

From the President: CAS Goals Remain Clear	3
Actuaries Must Convince CEOs of Benefits of Predictive Modeling.....	8
2012's Top Casualty Actuarial Stories	13
CAS Celebrates Outstanding Volunteers	18
New Fellows and Associates Admitted in November 2012.....	20-21
CAS Announces Decisions Regarding Preliminary Education and Access to Syllabus Materials	24
In My Opinion: What is Our Sustainable Competitive Advantage?	25
What about the “S” in ORSA? Actuaries Raise Their Hands	32

INSIDE THIS ISSUE

Ethical Issues Forum	6
25 Years Ago in the AR	7
Nonactuarial Pursuits	14
Coming Events	16
Brainstorms	27
It's A Puzzlement	29



*Awesomeness!
CAS President
Pat Teufel
and new
Fellow
Michael
Rice Cenzer
celebrate his
new FCAS
designation.*



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

Editor in Chief
Grover M. Edie

Managing Editor
Elizabeth A. Smith

Publications Production Coordinator
Donna Royston

Desktop Publisher
Sonja Uyenco

Editor Emeritus
C.K. "Stan" Khury

Associate Editor
Martin Adler

Copy Editors
Xiaobin Cao
Charles R. Grilliot
Mark D. Komiskey
David S. Levy
Ana Mata
Shama Sabade
Eric L. Savage
Michael B. Schenk
Robert D. Share

Humor Editor
Michael D. Ersevum

Nonactuarial Pursuits
Martin Adler

Puzzle
John P. Robertson

The Actuarial Review (ISSN 10465081) is published four times a year by the Casualty Actuarial Society, 4350 Fairfax Drive, Suite 250, Arlington, VA 22203. Telephone: (703) 276-3100; Fax: (703) 276-3108; Email: office@casact.org. Third class postage is paid in Lanham, MD. Publications Mail Agreement No. 40035891. Return Undeliverable Canadian Addresses to PO Box 503, RPO West Beaver Creek, Richmond Hill, ON L4B 4R6.

The amount of dues applied toward each subscription of *The Actuarial Review* is \$10. Subscriptions to nonmembers are \$10 per year. Postmaster: Send address changes to *The Actuarial Review*, 4350 North Fairfax Drive, Suite 250, Arlington, Virginia 22203.


For permission to reprint material from *The Actuarial Review*, please write to the editor in chief. Letters to the editor can be sent to AR@casact.org or the CAS Office. The Casualty Actuarial Society is not responsible for statements or opinions expressed in the articles, discussions, or letters printed in *The Actuarial Review*.

© 2013 Casualty Actuarial Society.

Annual Meeting Sessions Now Available on UCAS

Couldn't attend all the sessions you wanted at the 2012 CAS Annual Meeting? No worries. The University of CAS (UCAS) now includes recordings from the 2012 CAS Annual Meeting, making your event registration even more valuable by allowing you to benefit from sessions you were unable to attend onsite.

Access to sessions is free for 2012 Annual Meeting attendees. For those who didn't attend the 2012 Annual Meeting, sessions can be purchased for \$25 each. And remember, listening to recordings may qualify for CE.

For these and other recorded sessions presented at CAS meetings, seminars, and webinars, visit UCAS at <http://cas.confex.com/cas/ucas12/webprogrampreliminary/start.html>. 



Visit Our Career Center

The Source for
Property & Casualty
Actuarial
Jobs and Resumes

Find Your
Dream Job
or
Recruit the
Perfect Candidate

Visit <http://careers.casact.org> today!

CAS Goals Remain Clear



At a recent meeting of the Caribbean Actuarial Association, I was asked to give a short talk on the following question: “What does the Society of Actuaries’ (SOA) decision to pursue a general insurance track mean for the CAS in terms of actuarial education and other aspects of cooperation between the CAS and the SOA?” Clearly this question is on the minds of many of our members, so I will use this column to present some of the main points of my response.

