches may include different approaches to testing students' knowledge and applying their knowledge, for example, using complex judgement. UKAP maintains, however, that there is and will always be a big role for traditional paper-based examinations in their qualification system and they have no plans to eliminate them.

Rajesh Sahasrabuddhe, CAS Syllabus Chairperson, responds:

The primary focus of the most recent redesign was to update the CAS basic education structure to meet current and potential future needs of property/casualty actuaries. Only after the new structure was drafted to meet the needs of the CAS was the review made to ensure that it was in compliance with IAA standard. This review was necessary since the CAS is an IAA member.

The following excerpt from the October 16, 2006, "White Paper on CAS Education Strategy" illustrates some of the driving factors for the restructuring.

> *The CAS Board of Directors believes that there are a number of factors that require a new strategy for education of current and prospective CAS members. These factors include:*
>
> - *The scope of practice of existing members has expanded greatly and is expected to continue to expand in the foreseeable future. We need to support members' expansion into enterprise risk management and other emerging practice areas.*
> - *Many new areas of practice (e.g., generalized linear models, stochastic reserve models, enterprise risk management) are not conducive to testing by timed, closed-book exams.*
> - *Not all skills are needed at the same level of mastery. The introduction of Validation by Educational Experience (VEE) was a first step in recognizing that different mastery levels may be appropriate.*
> - *We need to continue to balance syllabus content creep against travel time.*

Our goal was to design a Syllabus that was pedagogically superior by using new methods of learning delivery and by improving grouping of existing material. This has resulted in a Syllabus with more in-depth treatment of advanced unpaid claim estimation and enterprise risk management with some topics determined to be "non-core" moved to on-line courses. I would disagree with the characterization of this change as a "stripping down."

Appropriate Treatment of Insurance Liabilities

Dear Editor:

Neal Schmidt addresses an important concern ("Opinion:

Discount Rate for Reserves Should Not be Increased for Illiquidity," *AR*, February 2011). Those of us who have been working to create liquidity for insurance liabilities agree that, "The illiquidity of insurance liabilities relates to the lack of such a secondary market rather than the relationship between creditor and issuer." Real markets charge for risk. Schmidt is almost certainly correct when he forecasts that creating liquidity for insurance liabilities will provide data showing that liabilities have higher nominal prices than, say, the "expected value" of future payouts.

Real markets have their own weaknesses. As the news media are overwhelming us with news of the earthquake in Japan, markets tend to forget the risks of flood, drought, and wind. Real markets are not perfect. As Schmidt implies, real markets are nonetheless risk averse. Creating a trading floor for insurance liabilities that provides price discovery will serve to stabilize the costs of risk across risks and over time.

—Oakley E. (Lee) Van Slyke, FCAS, ASA, MAAA

The Limits of Modeling Loss Ratios

Dear Editor:

As usual, Glenn Meyers does a good job creating a model and describing it for us ("Brainstorms: Predicting Loss Ratios with a Hierarchical Bayesian Model," *AR*, February 2011). One thought occurs though: for certain applications, selection bias complicates parameter estimation. Modeling loss ratios to price an aggregate stop loss contract will only happen for a select set of insurers. The actuary will not see insurers that went out of business because their loss ratios were too high. Moreover, an insurer with historically high loss ratios will probably choose not to shop for this kind of protection, because it will be too expensive.

—Chris Svendsgaard, FCAS

In Their Opinions….

Dear Editor:

In regards to Grover Edie's article, "I Won the Lottery" ("In My Opinion," *AR*, February 2011), the odds of being alive are lower than the odds of winning the lottery. The sequence of DNA transmitted from generation to generation in order to get the right combination that is in your genes makes you luckier than any lottery winner. Therefore the other reasons in the article are irrelevant. Just feel happy being alive—that is enough. In fact the difference between DNA from a fly and a human being is less than 1%. So feel happy being human and not a fly.

—Mauricio Vergara

Dear Editor:

I loved [Grover Edie's] article. Thank you for putting a mathematical bent to a philosophical topic! We are truly a blessed bunch.

—Yvonne Cheng, FCAS, FCIA

From the President, From page 3

in the future?

Historically, the efforts the CAS has undertaken in this area have generally been incremental. These efforts include having educational sessions on business skills in conjunction with CAS meetings and conducting similar training as part of the CAS Leadership Meeting.[4] But is this enough?

Other societies have tried a different approach. The Society of Actuaries has included in their Associate requirements a self-paced, e-learning course that attempts to address some of these communication and business skill issues.[5] The U.K. Actuarial Profession has a required, two-day course on model documentation, analysis, and reporting.[6] Interestingly, this U.K. course has a prerequisite of "at least one year's work experience with an actuarial employer."[7]

What approach should the CAS take? There are several possibilities. We could include open-ended problems in our exams, with part of the grade based on the adequacy and clarity of the documentation accompanying the proposed solution. An in-person seminar could be added to the professionalism course. We could also borrow an approach from another actuarial organization, such as the SOA or other exam-based society.

Conclusion

The CAS must continually re-evaluate its education program. Standing still is rarely an option, and I don't believe it is an option with regard to technical, communication, and business skills. But there is no single obvious solution—no single right answer.

We are also aware that there are different kinds of actuaries, and there always will be. Some will always be more comfortable in the back room, developing the latest models and performing sophisticated analyses, while others will be more comfortable in the board room and selling to clients. But whether in the back room or the board room, actuaries need to have some feel for what is business relevant, need to be analytically strong, and need to communicate effectively to those in and those just outside their work circle[8] to be effective.

[4] This is an annual meeting of CAS leaders, including all committee and task force chairs and the Executive Council.

[5] This course is called Fundamentals of Actuarial Practice. or FAP. For more information, visit http://www.soa.org/education/exam-req/syllabus-study-materials/edu-fap-overview.aspx.

[6] An online exam is offered for those unable to attend in person, e.g., overseas students.

[7] See http://www.actuaries.org.uk/sites/all/files/documents/pdf/fandica22011syl.pdf for more information

[8] This "work circle" for technical actuaries will include their back room peers and those outside their peer group with whom they deal directly, while for board room actuaries it will include the top level of management.

FINANCIAL REPORT
FISCAL YEAR ENDED 9/30/2010

FUNCTION	*REVENUE*		*EXPENSE*		*DIFFERENCE*
Membership Services	$2,155,281		$2,764,902		($609,621)
Seminars	1,906,133		1,765,346		140,787
Meetings	1,369,360		1,236,352		133,008
Exams	5,445,386	(a)	4,659,370	(a)	786,016
Publications	4,219		26,638		(22,419)
TOTALS FROM OPERATIONS	$10,880,379		$10,452,608		$427,771
Interest and Dividend Revenue					162,981
Realized Gain/(Loss) on Marketable Securities					974
Unrealized Gain/(Loss) on Marketable Securities					251,925
TOTAL NET INCOME (LOSS)					$843,651

NOTE: (a) Includes $2,881,041 of Volunteer Services for income and expense (SFAS 116).

BALANCE SHEET

ASSETS	*9/30/2009*	*9/30/2010*	*DIFFERENCE*
Cash and Cash Equivalents	$1,916,928	$1,319,673	($597,255)
T-Bill/Notes, Marketable Securities	5,319,315	6,692,588	1,373,273
Accrued Interest	6,171	7,935	1,764
Prepaid Expenses / Deposits	117,169	382,051	264,882
Prepaid Insurance	25,431	25,357	(74)
Accounts Receivable	109,865	129,348	19,483
Textbook Inventory	14,386	13,284	(1,102)
Computers, Furniture, Leasehold Improvements	797,682	815,502	17,820
Less: Accumulated Depreciation	(447,042)	(603,965)	(156,923)
TOTAL ASSETS	$7,859,905	$8,781,773	$921,868

LIABILITIES	*9/30/2009*	*9/30/2010*	*DIFFERENCE*
Exam Fees Deferred	$1,022,600	$1,045,785	$23,185
Seminar and Meeting Fees Deferred	393,103	566,689	173,586
Accounts Payable and Accrued Expenses	791,022	720,633	(70,389)
Accrued Pension	457,057	426,147	(30,910)
Deferred Leasehold Improvements Allowance	129,792	108,744	(21,048)
Deferred Rent Obligation	100,522	104,316	3,794
TOTAL LIABILITIES	$2,894,096	$2,972,314	$78,218

MEMBERS' EQUITY

Unrestricted	*9/30/2009*	*9/30/2010*	*DIFFERENCE*
CAS Surplus	$4,074,501	$4,810,728	$736,228
Michelbacher Fund	154,768	158,491	3,723
CAS Trust - Operating Fund	189,732	197,383	7,651
Centennial Fund	199,121	250,634	51,513
ICA 2014 Fund	39,302	52,963	13,661
ICA 2010 "Cape Town" Fund	64,198	0	(64,198)
Research Fund	155,690	250,786	95,096
Subtotal Unrestricted	$4,877,312	$5,720,985	$843,674

Temporarily Restricted	*9/30/2009*	*9/30/2010*	*DIFFERENCE*
Scholarship Fund	$4,189	$3,789	(400)
Rodermund Fund	1,613	0	(1,613)
CAS Trust - Ronald Bornhuetter Fund	54,597	55,911	1,314
CAS Trust - Reinsurance Prize Fund	28,098	28,774	676
Subtotal Temporarily Restricted	$88,497	$88,474	($22)
TOTAL MEMBERS' EQUITY	$4,965,808	$5,809,459	$843,652

Leslie Marlo, Vice President - Administration

AUDITED

CAS Audit Committee: Mavis Walters, Chairperson;
Kenneth Quintilian, Vice-Chairperson, David Foley, and David Klein

CAS Board Approves Changes to Affiliate Membership Program

The CAS Board of Directors approved revisions to the CAS Affiliate Membership Program at its March 2011 meeting in an effort to encourage increased Affiliate membership and enhance international connections.