* * *

In responding to this question, it is important to look back on the CAS Centennial goal. A number of years ago, the CAS started preparing for its Centennial year 2014. The Centennial goal established states that the CAS wants to be a leading resource in education, research and professionalism for casualty actuaries globally, and advance the frontiers of casualty actuarial science.

To achieve this goal, we have offered the most robust and comprehensive education system for casualty actuaries. To that end, we offer five exams focusing specifically on casualty topics. We offer a wide and varied continuing education framework, including two major seminars—the Casualty Loss Reserve Seminar and the Ratemaking and Product Management Seminar—that are attended by general insurance actuaries from around the world. We offer more focused seminars and webinars and continue to use technology to enhance our offerings and expand our reach. Our strategy with respect to other organizations has been one of collaboration, i.e., we would work with other organizations in ways that we believe serve the actuarial profession. For example, we have always thought our joint arrangement with the SOA on the preliminary actuarial exams was good for the actuarial profession. The CAS has considered it to be an inefficient use of joint resources to develop separate basic exams since we (CAS and SOA) have common learning objectives for basic education.

On an international level, we have strong connections with our general insurance counterparts in the U.K. and Australia. We have worked together on research, and we have participated jointly in professional education opportunities.

I don’t want to imply that the SOA’s decision does not affect us. Our strategic vision and goals are consistent with what we have been doing for decades. We intend to continue to be a leader in the casualty actuarial field, but a leader that will work with other organizations in advancing the casualty actuarial

profession. While our goals remain the same, however, the SOA’s decision does require some different tactics in achieving the goals. We need to spend more time telling our story. We need all of our stakeholders to hear about and understand what the CAS credential brings to the table. In particular, we need to reach out to universities, both students and professors. We need to let them know what a casualty actuarial career looks like and how the CAS’s singular focus has served our members, their employers and the public.

The question also concerns our continued collaboration with the SOA. Our board has expressed its intent to continue collaborative activities with the SOA and other actuarial organizations, to the extent that it meets our strategic objectives. For example, we sponsor a joint risk management section with the SOA that is working very well. In the risk management field, our challenge is to promote the actuarial profession relative to other professions that operate in this space. Thus an arrangement with the SOA is natural and will continue as long as it is mutually effective.

Another area in which we collaborate with the SOA is in supporting the Actuarial Foundation. The Foundation is the philanthropic arm of the actuarial profession in the U.S. The CAS and SOA, along with the three other U.S.-based actuarial associations, provide the funding to support the operations of the Foundation.

Finally, you will hear shortly about the International Congress of Actuaries (ICA), which is being held in Washington, DC in 2014. The CAS has taken the lead in organizing the ICA, but with the financial support of all the U.S.-based actuarial organizations.

In conclusion, while the SOA’s entry into the casualty field has caused the CAS to reconsider how it will achieve its goals, it does not significantly alter our longer term goals and objectives. And while the SOA and CAS may have different long-term visions for our respective organizations, I would hope that we each have a common goal of advancing the actuarial profession.

* * *

I have heard from some members that the CAS response has been too restrained and that we should be vocal in expressing our discontent with the SOA for their actions. Personally, I am very disappointed with the SOA’s actions, in particular their decision to discontinue joint sponsorship of the actuarial

From the President, page 4

Behavioral Economics Presents Opportunities For Actuaries

LAKE BUENA VISTA, FL.—By combining economics, psychology, sociology, biology, and neuroscience, the discipline of behavioral economics focuses more on the process of decision-making than the result. Further, its conclusions can be incorporated by actuaries into their own work.

Behavioral economics is emerging as a leading decision science, according to David Wheeler, an associate with Innodata Synodex, a New Jersey-based analytics and data solutions firm. Mr. Wheeler spoke on a panel discussion titled, “Behavioral Economics: Implications for Actuarial Science and Enterprise Risk Management,” at the CAS Annual Meeting on November 11, 2012.

Rather than seeing the entire human species as the hyper-rational *homo economicus*, behavioral economists see individuals along a behavioral continuum, from *homo economicus* to the altruistic *homo reciprocans*, which Wheeler describes as “the Kumbaya-I’ll-chop-the-wood-if-you-collect-the-berries”-type.

Robert Wolf, managing director of the casualty actuarial practice at Willis North America, offered some examples of how our biases move our decisions away from the rational and showed how knowing about these irrational behaviors can help us in our business dealings.

Example 1: Which causes more deaths in the United States a year—colon cancer or motor accidents?

Most people say motor accidents, but the answer is colon cancer. The reason most people guess incorrectly is a common mental flub called the availability heuristic. When we think of several reasons for something, we put more importance on the ones that come to mind quickly. Few things come to mind more readily than a good story. So, Mr. Wolf said, when you want to convince your client or your boss of something, tell it in a story.

Example 2: First, would you rather have \$700 for certain or have an 85% chance of winning \$1000? Most people want the \$700. They would rather take the sure gain, Mr. Wolf explained.

Second, would you rather pay out \$700 for certain or have an 85% chance of paying out \$1,000? Most people want the 85% possibility. They would rather gamble that they might avoid paying anything at all.

In reality, the two problems are identical, or at least flip sides of the same coin: a chance of gain versus a chance of loss. Most people prefer to lock in a gain than to take a chance for a bigger one. And they would rather take a chance to avoid a loss than to lock in a smaller loss.

“We are risk-averse, supposedly,” Mr. Wolf said. Then he clarified, “We are risk-averse to gains. We are risk-seeking to loss.”

Example 3: You ask one group of financial auditors one pair of questions, and a second group of auditors a second pair of questions.

Ask the first group of auditors if significant executive fraud happens in *greater or fewer than 10 cases per thousand*. Then ask for their estimate of how often it occurs.

Next, ask the second group if significant executive fraud happens in *greater or fewer than 200 cases per thousand*. Then ask for an estimate of how often the fraud occurs.


Researchers ran just such an experiment. The first group on average said fraud happened in 16.52 cases per thousand. The second group gave an answer more than twice as high, 43.11 per thousand.

This behavior is called anchoring. The first group anchored its estimate to the 10 case per thousand estimate it had just been

Behavioral Economics, page 5

From the President, From page 3

exams. I believe this is a disservice to our university students, and I will feel free to say this (and have done so). However, as an organization, I believe we need to acknowledge the reality, and do what we can to promote the FCAS and ACAS designations as the credentials of choice for casualty actuaries. Keep an eye out for announcements about the CAS marketing campaign.

Editor’s Note: To learn more about the CAS Board’s decision regarding preliminary exams, please see page 24 or visit <http://www.casact.org/press/index.cfm?fa=viewArticle&articleID=2104>. 


Last Call for 2013 CAS Trust Scholarship Applications!

The Casualty Actuarial Society is once again accepting applications for its scholarship program for college students pursuing a career in actuarial science. The CAS Trust Scholarship program, funded by donations to the CAS Trust, will award up to three \$2,000 scholarships to deserving students for the 2013-2014 academic year.

Applicants must be a permanent resident of the U.S. or Canada, or have a permanent resident visa, and admitted as a full-time student to a U.S. or Canadian educational institution to be eligible. Applicants must have demonstrated high scholastic achievement and a strong interest in mathematics or a mathematics-related field. Applicants must also have taken at least one exam prior to March 4, 2013.

Recommendations, transcripts, actuarial exam results, work experience, and written essays will all be considered in selecting the award recipients. Additional details and applications are available online at <http://www.casact.org/academic/index.cfm?fa=scholarship>. **Applications are due by March 4, 2013 and winners will be notified in late May.**

The intent of the scholarship is to further students' interest in the property/casualty actuarial profession and to encourage pursuit of the CAS designation. Established in 1979, the Casualty Actuarial Society Trust affords CAS members and others an income tax deduction for funds contributed and used for scientific, literary, or educational purposes.