The Affiliate Membership Program was established in 1998 and is intended to serve actuaries who practice in the general insurance field and wish to be active in the CAS but do not meet the qualifications to become an Associate or Fellow of the CAS. Affiliate Membership recognizes that the Affiliate Member has been granted professional status as an actuary by another actuarial organization and practices in the property/casualty field.

Affiliates are governed by the CAS Constitution, Bylaws, and Code of Professional Conduct, and are subject to CAS disciplinary procedures. Practice rights are not granted to Affiliate Members; rather they must adhere to U.S., Canadian, or other nation-specific qualification standards to determine eligibility to practice.

Affiliates are entitled to attend meetings and seminars of the CAS by paying the member registration fee and are eligible to serve on CAS committees (except for Admissions and Board committees). Affiliates also receive all CAS publications including the *Actuarial Review* and *Variance*, and are granted access to the member directory on the CAS Web Site.

Previously, applicants for Affiliate Membership were required to attain the highest actuarial designation of an organization that is a member of the International Actuarial Association (IAA). The Board revised this requirement such that Affiliate members are now required to attain membership of an organization that is a member of the IAA.

The Board also agreed to reduce the Affiliate Member Program fee to 50% of the annual CAS membership dues. Affiliate members previously were assessed the same dues rate as Fellows and Associates.

The CAS currently has 24 Affiliate Members. Additional details on the Affiliate Member Program, including an application form, can be found on the CAS Web Site under Join/Renew.

CAS Promotes Social Media Outlets

The CAS has reached over 1,700 followers on Facebook, Twitter, and LinkedIn! In an effort to further promote our social media outlets the CAS has new marketing signage which will be used at CAS and other industry meetings. Show your support by visiting our social media pages and following the CAS!

Visit www.casact.org and follow us through the social media widgets on the CAS Web Site.

Like

CAS Recognizes 2010-2011 Partners

The Society Partners Program is an integrated sponsorship program built around firms that demonstrate a commitment to the CAS and its mission by making an annual financial pledge to support CAS activities. A Society Partnership spans 12 months, from October 1 to September 30, to coincide with the CAS fiscal year. To receive the exclusive benefits of this program, Society Partners committed to a certain level of support at the beginning of the program year. Three tiers of partnership were offered, with exposure opportunities and other benefits commensurate with the level of investment.

The CAS is appreciative of the support provided by its Partners. It is worth noting that Partner support has allowed the CAS to avoid any increases in meeting and seminar registration fees from FY 2009 to FY 2011.

Now in its second year, the CAS is especially thankful that three of its inaugural Platinum Partners agreed to participate at the Platinum level again this year. These firms are Ernst & Young, Milliman, and Pauline Reimer/Pryor Associates Executive Search.

The complete roster of 2010-2011 Society Partners is highlighted below.

Platinum Partners

Ernst & Young
Quality In Everything We Do

Milliman

Pauline Reimer, ASA, MAAA
PRYOR
Executive Search
Toll-Free: (866) 6 - ACTUARY
Paulinereimer@aol.com www.ppryor.com
It Takes One To Know One ... An Actuary Placing Actuaries

Gold Partner

TOWERS WATSON

Silver Partners

ACTUARIAL CAREERS, INC.®

ISO®

LexisNexis®

PINNACLE
ACTUARIAL RESOURCES, INC.
The Firm of Choice

The 2010-2011 Society Partners Program will be announced in August 2011. Visit the CAS Web Site, or contact Mike Boa, Director of Communications and Marketing (703-562-1724 or mboa@casact.org), to learn more.

Nominations Sought for CAS Service Awards

The CAS wants to recognize significant volunteer contributions, and we need your help. Nominate a worthy CAS volunteer for the 2011 Above & Beyond Achievement Award (ABAA) or the 2011 Matthew Rodermund Service Award.

The ABAA is made annually to CAS members who have made a contribution that is clearly outside of expected volunteer responsibilities and duties. Consideration is also given to contributions to the committees of other actuarial organizations that benefit CAS members. Any CAS member who is not a current board member or officer is eligible to receive this award. Keep in mind that an extraordinary effort can be shown in an assignment of limited scope, as well as on a larger task.

The Matthew Rodermund Service Award was created to recognize CAS members who have made significant volunteer contributions to the actuarial profession over the course of a career. The award was established in 1990 in honor of Matt Rodermund's years of volunteer service to the CAS. Volunteer contributions could include committee involvement, participation in CAS meetings and seminars, volunteer efforts for Regional Affiliates or special interest sections, and involvement with other actuarial organizations. Service as an elected CAS officer or director and authorship of papers published by the CAS are not considered. Past presidents are not eligible.

Nominations are due by June 30, 2011, for both awards and the winners will be announced at the 2011 CAS Annual Meeting in Chicago. Nomination forms can be found at http://www.casact.org/volunteer.

Send nominations to Matt Caruso at mcaruso@casact.org. AR

25 Years Ago in the *Actuarial Review*

How Much Has Changed?

By Walter Wright

In May 1986 The AR printed the following poem, from Boardroom Ballads, by Bertie Ramsbottom, published by Adler & Adler, Bethesda, MD. The editors said it was "particularly apt today," and it still is 25 years later.

Friends of the Earth

We little thought that things would end
With OPEC seeming like a friend;
Or that we'd turn nostalgic eyes
To times when prices hit the skies,
And sing a eulogistic carol
For oil at forty bucks a barrel!

But then, at least, we stopped to think,
While teetering upon the brink,
That maybe there were ways to foil
The needless tyranny of oil;
And other methods worth the learning
To keep the wheels of commerce turning.

We even questioned was it worth
The raping of our Mother Earth
Or fighting never-ending duels
Like scavengers for fossil fuels,
And offering, in restitution,
A ravaged world and air pollution.

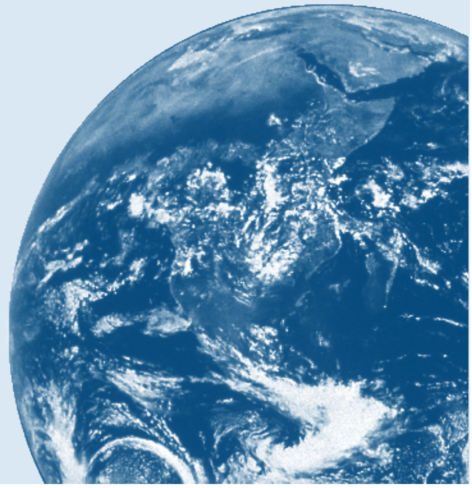
And Nature seemed prepared to prise
The scales from our myopic eyes
And show what energies were there,
In wind and water, sea and air,
More rich for those with eyes to see,
Than all the oils of Araby.

We thrilled to prospects of the union
Of man and nature in communion,
Harvesting the winds and tides
And energy the sun provides,
With some more promising equation
Between our needs and conservation.

While even those whose vision ends
With forecasts of their dividends,
Were galvanized by leaping prices
To seek alternative devices
And place, upon a changing scene,
Their money where their mouths had been.

But economics, with their crazy
Politics of whoops-a-daisy,
Look as though they'll stand instead
Our expectations on their head;
And, with the price of oil declining,
Liquidate our silver-lining.

If energy renaissance needs
The impetus of others' greeds,
Let us, on our knees, implore
The privilege of paying more!
And may this masochistic pleasure
Teach us truly what to treasure! AR



MARTY ADLER

Oil Supply Concerns

Gail Tverberg is distressed that the world is running out of cheap oil, because the world's economies were built on cheap oil. She believes this lack of cheap oil has serious financial implications. She first became concerned in 2005, when she read *The Empty Tank: Oil, Gas, Hot Air, and the Coming Global Financial Catastrophe* by Jeremy Leggett. Ever since, she has devoted considerable time and energy to the problem, currently 40 hours or more a week, as a writer, a blogger, a speaker at international conferences, and as a member of the editorial board of an organization studying the issues.

In May 2006 she wrote an article for Tillinghast's publication *Emphasis* titled, "Oil Shortages: The Next Katrina?" She has written several articles for actuaries since then, including:

- "Our Finite World: Implications for Actuaries," *Contingencies*, May 2007.
- "The Expected Impact of Oil Limitations on the Property-Casualty Insurance Industry," *Casualty Actuarial Society E-Forum*, Fall 2010.
- "Systemic Risk Arising from a Financial System that Requires Growth in a World with Limited Oil Supply," Essay for the SOA series "Risk Management: Part Two—Systemic Risk, Financial Reform, and Moving Forward from the Financial Crisis," (http://www.soa.org/library/essays/fin-crisis-essay-2011-toc.aspx).

Wanting to avoid a potential conflict of interest, Gail retired from Towers Perrin (now Towers Watson) in March 2007, specifically to work on this issue. She believes that some of the implications are so dire that no one working for an insurance company would dare write about them, which pretty much leaves the research to be done by retirees. She says that no government agency wants to talk about the issue (although the Paris-based International Energy Agency did mention in a report last year that conventional oil production has been past peak since 2006). Certainly, there is no funding by governments for studies. So the work has to be by volunteers.

As a result of her work, Gail was asked to join the staff of The Oil Drum (http://www.theoildrum.com/), an organization whose theme is "Discussions about Energy and Our Future." It has a staff of about 30 volunteers around the world who research and write articles on issues related to energy and the future. Most of the staff members have PhDs or have substantial backgrounds working in the oil and gas industry. The organization can be thought of as a think tank devoted to the issue of oil limitations and the impact these limitations are likely to have on the world. The Oil Drum's parent is the Institute for the Study of Energy and Our Future, a not-for-profit 501(c)(3) educational institution.