For questions, comments, or to submit an application please contact Megan O'Neill at moneill@casact.org. 

Behavioral Economics, From page 4

asked about. The second group anchored its estimate higher, because it had just been asked about 200 cases per thousand.

"We tend to be affected by numbers," Mr. Wolf said, "even if they aren't valid."

Other behavioral biases include confirmation bias (we seek out evidence that confirms our biases while ignoring evidence that contradicts them); and overconfidence (we are often too confident in estimates of events about which we know little).


Another speaker, Rick Gorvett, director of the actuarial science program at University of Illinois at Urbana-Champaign, listed more common biases:

- The endowment effect, in which we value things more highly when we own them.
- Hindsight bias, or the "I told you so" effect, meaning we reassign a higher probability to an event after it is over than we did before.
- The recency effect, in which we place more visibility and gravitas on recent events. Mr. Gorvett's example was a list of the greatest quarterbacks ever, all of whom have played in the past five years.
- Representation bias, or viewing an event based on how much it resembles other events. "We think we can fill in blanks," Mr. Gorvett said, "by one data point."

How can actuaries handle these anomalies? The two speakers

suggested the following:

- Search for disconfirming information, have a private collection of information ready to use in group settings, and try to obtain information one-on-one, which helps to overcome the hindsight, confirmation, and other biases.
- Conduct highly structured meetings, making key decisions early before the biases can take root.
- Ask outsiders for information and maximize diversity in getting information.
- At every company, have a "chief skeptical officer" who questions everything. (It doesn't have to be the same person in every meeting.)
- Refine, reframe and flip every problem you confront.
- Carefully test the models you build and seek significant peer review of your work.
- Create a diverse work force; the diversity encourages different viewpoints.

With all that, Mr. Gorvett said, it is important to recognize there are human traits that cannot be expunged from our psyche. They can only be recognized and accounted for. These thought processes are products of "millions of years of evolutionary psychology" and they developed for a reason. Change is "not going to be that easy," Mr. Gorvett said. 

Obligations of an Actuarial Candidate

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 reader. 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.

Sally is a Fellow of the Casualty Actuarial Society and a senior manager for Actuaries Plus, an actuarial consulting firm that handles many large accounts. James is an actuarial student at the same consulting firm. James has been working for the firm for three years and has passed the first five actuarial exams.

Actuaries Plus has been steadily growing for the past few years and has recently brought on a new chief actuary who is pursuing an aggressive growth strategy for the firm. In order to achieve this growth, the chief is accepting many new customers, even small insurers. Sally is opposed to this strategy. This new direction has placed a lot of demands on her time, including completing a reserve analysis for Surf-N-Sure, a small online insurance carrier that sells mostly auto residual value insurance. Anthony is the contact at Surf-N-Sure. He follows up with Sally constantly and is quite long-winded, making her day even busier.

Residual value insurance guarantees that an asset will have a particular value at a future date. The specific product sold by Surf-N-Sure covers the difference between the actual value of a car and the expected value of the car established when the policy begins. So an auto company that does leasing might use the product to protect the value of cars that get returned at lease-end. Ultimately, used car prices influence how much is paid—the higher the used car price, the less Surf-N-Sure must pay. The used car market has been strong for the past few years, and thus Surf-N-Sure has done quite well.

Sally sets up a call with Anthony to discuss the reserve opinion. During the call, Anthony mentions that Surf-N-Sure has been developing a new advanced claims management system, and that due to the magnitude of the project, there has been a slowdown in claim payments as staff has been distracted. However, this pattern is expected to reverse itself once the system is up and running next quarter. Sally, who was checking her Blackberry during the entire call, largely tuned Anthony out and only heard bits and pieces of his explanation.

Sally calls James into her office to give him the assignment

of completing Surf-N-Sure's reserve opinion. She says, "I need to focus on our real customers, so I need you to do a reserve analysis for this small insurance company, Surf-N-Turf or something like that." When James asks if there is anything he should know about the insurer before beginning the task, Sally replies, "No... nothing that I can think of."

A week later, James schedules a meeting with Sally to discuss his initial findings. He points out that Surf-N-Sure has experienced a significant reduction in claim payments. While the auto residual value insurance market has also seen that pattern due to the strong used car environment, Surf-N-Sure's reduction in payments is far more dramatic than that of its competitors. Because James has no reason to doubt Surf-N-Sure's experience, he makes no adjustments to the data.

Sally is comfortable with James's methodology and assumptions, and she asks him to complete the analysis.

After the reserve opinion is done, Sally schedules a call with Anthony to discuss the results. Anthony is initially shocked by the reserve amount and tells Sally that it is significantly lower than the figures that Surf-N-Sure's pricing actuary had calculated. But, the pricing actuary does not have much reserving experience, and thus Anthony is willing to defer to the experts at Actuaries Plus. However, he does ask Sally for confirmation that Surf-N-Sure's recent slowdown in claim payments, due to the preoccupation of the claims adjusters as they work on the new claims management system, was accounted for in the analysis. Sally replies by saying, "Of course, it was. Actuaries Plus has been in this business a long time. We even compared your results to others in the industry to make sure that everything seemed in line."

James, who is present for the call, is utterly shocked by Sally's statement. He was completely unaware that Surf-N-Sure's claims staff was distracted, and made no adjustment for it. He explains to Sally that the creation of the new claims management system is likely responsible for Surf-N-Sure's significant slowdown in claim payments and that he should not have relied on

their recent payment pattern as a guide. He offers to redo the analysis, but Sally immediately dismisses the idea. She points out that they are a small company in a rather short-tailed line of business, so any deficiencies in their reserves can be corrected in the next reserve cycle. “Besides,” says Sally, “I don’t have time to deal with Anthony, and I need you to focus on a bigger review that needs attention.”

James leaves the meeting feeling frustrated by Sally’s behavior. She neglected to provide him with a key piece of information that would have changed his analysis, and upon learning about the omission, is unwilling to correct her mistake. As James contemplates the options available to him, he also considers his professional obligations as an actuarial candidate. Though he is not yet a member of the CAS and, therefore, is not bound by the CAS Code of Conduct, he is required to adhere to the Code of Professional Ethics for Candidates (<http://casact.org/professionalism/policiesProc/CAS-Candidate-Code.pdf>).

Does James have any additional obligations at this point?


No

James is not required to take any action. He is only an actuarial student and has already expressed his concerns to Sally, who is an FCAS and is also his superior. The ball is now entirely in her court, and if her actions violate the Code of Conduct or ASOPs in any way, then she may face disciplinary action. James is in no position to make that determination.

Yes

James is obligated, under the CAS Code of Professional Ethics for Candidates, to ensure that his actuarial work is being used properly. Rule 2 of the code states “An Actuarial Candidate shall not engage in any professional conduct involving dishonesty, fraud, deceit, or misrepresentation or commit any act that reflects adversely on the actuarial profession.” If James allows Surf-N-Sure to use a reserve opinion that he knows is inappropriate, how can he claim that he is in full compliance with the code?

Additional Questions:


- If Rule 2 of the Code of Professional Ethics for Candidates does apply in this situation, what should James do? Should he go over Sally’s head and talk to the chief actuary of Actuaries Plus?
- What if the chief actuary refuses to take action? Should James consider going to the ABCD? 

25 Years Ago in the *Actuarial Review*

Simon Advises New CAS Designees to “Manage Changes”

By Elizabeth Smith, AR Managing Editor

The February 1988 AR reported on LeRoy Simon’s address to new CAS Fellows and Associates at the CAS Annual Meeting held in November 1987. Mr. Simon, a past CAS president and then CAS Board member, offers up five recommendations for a creating a successful career. Among them is to “hire yourself a good boss and be associated with an organization you can be proud of.” In the midst of the advice, however, Mr. Simon reflects on some important changes during his lifetime that many today, with our current technology and antibacterial soap, may take for granted.