Gail not only writes articles but serves on the editorial board, deciding which articles will run and what changes are needed for submissions.

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The Oil Drum is widely read with about 25,000 to 30,000 visitors each day. Readers include journalists from many major newspapers. About half of the readers have master's degrees or higher educational degrees. They discuss all fossil fuels, as well as suggested replacements for fossil fuels.

Initially everyone at The Oil Drum used pseudonyms for fear of reprisals from their employers (generally universities). Gail uses "Gail the Actuary," but people do know her real name.

Gail also writes a blog called, "Our Finite World" (http://ourfiniteworld.com/). Its focus is broader than The Oil Drum. It also addresses the financial implications of oil limitations. Gail has concluded that oil limits do not look the way people expect—they tend to look more like recessions than shortages. The result can even be a "glut" of high-priced oil on the market. She updates "Our Finite World" one to three times a week. Many posts from "Our Finite World" later run on The Oil Drum Web Site.

Gail has spoken at conferences in Italy, Spain, and in various U.S. cities. She has visited an oil platform (offshore in the Gulf of Mexico); the oil sands in Alberta, Canada; and oil installations in Ecuador. When she visited a natural gas installation in Wyoming, she stayed in the women's section of a dormitory for oil workers, in a room about 8' x 8', with a group bathroom down the hall.

She has also been invited as a speaker at symposiums at the Massachusetts Institute of Technology and the U.S. Naval War College in Rhode Island. The latter seemed to be interested in the subject in order to know what issues to be concerned about when developing its war games.

Gail is currently working on a book for the textbook publisher Springer, tentatively titled, *Beyond Hubbert: How Limited Oil Supplies Cause Economic Crises*. It is to be part of a series of shorter texts in a series called *Briefs in Energy* under the direction of Dr. Charles Hall, a professor at the State University of New York at Syracuse. The book is about mechanisms by which oil shortages cause economic crises. One of these mechanisms is high oil prices inducing recession. Also, if the economic growth rate declines because of high oil prices, debt default rates tend to rise, because it is much more difficult to pay back debt with interest when the economy is declining than when it is growing.

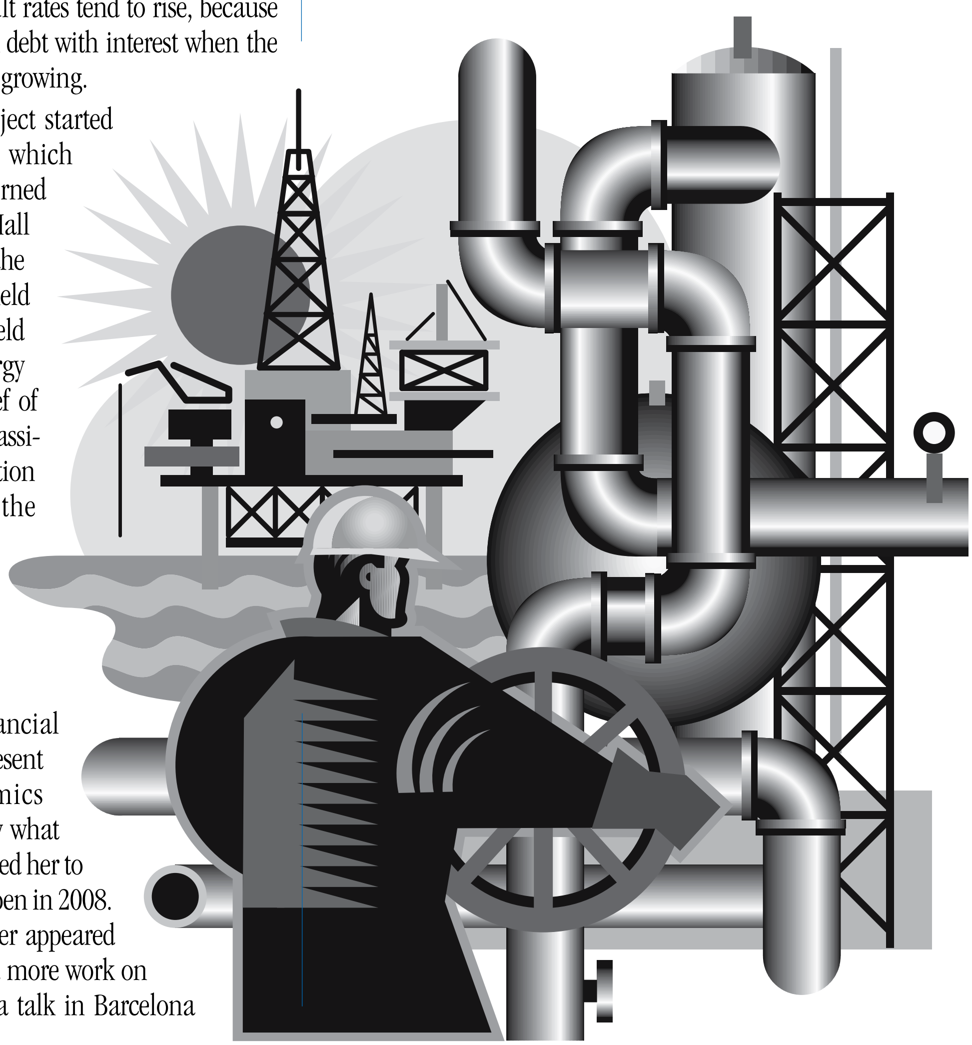
Gail's involvement with this project started with a financial forecast for 2008, which she made early in that year that turned out to be surprisingly accurate. Dr. Hall leads a group of professors around the country who are interested in a new field called biophysical economics. This field looks at the connection between energy supplies and the economy. The belief of this group of scientists is that neoclassical economics overlooks the connection between the physical world and the economic world. Since we live in a finite world, at some point low cost supplies will disappear, and high cost supplies will have a severe significant impact on the economy.

Dr. Hall heard about Gail's financial forecast for 2008 and invited her to present at the 2009 Biophysical Economics Conference. Dr. Hall wanted to know what Gail saw that others missed that allowed her to predict so accurately what would happen in 2008. Her talk, "Delusions of Finance," later appeared as an Oil Drum post. In 2010 she did more work on the subject and was invited to give a talk in Barcelona this past October. She also wrote an academic paper, "Oil Supply Limits and the Continuing Financial Crisis," which she recently submitted to the journal *Energy*. She is awaiting word on whether it will be accepted.

When not working on this important issue, Gail Tverberg is president of her company, Tverberg Actuarial Services, Inc., in Kennesaw, Georgia. AR

NAP Needs Your Input!

Do you have or know a CAS member who has an interesting nonactuarial pursuit? If so, we'd like to hear from you. Send an e-mail to ar@casact.org and let us know what you do in your off hours.



CAS Continuing Education Policy FAQs

As a reminder of the CAS Continuing Education (CE) Policy, which will first apply to actuarial services rendered on or after January 1, 2012, the *Actuarial Review* is providing this excerpt from the list of Frequently Asked Questions (FAQs) that were published along with the policy last year.

Members are encouraged to review the complete CAS Continuing Education Policy for all of the details on the CE requirements. The policy, along with the complete list of FAQs and responses, is available through the Professional Education section of the CAS Web Site.

Who is subject to the CAS Continuing Education Policy?

All ACAS and FCAS are subject to the CAS Continuing Education Policy.

Who is required to obtain continuing education under this policy?

All ACAS and FCAS members who perform "Actuarial Services" are subject to this requirement. Many of these members are already subject to continuing education requirements issued by a national organization such as the Canadian Institute of Actuaries or American Academy of Actuaries. The coordination of this requirement with other organizations' requirements is covered in Sections B and C of the CAS Continuing Education Policy.

Actuaries not subject to this requirement are those who do not provide actuarial services.

I am the CEO of an insurance company and do no actuarial work, although I am an FCAS. Do I need to comply with the CAS Continuing Education Policy?

Yes. However you would attest to your compliance by indicating that you are Not Currently Providing Actuarial Services under the CE Heading of the CAS membership directory. Actuaries who do not provide Actuarial Services are exempt from meeting the continuing education requirement of the CAS Continuing Education Policy. If you resume providing Actuarial Services at a future date, you will again be required to meet the continuing education requirements of the CAS Continuing Education Policy, as outlined in the provisions of Section D (Transition Rules).

When does the CAS Continuing Education Policy take effect?

The CAS Continuing Education Policy will first apply to Actuarial Services rendered on or after January 1, 2012. ACAS and FCAS members will need to assert compliance with the policy's CE requirements as of December 31, 2011, in order to provide Actuarial Services during 2012.

It is expected that most members will elect to satisfy the CAS Continuing Education Policy through the National Compliance Provisions outlined in Section B. Those actuaries will need to be in compliance with the continuing education requirements of their national organization as of December 31, 2011, in order to provide Actuarial Services in 2012.

Alternatively, members may elect to satisfy the CAS Continuing Education Policy through the Alternative Compliance Provisions outlined in Section C. Members electing this mode for compliance will be required to obtain the pro rata portion, or 50%, of the standard two-year cycle requirements for each of the CE requirements (total hours, structured activities, etc.) during 2011 in order to provide Actuarial Services in 2012.

If I am a member providing Actuarial Services, what specific actions must I take during 2011 to meet the CAS Continuing Education Policy?

In order to continue to provide Actuarial Services during 2012, you must satisfy the continuing education requirements of the CAS Continuing Education Policy, either through the National Compliance Provisions (Section B) or through Alternative Compliance (Section C). You must maintain a log of your continuing education activities and will be required to certify compliance with the CAS Continuing Education Policy as of December 31, 2011, and annually thereafter.