Mr. Simon pointed to a changing world. He recalled five significant events in his own business career: the appearance of *Playboy*, which represented a turning point in value of personal conduct and attitude; the *Howdy Dooddy* show, which signaled the introduction of television on a mass basis into homes throughout the country; the advent of Elvis Presley and the revolution in pop music; Stopette, an underarm deodorant, which was promoted on the *What’s My Line* program on television, and which affected personal hygiene in many ways in the U.S.; and *Pac-Man*, an arcade game that opened up and popularized the computer world for the general public. Mr. Simon predicted many changes in the years to come and suggested that the new designees prepare for them, and most of all, manage them. 

Actuaries Must Convince CEOs of Benefits of Predictive Modeling

LAKE BUENA VISTA, FL.—Most actuaries know that predictive modeling—the harnessing of enormous data sets to do everything from rate baseball players to price auto insurance—is the hot trend among the math-literate. Most CEOs know it, too. But many hesitate to embrace it, daunted perhaps by how long a model can take to get launched or how much it will cost.

How can actuaries convince executives to take the plunge, sooner rather than later? A panel of high-ranking actuaries and executives offered ideas at a presentation called “What Executives Need to Know about Predictive Modeling,” part of the Casualty Actuarial Society Annual Meeting held in Lake Buena Vista, Florida, November 11-14.

First, some history: Predictive analytics has changed the property/casualty insurance industry in the past decade and a half, though a bit slower than it could have been, according to Martin Ellingsworth, president of the ISO Innovative Analytics (IIA) unit at ISO.

“Property and casualty is not the last industry to discover analytics, but it was somewhat slower than others,” he said.

During his remarks, Mr. Ellingsworth emphasized that the key to accelerated adoption was coalescing analytic expertise in an industry with many resources and disparate approaches to operational efficiency. He also explained how actuarial professionals and predictive modelers are increasingly aligning with business leaders to dramatically improve many facets of insurance operations in marketing, risk assessment, rating, underwriting, claims, agent/customer service, catastrophe analytics and capital risk management. These efforts now help to reduce the uncertainty around carrier financial performance, he said.

Stephen Mildenhall, CEO of Aon Benfield Analytics, points to August 24, 1992—the day Hurricane Andrew ripped through South Florida. Insurance losses topped \$15 billion, far more than ever thought possible.

The old analysis clearly did not work. So insurance executives began using complex computer models to determine their exposures.

The models, Mildenhall said, “gave us a ruler to measure risk in a consistent way.”

Alice Gannon, chief actuary of USAA P&C Insurance Group, said executives at her company were used to heavy quantitative analysis, since they had come from the military, where mathematical precision is paramount and mistakes cost lives.

“They said, ‘Why aren’t you doing more?’”

At her company, “The case was made for us by [Hurricanes] Hugo and Andrew after our existing models, like those at many other companies, did not perform adequately.” So the catastrophe models made the case for themselves.

Other situations to advocate for models prove more difficult, Ms. Gannon said. She advised:

- Pitch the model at a high-level. “Start at the 50,000-foot level and don’t plunge into the nitty-gritty too fast.”
- Estimate the return on investment. Show how your project aligns with the executives’ other objectives.
- Emphasize data quality. “You’ve got to make sure the data’s good.”
- Be clear about the goal of the model. “Make sure this thing is going to move the needle you specify.”
- Build on prior successes. “The executive will listen to the previously successful modeler more than the rookie. If you’re the rookie, work with someone else to get your shot.”
- Put together a strong modeling team, she said, adding that actuaries have a strong skill set for a modeling team. And be sure to invest to sustain your intellectual capital.
- But at the same time be clear about the risks that exist in building the model.

David Cummings, vice president and chief actuary at IIA, said that you have to make the case that the project will lower the company’s combined ratio or otherwise contribute to the bottom line.

ISO’s Ellingsworth said one should emphasize that modeling is a process, not a single project. It’s a “cultural statement that you are in it, and are in it to win it,” he said.

He added that executives are changing with the times and starting to expect deep dives into data. “Executives are becoming infoholics,” he said. If you can show them something they didn’t know and show how the company benefits from knowing it, “be ready to be challenged how fast you can do that.”

And you need to monitor the investment in the model, he said. If it’s working well, the executive team will want to increase that investment.

Alan Bauer, former president of Progressive Direct who was a pioneer in both online insurance sales and the use of credit scores in rating auto insurance, said that it’s important to have multiple criteria when advocating for a model.

Benefits of Predictive Modeling, page 9


Derrig Lauded for Contributions to CAS, Actuarial Profession, and Insurance Industry

Although he is not a CAS member, but an Academic Correspondent, Richard A. Derrig has made significant volunteer efforts on behalf of the CAS. Louise Francis and Alice Underwood, former and current Vice Presidents-Research and Development, respectively, wanted Actuarial Review readers to know about the work Dr. Derrig has done for the CAS.

Richard Derrig began his volunteer service for the CAS in 1995 as a member of the Dynamic Financial Analysis Task Force, but it was his work on the Committee on Theory of Risk (COTOR) that truly defined his contributions as a volunteer. Dr. Derrig joined COTOR in the 1990s as an academic member of the committee. After a period of inactivity, COTOR was resurrected in January of 2009, with Dr. Derrig acting as vice-chairperson, but essentially leading the committee in its new pursuits. The focus that year was on updating the Risk Premium Project (RPPII) and the RFPs on Liquidity Risk Project and Mark-to-Market. Since March 2010, when Dr. Derrig took over as chair, the committee made strides in its work on the project. RPPII is now featured

under the Research section of the CAS website, with updates to the literature taking place every subsequent year. Also under Dr. Derrig's leadership, the committee pursued several RFPs, including the Liquidity Risk Premium Project.

Dr. Derrig won the 2012 American Risk and Insurance Association (ARIA) Prize along with his co-author Sharon Tennyson for their paper "The Impact of Rate Regulation on Claims: Evidence from Massachusetts Automobile Insurance". He also won the 2003 ARIA prize along with Pat Brockett for "Fraud Classification Using Principal Components of RIDITs" and the 2003 CAS Bowles Symposium prize. He is the author of numerous papers for various journals, including two published in *Variance*.

A frequent presenter at CAS meetings and seminars, Dr. Derrig has spoken on topics ranging from fraud detection to risk load methodologies. He is active in ARIA and is a past member of its board of directors. He was an advocate of the new prize awarded by ARIA to the best actuarial paper published in *Variance* or the *NAAJ*. 

Benefits of Predictive Modeling, From page 8

In addition to the overall return on investment, a pitch for a new model should show how it will affect retention ratios, as well as address issues like impact on the regulatory environment, consumers and the company's distribution channels.

He also suggested telling the executives how the project will be measured and giving them an idea of what reports it will generate. "Give examples of how the model will help the company do things faster, better and cheaper," Mr. Bauer explained. "You have to model the model," he said, "and show how it performs under a wide variety of conditions, including scenarios selected completely at random."


A company might also consider how its models will affect competitors. Progressive was one of the first companies to put a rating engine online. It not only showed Progressive's rates, but those of competitors. It helped the company for several reasons.

For one, it got traffic, which built awareness of Progressive's name. Showing competitor rates conveyed the sense that the company was an honest broker. Sometimes, of course, it sent business to a competitor. But that was okay, too, Mr. Bauer said. Suppose the rating engine showed that a competitor prices a

policy at \$400, and Progressive wants \$2,000 for the same risk. "If we did our pricing right," Bauer said, "we just sent our competitor a \$1,600 loss."