Early in 2011, you should decide the mode by which you will comply with the CAS Continuing Education Policy. If, like most members, you are eligible for and elect to comply with this policy through the National Compliance Provisions of Section B, you should immediately begin complying with the continuing education requirements of the national organization by which you are electing to comply with the CAS Continuing Education Policy. For example, the American Academy of Actuaries has an annual 30 credit hour continuing education requirement, with a limited carry-forward provision.

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U.S. Actuaries Should Take Note of Solvency II's Potential Ramifications

By Claude Penland

Solvency II is a set proposed regulations for insurers operating in the European Union. In many cases, Solvency II will increase the amount of surplus that insurers must hold by 2013. So what are the implications of Solvency II for actuaries in the U.S.? This article offers a broad-stroke approach to quite complicated issues. It is my modest hope in writing it that U.S. actuaries will start paying more attention to these issues.

The Upshot of Solvency II—A Few Implications

Solvency II's complex requirements may drive some insurers and reinsurers to outsource their asset management and abandon captive insurers. Under Solvency II, bond holdings are strongly encouraged and equities, real estate, and alternative assets are discouraged due to increased surplus capital requirements if one holds risky assets. Some analysts are even concerned that bond yields will be driven artificially low by the increased insurer demand for bonds.

There are not enough regulators with appropriate experience. However, the European Insurance and Occupational Pensions Authority has begun additional regulatory training and expects to hire 70 to 90 people by 2014. Employees with the appropriate skills, especially actuaries in Ireland, U.K., and other regions have seen their compensation increase by quite a lot.

Companies have seen their Solvency II compliance costs add up as well. For example, Lloyd's managing agents will have spent at least $400 million on compliance by 2013. Some have argued that International Financial Reporting Standards and Solvency II regulations unfairly affect businesses twice and overlap.

Solvency II regulators would like those subject to Solvency II to be prepared for an industry catastrophic aggregate event of approximately $50 billion. Under proposed rules, Lloyd's would need to double their catastrophe reserves. However, several reinsurance brokers have said that catastrophe risk is not accurately calculated within the ongoing regulations—that they do not reflect the increasing complexity that catastrophe risk modelers have incorporated into their work.

Another wrinkle involves gender-based insurance and pension pricing, which were recently outlawed in Europe by the European Court of Justice. If this ruling stands, actuaries say that even more risk-based capital will have to be held by insurers, unless other risk factors are used to replace gender-based pricing.

Pension fund managers do not believe that they should be subject to Solvency II rules, but many insurers would prefer that pension funds be held equally accountable. The rules also

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Under Section C (Alternative Compliance), 2011 will be the first year of the first two-year rolling cycle. By the end of the second year (2012) you must obtain 60 credit hours of continuing education. By the end of the first year (2011), you must have completed a pro rata portion, or 50%, of the continuing education required in the first cycle.

What records must I keep to be able to prove compliance? What information should be captured on the log?

Information to be included in the log must be sufficient to demonstrate compliance with the continuing education requirements of the mode that the actuary selects for compliance. The items to be included in the log are a brief description of the continuing education activity, the date of the activity, the sponsoring organization, the number of credits earned, whether the credit was self-study or structured (organized if using the U.S. Qualification Standards for compliance), and the subcategory for which the credit applies—job relevance, professionalism, or business and management skills.

Details on certifying compliance will be announced later in 2011.

SHAUN WANG

The Coming Storms

On a sunny day in the fall of 2008, the natural surroundings of my Atlanta home were so tranquil and beautiful that it made me forget for a moment all the financial market turmoil that was going on.

Fast forward to early 2011. The U.S. economy now appears to be on a gradual recovery, especially if you look at the impressive run up of the stock markets. Suddenly on March 11, 2011, a devastating earthquake and tsunami hit Japan. The horrific scenes of natural disaster and human tragedy made my stomach wrench.

Now, looking ahead to the coming years, I sense an impending storm gathering. It is likely a perfect storm, combining natural disasters on a larger scale than the Japan earthquake and a second-dip market meltdown worse than the fall 2008 financial crisis.

The clouds for the coming storm are visible:

1) Four of the five costliest earthquakes and tsunamis of the last 30 years have occurred in the last 13 months. There is a geophysical linkage (via crustal plates) of Chile, New Zealand, Japan, and the Northwest U.S. as the Pacific "Ring of Fire." Given the recent earthquakes in Haiti (January 12, 2010), Chile (February 27, 2010), New Zealand (September 4, 2010, and February 21, 2011), and Japan (March 11, 2011), the conditional probability of an earthquake within the next year in the northwest U.S. has increased significantly due to the changing pressures on the crustal plates.[1,2]
2) The world is on a brink of severe shortage of food and water, due to growing demand that supplies cannot keep up with. The world population has reached a new peak of nearly seven billion. The population growth rate is faster than exponential growth, given that the one billion mark was first reached around the year 1800. This population growth coincides with industrial consumptions for agricultural and water resources. Meanwhile the earth is facing the prospect of severe drought in the arable land areas (despite the floods in Australia).[3] Severe drought and water scarcity will affect the food availability and cause spikes in food prices.
3) There are other potential threats of natural and man-made disasters. NASA warns that solar flares from a "huge space storm" might cause devastation. Solar flares would be like "a bolt of lightning" and may cause disruptions to the communication and navigation systems. *AR* readers may have seen the profile of Nolan Asch's nonactuarial pursuits in the February issue ("Saving the World from Asteroids"). These may be less likely than the ring of fire earthquake scenarios, but nevertheless represent possible

[1] Kimberly Johnson, "Earth's Core, Magnetic Field Changing Fast," National Geographic News, June 30, 2008, http://news.nationalgeographic.com/news/2008/06/080630-earth-core.html.

[2] Noel Brinkerhoff, "Millions of Dead Fish Clog California Marina," AllGov.com, March 15, 2011, http://www.allgov.com/ViewNews/Millions_of_Dead_Fish_Clog_California_Marina_110315.

[3] Climate Signals, December 4, 2010, http://climatesignals.org/2010/12/amazon-hit-by-two-100-years-droughts-in-last-5-years/.

systemic threats.

4) Risk managers should be concerned with a set of perfect storm scenarios triggered by natural disasters such as massive earthquakes or volcanic eruptions in the U.S. (or less likely, solar flares), combined with a scorching sun with severe drought, food shortage, and disruptions to the wireless communications and network connections. When such a disruption occurs, it will almost certainly trigger a market meltdown. The fragile U.S. economy would not be able to sustain such a shock, and the government has run out of means and tools to deal with one.

Natural disaster-triggered market meltdown presents a systemic threat to the U.S. economy and the insurance industry. Insurance companies should first assess and evaluate the potential insured losses from specific natural disaster scenarios and associated investment portfolio losses from the market meltdown, with anticipation of demand surge and supply shortage that can dramatically increase the costs of insurance claims. After risk assessment, insurance companies should seek to diversify the extreme tail risks through global reinsurance, hedging, and catastrophe bonds.

For pre-event risk management, insurers can encourage disaster preparedness by offering premium discounts and rebates through a post card checklist for policyholders who certify that they have a certain set of disaster preparedness items in their homes and business sites. A concerted insurance industry-sponsored effort to encourage individual disaster preparation could also involve a nonprofit organization for disseminating preparedness information pre-event and coordinating response post-event. This nonprofit organization could be authorized to acquire tangible assets (shelters, water, food, medical supplies) and contingent plan logistics (with trained back-up personnel and equipment, which can operate when existing communication and transportation are shut down). Pre-event risk management can get more bang for the buck; it helps society and saves lives in a time of major disruption.

At the individual level, I think we should also practice pre-event risk management by stock piling enough water, non-perishable food, and back-up electrical generators to last for 2-4 weeks. Local communities should coordinate and unite in the preparedness.

Winston Churchill once said, "The pessimist sees difficulty in every opportunity. The optimist sees opportunity in every difficulty." By being prepared, we can find the path that leads to calm water in the midst of storm, and we can seize the opportunities to help others in need.

Dr. Shaun Wang, FCAS, is the founder and chairman of Risk Lighthouse LLC. He can be contacted at shaun.wang@risklighthouse.com.

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have many implications for private equity investors and labor outsourcers.

An increase in redomiciles, mergers, and acquisitions are expected because of these regulations. Japan, Bermuda, and Switzerland are presently undergoing equivalency tests with the European Union. Areas such as Guernsey have elected to forego equivalency and have chosen to stand alone.

What it Means

Solvency II will mean many things for actuaries; among them are increases in compliance costs and reserves but, fortunately, also jobs. I encourage actuaries to stay on top of Solvency II developments, as these regulations will have implications for global capital and personnel allocations, and competition. Solvency II could even be seen as another phase of the international risk management movement. However, there is still much more work to do on all sides before the 2013 deadline.

Claude Penland, ACAS, blogs on actuarial, insurance, risk, and Web issues at ClaudePenland.com. His posts on Solvency II news and trends can be viewed at SolvencyDeux.com.

GROVER EDIE

I Won the Lottery—Part 2

In my last editorial, I expressed that I had "won the lottery" by being born when I was, in the country where I was born, and with the opportunities I have. Some of you also felt that way and let me know—thank you. But we all have read or seen accounts of people who won a different lottery, such as a state or multi-state lottery, only to be bankrupt within five or ten years. Many have said that the day they won that big jackpot was the worst day of their lives, because it changed their lives for the worse. Their dream became a nightmare.

We all know people who also won the lottery I wrote about last quarter—they have the opportunities, are smart, talented, and at one time they seemed bound for greatness. But that greatness never happened. I know people smarter than me who are struggling with a career that is going nowhere, struggling to make ends meet; you likely know someone like that as well. So what is the deal here?

First, success is how you define it. It could be centered on family, community, fame, finances, spiritual, physical, or a lot of other domains. Some decide not to go after financial or corporate success and pursue other interests—their success is not your success, and vice versa.

Next, a lot has to do with what vision an individual has for himself or herself. Some are perfectly content to put in eight hours of work, go home, and watch television. Others work only to enable them to finance their favorite extracurricular activity. And some just get by.

Whether or not there is support by those around them also has a bearing on their success. Some sacrificed their success for the success of another. I could not have finished the actuarial exams without the encouragement and support of my wife Diane.

Persistence also plays a big role. But then, we know persistent people with a vision, who work many hard and long hours, who still have not reached their goal. How is it that we did it, and others did not?

Is it talent? Is it innate ability? This is the old "nature verses nurture" question.

Malcolm Gladwell's book *Outliers*[1] seeks to answer that question. He cites the story of Bill Gates, who spent an enormous amount of time honing his computing skills, starting in the eighth grade, no less. Likewise, the Beatles played together thousands of hours before being "discovered." In each case, Gladwell attributes their success to the amount of time they practiced their trade. Geoff Colvin adds the stories of others to that list in his book *Talent is Overrated.*

Both of these books draw, in part, from a study of violin students at a university in Germany. Musicians were asked to keep a diary of their activities, including when and how much they practiced their violin. They were also graded on the basis of their violin performance. The scientists performing the study wanted to know the relationship between the quality of their violinists' performances and the amount of time they practiced. The title of the resulting paper: "The Role of Deliberate Practice in the Acquisition of Expert Performance"[2] provides the answer.

"Deliberate practice includes activities that have been specially designed to improve the current level of performance."[3] Deliberate practice is not just the time in the job, or time on the golf course or tennis court. It is not just the number of years you have been doing it. It involves activities specifically designed to strengthen your weaknesses and further strengthen your strengths. It is hard work. It is usually not fun, although some become obsessed with it.

The student's progress must then be tested to determine the effectiveness of the individual's learning, and whether or not that learning is correct.

It sounds a lot like our examination process. I would say our examination process *is* such a process.

Both books and the study go on to say that it takes a considerable investment of time in order to reach the level of expertise that is required to be recognized as an expert in a domain. Chess players take a minimum of 10 years before they achieve the level of grandmaster. Bobby Fischer was a notable exception and notable because he was such an exception. The study claims that musicians take a minimum of 10 years of deliberate practice before their compositions are publishable as quality works. Mozart was another exception, but again, an exception, not the rule. Scientists and authors have an average span of 10 years between their first works and their best works. Gladwell poses that it is not just 10 years of deliberate practice, but that it takes a minimum of ten thousand hours of deliberate practice to achieve the result. I used to tell my sons that "just" practicing is not enough, only perfect practice makes perfect. Deliberate practice and perfect

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[1] Malcolm Gladwell, *Outliers* (New York: Little, Brown and Company, 2008).

[2] K. Anders Ericsson, Ralf Th. Drampe, and Clemens Tesch-Romer, "The Role of Deliberate Practice in the Acquisition of Expert Performance," *Psychological Review* 100(3), 1993, pp. 363-406.

[3] Ibid, p. 368.

Rising Energy Prices Will Affect Insurance Ratemaking

NEW ORLEANS, La.—The leveling off of the world's oil supply and the resulting rise in gasoline prices and their economic impact carry implications for actuaries involved in insurance ratemaking, as described at the CAS annual Ratemaking and Product Management Seminar, held March 20-22, 2011.

"In terms of how these issues are already affecting insurers, remember the Deepwater-Horizon oil drilling platform blowout that happened in the Gulf of Mexico last year, the nuclear meltdowns in Japan this year, and the recession of 2008-2009," said Gail Tverberg during the RPM Seminar session "Actuarial Implications of Current Energy and Related Economic Issues."

"We knew there was a correlation between oil price spikes and recessions," she pointed out. "Since World War II, there have been 12 oil price spikes and 12 recessions. Eleven of the oil price spikes immediately preceded recessions, so we only have one of each that didn't get explained by the other."

Recessions affect insurers in many ways, said Tverberg. Reduced auto claims affect auto insurance, high unemployment affects workers compensation insurance, and falling home values and unoccupied homes affect homeowner insurance. There are also reductions in the amount of investment income insurers can earn. On the other hand, new insurance coverages emerge, such as for solar panels and electric cars.

Tverberg outlined the connections and interrelated problems between energy and exponential growth that she said is fundamental to the current economic system. Among them are that population growth corresponds very closely to growth in fuel use and that food prices also correlate closely with oil prices. "We are reaching limits in many areas," she noted. "Fresh water is limited, oil and natural gas are becoming more expensive to extract, soil is suffering depletion and erosion, and capital for solutions is limited."

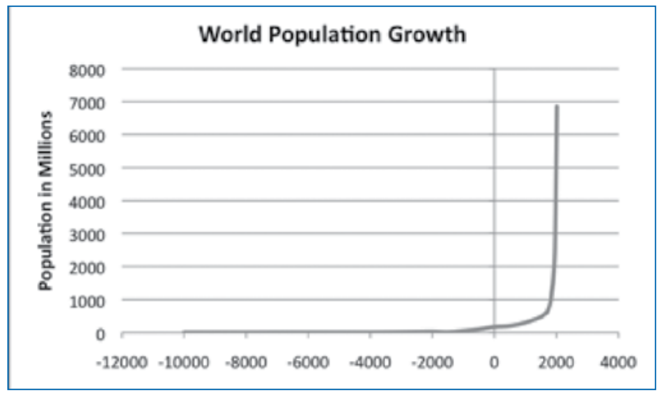

Chart courtesy of Gail Tverberg.

"In terms of implications for ratemaking, we should expect more recessions, or a shift from slow growth to recession and

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practice might not be the same, but they strive for the same result: excellence.

The 10 years of deliberate practice, from start to recognized expert, compares to the average travel time of eight and a half years that it is reported to become a Fellow of our Society. I suggest new Fellows add the CPCU, an MBA, or other post-Fellowship activities to round out their education, and that would take it to the full 10 years, more or less.

My point is this: It isn't enough that you "won the lottery." You had to work hard, with purpose, to get to where you are today. You had a vision and likely had people who helped you along, even sacrificed to help you reach that goal. But in the end, you had to put forth a lot of hard work to get where you are.

I personally believe that successful people should *voluntarily* share their wealth—whether it is money, talent, learning, or whatever. CAS members are quite good at volunteering their time to further the profession—I thank you for that. However, I disagree with those who try to say that financially successful people "owe it" to "share" part of their wealth with unsuccessful people through taxation just because the successful people have accumulated more assets. Successful people have likely worked more—in most cases, a lot more. People understand that to play the piano, you have to practice. Should successful concert pianists be required ("taxed") to give free concerts? Then why do some people think that getting ahead financially does not also involve a considerable amount of practice and commitment? Do they think it takes less deliberate practice to be proficient at a business skill or highly skilled in math than to learn Chopin? America is a land of equal opportunity, not a land of equal results.

I would be remiss if I also did not mention that, in my case, my God has also played a big part in my success; He has been very kind to me, and I am grateful for that.

So rejoice that you won the lottery, but realize that it also took a lot of hard work to turn that winning ticket into a real winner!

Retrospective Tests for Stochastic Loss Reserve Models

Stochastic loss reserve models have been a popular topic for actuarial research over the past few years. By my (probably imperfect) count, there have been nine papers published in the last two years in the CAS publication *Variance*. Only one of those papers dealt with the subject of this column, retrospective testing, and that paper analyzed only one insurer. Suffice it to say that we are still very much in the dark when it comes to retrospectively evaluating stochastic loss reserve models.

The purpose of this column is not to propose another stochastic loss reserve model, but instead to:

- Introduce a database consisting of loss triangles and subsequent outcomes for hundreds of insurers.
- Propose some tests for evaluating a stochastic loss reserve model that can be performed with this database.

The database consists of data extracted from Schedule P, Parts 1 through 4, obtained from the NAIC database. It includes complete run-off triangles from the 1997 Annual Statement for hundreds of insurer groups. In addition, it contains the "completed triangles" of outcomes obtained from subsequent annual statements.[1] The database contains data for a number of liability lines of insurance. The data can be downloaded from the CAS Web Site.[2]

We should all thank the NAIC for granting permission to make this data available for research purposes. Thanks should also go to Peng Shi, assistant professor of Actuarial Science at the University of Northern Illinois, for processing this data into a useable form.

Before starting it would be helpful to review the general approach taken by mathematical statisticians on problems of this sort. They proceed by: (1) selecting a stochastic model that represents a population; (2) choosing a statistic of interest representing the population, given a sample from that population; and (3) calculating the distribution of the statistic.

For example:

- Our stochastic model could be a normal distribution,[3] with mean μ and standard deviation σ.
- The statistic of interest could be the mean, $\hat{\mu}$, of a sample of size n; and the distribution of $\hat{\mu}$ has a normal distribution with mean μ and standard deviation $\sigma/\sqrt{\mu}$.
- The estimate of the population mean and its standard error are statistics of interest in many situations.

Another statistic of interest is the percentile of an out-of-sample observation, x. One way to estimate this percentile is to take 1,000 simulations of a normal random variable with mean $\hat{\mu}$ and standard deviation $\sigma/\sqrt{\mu}$. Then for each simulation, calculate the percentile, p, of x given the simulated mean with standard deviation σ. The percentile of x will be the average of the 1,000 percentiles.

This simulation step is necessary because of uncertainty in our estimate of the population mean μ. It reflects the "process risk" that lies on top of our "parameter risk" for μ.

If we repeat the simulation for several out-of-sample observations, we should expect the distribution of the percentiles to be uniform. If they are not uniform, there is something wrong with either the estimator of the mean or the underlying assumption of normality.

Now let's look at a typical loss reserving problem. In Schedule P we are given a sample of 55 incremental paid losses, $\{x_{AY,Lag}\}$, for accident years $AY = 1,\ldots,10$ and settlement lags $Lag = 1,\ldots,11\ AY$. A stochastic loss reserve model should be able to predict the distribution of the 45 subsequent incremental paid losses, $\{x_{AY,Lag}\}$ for $AY = 2,\ldots,10$ and $Lag = 12 - AY,\ldots,10$. We have the subsequent paid losses in our new database, so we can test to see if the 45 percentiles are uniformly distributed.

P-P plots provide a way to test the uniformity of the predicted percentiles. One first sorts the observed percentiles in increasing order and plots them along the vertical axis. One then plots the expected percentiles 1/46, 2/46,…,45/46 along the horizontal axis. We expect the plot to lie along a 45° line. Since the observed outcomes are another sample, we can use the Kolmogorov-Smirnov statistic to produce confidence bands for the plot. Figure 1 shows an illustrative example of a successful test on a simulated loss reserve model. The R code that produced this example is included with the Web version of this article.

Stochastic loss reserve models should also be able to produce the distribution of the total loss reserve, $\sum_{AY=2}^{10}\sum_{Lag=12-AY}^{10} x_{AY,Lag}$. With the observed total loss in the database, we can calculate its percentile. If the percentile is extremely high (i.e., > 99%) or

[1] Since insurer groups change their makeup from time to time, the database contains this information only for those insurers that match in the overlapping data elements in the subsequent annual statements.

[2] http://www.casact.org/research/index.cfm?fa=loss_reserves_data.

[3] Since this example is illustrative only, I make the simplifying assumption that σ is known.

extremely low (i.e., < 1%), we can conclude that something is wrong for a single insurer. We can also test the applicability of a particular loss reserve estimator by calculating the percentiles for several insurers and putting them into a P-P plot.

Note that many of the stochastic loss reserve methods produce only a standard error of the estimate. That is to say they omit any consideration of the process risk. Figure 2 provides a P-P plot that corresponds to Figure 1 when we omit the process risk. We see that there are too many observed low and too many observed high percentiles predicted by this method.

My personal experience with these tests indicates that we should expect both successes and failures. A test failure suggests that we have either a bad estimator or an inappropriate model. How do we tell which? The CAS Loss Simulation Working Party has produced software that allows one to test an estimator for a given model.[4] If we have a good estimator, failure on the new loss reserve database indicates a problem with the underlying model.

The new database has both paid and incurred data to use for fitting and testing prospective models, so there is a lot of exploring that can still be done. Do the simple formulas, such as the Mack chain ladder estimators, work as well as the more sophisticated Bayesian estimators? Do estimators that rely on both paid and incurred data work better than those estimators that rely solely on paid data? Such questions have been debated over my entire actuarial career, and we now have the ability to test such assertions with empirical data.

Figure 1

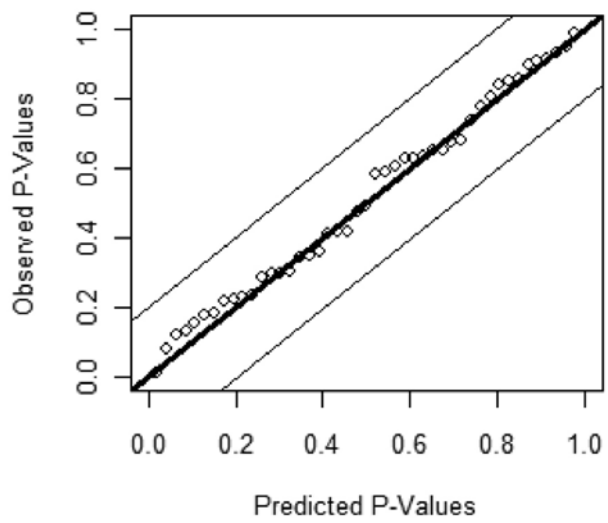
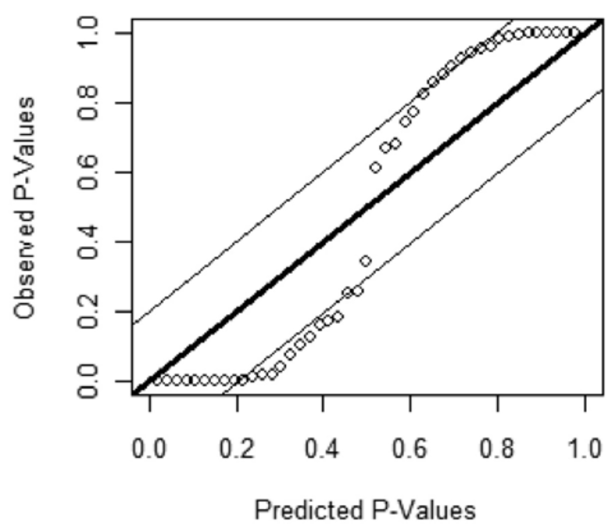


Figure 2



[4] The final report of the Loss Simulation Working Party can be found at http://www.casact.org/pubs/forum/11wforum/LSMWP.pdf

Rising Energy Prices, From page 17

back again, but I think the general direction is going to be in terms of more recessions," she said. "We should also expect that governments are going to be in worse financial shape, so they may not repair roads as well, they may default on their bonds, and they may not be able to fix damage after catastrophes."

The potential impacts on catastrophe pricing are that following natural disasters, governments are likely to be slower to fix roads and provide basic services, so business interruption claims may go on longer than they would otherwise. Government intervention in settlements may occur, as in the Deepwater Horizon oil spill, she noted.

"With rising oil prices having the potential to push up long-term inflation rates and defaulting bonds possibly causing investment returns to be far below what was anticipated, the long-term outlook for long-tail insurance lines is dim, resulting in insurers returning to short-term, quick payout lines," said Tverberg.

"The basic issue is that exponential growth cannot continue in a finite world with oil being a major variable, along with population, water supplies, and the financial system. A clear solution does not exist," she concluded.

Presentation slides from the RPM Seminar are available through the CAS Web Site (www.casact.org/education/rpm/2011/handouts/), including Tverberg's presentation, which can be accessed directly at www.casact.org/education/rpm/2011/handouts/PL6-Tverberg.pdf.

University of Connecticut to host 2011 Actuarial Research Conference

The 46th Actuarial Research Conference (ARC), scheduled for August 11-13, 2011, at the University of Connecticut in Storrs, provides an opportunity for academics and practitioners to meet and discuss current actuarial problems and their solutions.

This year's theme is "Connecting Theory and Practice." Practicing actuaries are urged to join academics for discussions and networking.

- As attendees, practitioners can learn first-hand what their profession's academic researchers are thinking about.
- As presenters, they perhaps can return the favor by showing academics what practitioners would prefer researchers to be thinking about.

A call for papers has been issued, with abstracts due by June 30, 2011.

Visit the ARC Web Site (http://www.math.uconn.edu/conferences/arc2011/) for the call for papers, online registration, online reservations for accommodations, and more. Contact Jim Bridgeman at bridgeman@math.uconn.edu for additional details.

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Intro to ERM Online Course Offered

Enterprise Risk Management (ERM) applies basic risk management principles to all risks facing an organization. Under ERM, hazard, financial, strategic, and operational risks are integrated into a single framework. ERM became an important issue partly as the result of the Sarbanes-Oxley Act of 2002, which put greater responsibility on the board of directors for managing all of an organization's risks. Although its initial focus was as a method for avoiding the derivative disasters that occurred for many firms, ERM is now developing into a tool that can be used to optimize a firm's value. Risks are divided into core risks, which a firm should have a competitive advantage in coping with, and non-core risks, which can more effectively be transferred or hedged. This online course will introduce actuaries to the ERM field and show how many actuarial skills and techniques are applied in ERM. The online course will be offered twice: June 17-July 4, 2011, and September 9-26, 2011.

This module consists of 12 lectures, exercises, and an exam, all delivered over the CAS Web Site. Participants will also receive a CD. The course will be taught asynchronously so participants can fit the work into their individual schedules. The lectures will consist of PowerPoint slides and audio. (Participants must have Microsoft Office PowerPoint software in order to participate.) The exercises and exam will be based on lecture material and readings.

The readings for the course will include selected chapters from one textbook (*Enterprise Risk Management: From Incentives to Controls* by James Lam, Wiley, 2003), plus additional readings published by the CAS, the SOA, academic journals, and Internet sources. During the course, participants will take part in a chat space devoted to discussions of exercises and topics related to the course.

Students will be introduced to ERM's context, practice, and framework, as well as hazard, financial, operational, and strategic risks. Other topics rounding out the course are risk metrics and ERM application, and the pros and cons the framework established by COSO (the Committee of Sponsoring Organizations of the Treadway Commission).

The course will presume no prior knowledge of ERM. Enrollment is limited to a maximum of 40 participants. Those enrolled in the course must have a user name and password to gain entrance to the Web pages of the online course. The same user name and password can be used to register online for the online course. The login information will be distributed no later than June 10, 2011. If you do not have a user name and password, please register as a new visitor.

Note: To insure all participants receive the course materials in a timely manner, registration for this course will close on May 17, 2011.

For more information and to register, visit the CAS Web Site at www.casact.org/education/oncourses/index.cfm?fa=erm.

Save the Date!

Save the Date for the 2011 CAS Annual Meeting!

The 2011 CAS Annual Meeting will be held November 6-9, at the Hyatt Regency in Chicago. Registration for the Annual Meeting will open in late July. Additional details will be available on the CAS Web Site and weekly e-newsletter.

A New Era In Loss Reserving?

By Marc Oberholtzer, Christine Radau, and James Svab

International and U.S. accounting standard setters are hard at work rewriting the rules governing insurance contracts. Extensive changes are possible, such as property/casualty loss reserves being discounted and adjusted to include a margin for uncertainty. Given the resources demanded by short-term concerns, including both the economic environment and regulatory reform, what are insurers doing now and what should they consider doing in the near future?

In 2011 the International Accounting Standards Board (IASB) is likely to adopt a new international financial reporting standard (IFRS) for insurance contracts. If you work for a U.S. insurer, you may think there is no need to read any further. However, insurers currently reporting under U.S. GAAP also should take note of this potential change because the Financial Accounting Standards Board (FASB, the author of U.S. GAAP) has been working with the IASB since 2008 to develop a joint IASB/FASB insurance contracts standard. The most recent key developments include:

- July 2010—IASB exposure draft proposing future accounting for insurance contracts.
- September 2010—FASB discussion paper containing its preliminary views based on the IASB's proposals, supplemented with additional FASB-specific perspectives.
- December 2010—Joint IASB/FASB roundtables held on comments submitted.
- January 2011 to present—Bimonthly IASB/FASB meetings to debate and vote on key aspects of the proposals.

While they have worked jointly on the project over the past few years, the IASB and the FASB have issued separate proposals. Deliberations continue to address both constituents' comments and the differences that exist between the two Boards' proposals, and, at this point, there is still uncertainty on the details and timing of final standards. However, it is clear that, if adopted, the proposals would call for significant changes in the financial reporting for insurance contracts.

For the majority of property/casualty products, the most significant potential change would be to change the reporting of loss reserves from an undiscounted basis to a measurement of claims and expenses developed under a "building block" approach. The loss reserve component would be determined using an estimate of the mean undiscounted amount of future cash flows, a reduction for the time value of money, and addition of a "margin" to reflect uncertainty. The building blocks would be updated at each reporting date during the contracts' coverage and claim settlement periods.

While both the IASB and FASB models include a "margin," a significant difference emerged between the two proposals in how it is determined. The IASB specified that the margin be determined in an explicit manner using one of three prescribed methods, so that the greater the uncertainty in the liabilities, the greater the margin. On the other hand, the FASB specified that an implicit margin be determined based on the initial pricing and expected cash flows, with the margin released over the coverage period and the claim settlement period.

During comment periods last fall, many insurers provided feedback to the IASB and FASB on the proposed measurement approach and other key components of the standard, including financial statement presentation, disclosures, and timing. In particular, many U.S.-based property/casualty insurers raised concerns about the challenges and complexity of moving to a broader measurement model that incorporates discounting and margins, among other things.

While uncertainty remains on both the content and timing of a new insurance contract standard for U.S. GAAP, it is worthwhile to consider the impact of the proposed changes to the reporting of loss reserves. In particular, the discounting of property/casualty loss reserves would add a new dimension to the reserving process. Payment patterns and yield curves would need to be maintained and updated each reporting period with current information, and changes in each would need to be disclosed within the financials. Even more challenging would be calculating explicit margins for uncertainty. If the IASB version of the proposal is adopted requiring an explicit risk adjustment, this would require the development and maintenance of new complex actuarial models for many companies, designed to be updated regularly with current information.

It will take significant effort to implement the debated proposals, and now is a good time for actuaries, together with their colleagues in accounting, human resources, risk management, and IT, to begin discussing how to prepare for change. As a first step, we suggest insurers consider the following:

- Insurers should closely follow the standard-setting process and assess the adequacy of their current resources to implement and sustain the proposed changes. The demands on the actuarial function may increase significantly,

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The First Odd Number

The integers from one to ten billion are written out in formal English and listed in alphabetical order. For example, "forty-six," "one thousand twenty-four," and "two hundred twenty-nine." Punctuation and spaces are ignored in the alphabetization. What is the first odd number in the list?

Sailing Club Election

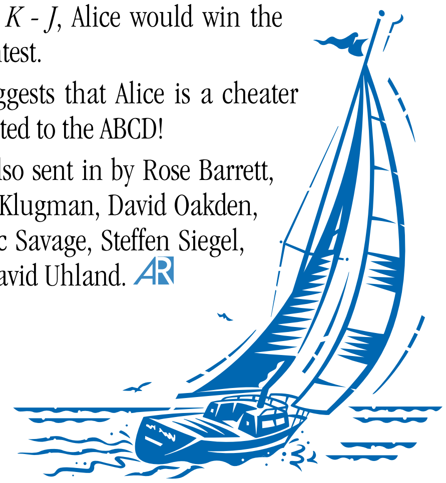
The puzzle was about a club election with three candidates—Alice, Bob, and Carol. Voters ranked the three candidates in order of their preference. The first preferences resulted in an exact three-way tie. The second preferences also gave a three-way tie. Alice observed that because the club has an odd number of members, a vote on two candidates cannot end in a tie. She offered that the club vote first on a two-way contest between Bob and Carol, after which she would face the winner of that contest. Carol complained that this would give Alice a better chance of winning than she or Bob. The question was, "Is Carol right?"

Roger Bovard's solution is as follows. Under her proposal, Alice is sure to win. The proposed contest between Bob and Carol would be decided by the distribution of second choice votes on ballots listing Alice as the first choice. Without loss of generality, assume Bob is the winner. Then the second proposed contest between Alice and Bob would be decided by the distribution of second choice votes on ballots listing Carol as the first choice.

The details are: each candidate gets K first place votes and K second place votes. There are $3K$ members, which means K is odd. Ballots with Alice as the first choice have J second choice votes for Bob and $K - J$ second choice votes for Carol. Because Bob is the winner of the first proposed contest, $J > K - J$. The ballots with Carol as the first choice would have the remaining $K - J$ second place votes for Bob and J second place votes for Alice. Since $J > K - J$, Alice would win the second proposed contest.

Rob Thomas suggests that Alice is a cheater who should be reported to the ABCD!

Solutions were also sent in by Rose Barrett, John Jansen, Stuart Klugman, David Oakden, David L. Ruhm, Eric Savage, Steffen Siegel, Jason Stubbs, and David Uhland.



ICA 2014 Releases Puzzle #3—A Kakuro

The National Cherry Blossom Festival celebrates springtime in Washington, D.C., as well as the 1912 gift of cherry trees from Japan. The 2011 Festival has recently ended, signaling the three-year mark until the 2014 International Congress of Actuaries (ICA) comes to Washington. The dates for the 2014 Congress—March 30, 2014, to April 4, 2014—were chosen to coincide with springtime, one of the most beautiful times of the year in D.C., when the cherry blossom trees that line the Potomac River are in full bloom.

To mark the occasion, the ICA has released a third puzzle, a Kakuro, which is a cross between a crossword and a Sudoku. Instead of letters, each block contains one of the digits 1 through 9. The same digit will never repeat within a word. If you add the digits in a word, the sum will be the number shown in the clue. Clues are shown on the left and right sides of "across" words and on the top and bottom of "down" words.

Download the PDF of ICA 2014 Puzzle #3a and 3b at ICA2014.org/puzzles and then follow the instructions for submitting the puzzle solution. Of the correct submissions, one will be selected at random to receive a $250 American Express gift card.

The deadline for responses is July 31, 2011. The puzzle solutions and an announcement of the winner will be posted in August 2011.

Having Difficult Discussions

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.

Truthful Actuary (TA) is the chief actuary at XtraLT (XLT) Insurance, a publicly traded multi-line insurance company. TA's corporate team reviews the loss reserves on a quarterly basis, with a year-end review in time for the year-end earnings release. BeLoyal Actuary (BLA) is the corporate actuary responsible for conducting the analysis and producing the results. As a result of his year-end analysis, BLA concludes that the Longest Tail (LT) segment of business is experiencing significant adverse development and requires a substantial reserve increase. There had been some indication of modest development in prior analyses but the actuarial team proceeded with caution until they could conduct a more thorough review. XLT has had a recent change in management and has struggled to recover from significant losses under prior management. The new management team has made many internal changes and results have improved significantly, gaining them well-earned praise from the board, shareholders, and staff.

Anticipating the reaction to his conclusions, BLA has produced a more detailed study than usual, limited because of time constraints and resources, but with enough evidence to support his findings. TA receives the report, reviews the study, and concurs. He presents the findings to the senior team.

Given the impact on the financial results, there is considerable discussion, which is expected since the results are likely to disappoint shareholders and the board. TA has always been respected by the senior leadership of the company and has been considered an integral part of the management team. This report, however, appears to be straining that relationship. TA is also a conscientious manager of his professional team. He is open, direct, and clear in all of his dealings with his staff, providing as much information as he can to explain business situations, so that his team understands the environment in which they are operating. His team appreciates this and is very loyal and dedicated, and supportive of him.

The senior team is understandably upset with the findings, especially the head of the LT line of business, who may be next in line to be CEO. The head of LT had been briefed prior to the meeting by TA and BLA and could not refute the findings. She was prepared to counter the recommendation, however, and ask for more time to investigate. Upon review, the CEO and CFO accept the results, but they are upset that the issue was not identified earlier. Knowing they must balance market perception with financial responsibility, they push back on the conclusion, admonish TA and request a more thorough study of the results to "be sure."

TA now returns to his team to discuss the next steps. How does TA communicate with his team? What actions should TA take, considering both the pushback and requested delay by the senior team as well as anticipating BLA's and his team's reaction to the perceived rejection of the valid study? How does he address the professional issue regarding altering his reserve opinion?

Among many alternatives, consider these:

Alternative 1

TA discloses to his team the reaction of management by saying, "They were very upset and angry, and didn't mince words. Not only do they want to know why this wasn't identified earlier, they want to defer any change until we have studied it further. Given the impact to the profitability plan and the stock price, it could permanently damage the credibility of the company management. Let's go over these results and be sure to take a careful look at the assumptions, invite further discussion with the LT management, and then get back together to decide how to handle this. Both the CFO and CEO want to be involved in all of the discussions, so we need to be prepared."

Alternative 2

TA violates his operating principles and decides not to disclose the details of the contentious meeting, fearing that his team may react in a way that inadvertently and unintentionally results in supporting the deferral. They may feel pressured to revisit borderline decisions or change assumptions, creating a more optimistic conclusion to eliminate the tension. They won't like the fact that their boss is under attack. To avoid involving his team in this thorny situation, TA acquiesces to management's request and asks his staff to do additional studies. By doing so he feels satisfied that he has discharged his professional responsibility to reveal the news, and he is optimistic that the further discussions with LT may result in operating changes that improve results. In any event, the study shows that if no changes are made, the financials will continue to deteriorate to the point that TA and his team will be vindicated.

Alternative 3

TA is not comfortable with the conclusion of the meeting. He feels that the study is conclusive and sufficient to take the necessary reserve action now. He also fears that left unchecked, the operating processes will continue to erode profitability. TA understands the implications of public perceptions and is sympathetic to the long-term view taken by management, but the evidence is strong. The actuarial study, although subject to time and resource constraints, went beyond just numerical analysis, having included many discussions with employees of the LT business unit. Nothing in those discussions changed the key assumptions sufficiently to eliminate the projected need for a reserve increase. TA decides to engage senior management in another discussion of the matter immediately and to take the view that a significant reserve action is not only necessary, but that he cannot sign off on the financials or sign an opinion until action is taken.

A New Era, From page 22

especially if discounting and explicit risk margins are required. Because of the expanded volume of data that actuaries would need to process, as well as the extensive modeling that would be necessary, some companies have expressed concern that the added workload may place a strain on their ability to adhere to their close process and reporting timetable.

- Some companies are taking a strategic approach to getting ready by evaluating pre-existing project plans in order to determine whether or not they should modify their scope and timing in light of IASB and FASB developments. It may be advisable to break large systems and process change projects into smaller components and address only those that are unlikely to be impacted by the new standard to avoid any unnecessary duplication of effort or rework. Some companies are finding reasons to address deferred maintenance issues in data management, modeling, analysis and other areas.
- For those insurance companies that have implemented enterprise risk management (ERM) programs or use economic capital modeling (ECM), the proposals may provide an opportunity to further integrate these activities with the financial reporting process. Many of the same concepts in the proposed standards overlap with those being addressed in ongoing Solvency II initiatives for parent companies of U.S.-based IFRS preparers. Accordingly, companies that have implemented ERM or ECM programs, and those that are currently supporting Solvency II initiatives, should consider the potential requirements under the current proposals, particularly relating to explicit risk adjustments, and seek opportunities to leverage synergies.

Looking even further into the future, the new accounting model under either of the proposals likely would result in greater earnings volatility and different profit emergence than today. This could have broad implications for product design, pricing, and investor relations as well as reinsurance strategies.

Conclusion

A new international financial reporting standard for insurance contracts has been evolving for many years and is expected to become a reality soon. The U.S. is considering a revised standard as well. With loss reserves comprising the largest part of an insurer's balance sheet, actuaries should be aware of and ready for the potential changes to the measurement model that could result from the new standard. Now is the time to consider staffing levels, systems capabilities, data availability, and models needed for estimating liabilities under a building block approach. Actuaries should be prepared to play a large role in the transformation that could come under the measurement approach for insurance contracts proposed by the IASB and the FASB.

Marc Oberholtzer, FCAS, MAAA, is a principal with PwC in Philadelphia. Christine Radau, FCAS, MAAA, is a director for PwC in the Hartford, CT, office. James Svab, CPA, is an accounting advisory partner for PwC in Chicago.

California Dreamin'

By Papa (A)CASs

(With apologies to Mama CASs.)

All the rates are down,
and the future's gray.
I filed for a hike,
on a Winter's day.

I'd be nice and solvent,
if I red-lined LA.
California Dreamin' –
our filin' just won't play!

Steppin' through a search;
an error's in my way.
Well I pressed down on my
keys,
and I insert "ISNA."

They won't approve it if it's
bold,
our rate need's plain as day.
California Dreamin' –
Objections and delay!

All the rates are down,
and the future's gray.
I filed for a hike,
Somebody's got to pay.
It's in Dave Jones' locker.
I believe to stay
California Dreamin' –
our filin' just won't play!

Actuarial Foundation Update

THE ACTUARIAL FOUNDATION

Do You Know Someone Deserving of This Year's Wynn Kent Award?

The Foundation is accepting nominations for the 2011 Wynn Kent Public Communications Award. The Wynn Kent Public Communications award recognizes an actuary who has contributed to the public awareness of financial risk and of the work product of the actuarial profession in the fields of life, health, casualty, pension, or in other related areas.

Nominate a colleague today! For more information, visit www.actuarialfoundation.org/programs/actuarial/wynn_kent_award_submission.shtml.

ERM Research Excellence Award in Memory of Hubert Mueller Winner Announced

The Actuarial Foundation is pleased to announce the winner of this year's ERM Research Excellence Award in Memory of Hubert Mueller. This award recognizes significant contributions to the growing body of ERM knowledge and research through the best paper submitted for consideration at the ERM Symposium.

Congratulations to Neil M. Bodoff, FCAS, MAAA, who was recognized with the award at the ERM Symposium in Chicago for his paper, "Sustainability of Earnings: A Framework for Quantitative Modeling of Strategy, Risk, and Value." Mr. Bodoff's paper presents an innovative framework through which strategic considerations can be incorporated into a quantitative model of a firm's value. The paper is available online at www.actuarialfoundation.org/pdf/erm2011.pdf.

The ERM Research Excellence Award in Memory of Hubert Mueller is funded by contributions from Hubert's colleagues and friends throughout the insurance industry, as well as by Towers Watson. Contributions in memory of Hubert Mueller may be made through The Actuarial Foundation's Web Site, http://www.actuarialfoundation.org/donate/index.shtml.

From the Mind to the Page—CAS Publications Offer Outlets for Members' Ideas

By Paul E. Lacko, Chairperson, CAS Publications Management Board

Sure, the CAS offers publications for its members to read—but if you are just reading them you are not fully taking advantage of the opportunity to contribute to actuarial literature and news. On behalf of the CAS Publications Management Board, I invite all CAS members to take full advantage of the publication opportunities the CAS offers. Each publication has an editorial staff to assist your with your submissions and guide you through the editorial process.

Following are brief descriptions of some of the Society's publication—one of them may be just right for you.

Of all the CAS publications, ***The Actuarial Review*** (*AR*) publishes the shortest articles and reaches probably the largest readership. *AR* welcomes your short articles that entertain and inform CAS members. The *AR* staff invites you to submit a news article, a letter to the editor, an opinion piece, some actuarial humor, even an actuarial research idea or technique that you would like to share with other property and casualty actuaries.

E-Forums generally comprise papers written in response to special calls for papers about specific topics—ratemaking, reserving, capital allocation, DFA, and so on. You are also invited to submit a paper to *E-Forums* about a topic of your choice. While your paper will not be refereed or formally peer-reviewed, it will be reviewed and edited before publication to help you present your work in the very best light possible. After publication, you may want to think about building on the work you have done and crafting a paper suitable for *Variance*.

Variance is the top-of-the-line CAS research publication, reserved for serious, perhaps lengthy, presentations of independent research. Although some *Variance* papers present pure theory, the editors prefer papers that emphasize useful methods that readers can actually apply on the job. Your paper will be published when it meets the high standards required of this professional, academic journal. *Variance* editors will help you meet these standards, and your paper will be peer-reviewed by actuaries who are qualified to do so in the appropriate area of expertise. You will need to be patient because the peer review process reflects a focus on quality over speed. You can expect to receive constructive criticism, which is a euphemism for "instructions to rewrite" sections that the editors believe you can improve.

Working Papers are reviewed only by other CAS members who are able, willing, and interested in offering help, advice, and constructive criticism. Here you can sketch out your thoughts and develop them over time into a paper suitable for publication. If your ideas are not ready for *E-Forum* or *Variance*, consider the Working Papers page of the CAS Web Site.

Monographs are survey articles about a particular subject, and, depending on the subject, they may be long. If you enjoy compiling and synthesizing the actuarial research others have done (and then maybe adding your own material), watch for upcoming requests for proposal. Monographs' subjects under consideration include reserve variability, capital allocation, and risk loads. If you feel motivated to write the definitive survey paper about your favorite actuarial topic, please visit http://www.casact.org/pubs/index.cfm?fa=submission#mono.

As you can see, the CAS offers a broad range of publications. Please consider contributing a submission for publication.

CAS Candidate Jonathan R. Mesagaes picks up a copy of Variance *at the 2011 ERM Symposium. Mr. Mesagaes was among 500+ who attended the ERM Symposium in Chicago.*

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

CAS Professional Education Calendar

June 6-7, 2011
Seminar on Reinsurance
Doubletree Hotel Philadelphia
Philadelphia, PA, USA

September 15-16, 2011
Casualty Loss Reserve Seminar
ARIA Resort & Casino
Las Vegas, NV, USA

November 6-9, 2011
CAS Annual Meeting
Hyatt Regency Chicago
Chicago, IL, USA

March TBD, 2012
Ratemaking & Product Management (RPM) Seminar
Philadelphia Marriott Downtown
Philadelphia, PA, USA

May TBD, 2012
CAS Spring Meeting
Toronto, ON, Canada

May TBD, 2012
Seminar on Reinsurance
Boston, MA, USA

In Memoriam

James A. “Jim” Hall III
(FCAS 1973) 1946-2011

John A. Potter
(ACAS 1976) 1942-2011

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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, puzzle solutions, etc.

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FSC LOGO