That, of course, was more than a decade ago. Now predictive models have "big data"—billions and billions of data points that can let a company pinpoint customer preferences—if it only can be tamed. In such cases, too much information can be the problem, Ms. Gannon said. She worked on a project that tried to model off 795 variables. The first step was to narrow that down to 150. But it's important to take on such large projects, she said. Customers increasingly want a customized solution. If you provide that, or convince customers they want something better, your company can be successful.

Mr. Bauer predicted that big data will allow companies to go beyond today's predictive models to more advanced cluster pricing, which will provide for more refined expense pricing.

The panelists agreed that companies will see an increasing number of internal advocates for models and strong analytics, and for good reason. "The winners for the future are the ones who are building analytic models," Ms. Gannon concluded. 

Scenes from the 2012 CAS Annual Meeting

1



1. Shaun Wang accepts the 2011 Variance Prize on behalf of his coauthors John Major, Charles Pan and Jessica Leong, at the CAS Luncheon and Business Session held on Monday, November 12, 2012. To read the prize-winning paper, "U.S. Property-Casualty: Underwriting Cycle Modeling and Risk Benchmarks," visit <http://www.variancejournal.org/issues/?fa=article&abstrID=6860>. Photo credit: Craig Huey Photography.

2. New Associate Victoria Arias Mayen and new Fellow Sean O. Cooper. Photo credit: Craig Huey Photography.

3. Now that's a celebration! Meeting attendees take a break to watch fireworks at the Tuesday Evening Buffet Dinner held at Epcot. Photo credit: Matt Caruso.

4. Beautifully serene and relaxing! Pied-billed grebes spend their days cruising the glassy waters by the Disney Boardwalk. Photo credit: Matt Caruso.

5. Aubrey Wykes poses happily with her father, new CAS Associate Michael Wykes. Could she be an actuary in training? Photo credit: Matt Caruso.

2



3



4



5



6. Ken Seng Tan (right) accepts the 2012 Hachemeister Award from CAS President Pat Teufel. He and his coauthor Yichun Chi won for their paper titled, "Optimal Reinsurance Under VaR and CVaR Risk Measures: A Simplified Approach." The paper appears in ASTIN Bulletin, Vol. 41, No. 2. Photo credit: Craig Huey Photography.

7. Masabiko Saito (left), a board director and representative of the Institute of Actuaries of Japan (IAJ), and Pat Teufel share a moment at a dinner during the 2012 CAS Annual Meeting. Photo credit: Todd Rogers.

8. Pat Teufel (center) stands with new CERAs Avraham Adler (left) and David Patrick Moore (right). Mr. Adler and Mr. Moore were recognized during the CAS Business Session on November 12, 2012. Photo credit: Craig Huey Photography.

9. CAS Vice President-Administration Leslie Marlo. Photo credit: Craig Huey Photography

10. CAS members and their guests enjoy dinner at the World Showplace Pavilion inside Epcot. Photo credit: Matt Caruso.

11. CAS Fellow Susan J. Forray speaks briefly about her company, Milliman Inc., who sponsored the CAS Luncheon and Business Session. Photo credit: Craig Huey Photography.



Scenes from the 2012 CAS Annual Meeting

11



11. Ralph Blanchard waits to give the address to new members during the Celebration of New Members on Monday, November 12, 2012. Mr. Blanchard served as CAS president in 2011 and as chairperson of the CAS Board of Directors in 2012.

12. New Associate Emily Daters Cilek networks.

13. New Associate Anand Khare (left), Stan Khury (center), and Arlie Proctor (right) have a chat the Recognition Reception for New Associates, held on Sunday, November 11, 2012. Mr. Khury is AR Editor Emeritus and Mr. Proctor is the incoming CAS Vice President-Marketing and Communications.

14. Pat Teufel and new Associate Eliezer Yosef Blum engage in pleasant conversation during the Recognition Reception for New Associates on November 11, 2012.

15. New Fellow, Amy Beth Green (left), happily accepts her diploma from CAS President Pat Teufel.

Photo credit: Craig Huey Photography

12



13

14



15

2012's Top Casualty Actuarial Stories

By way of the CAS Roundtable blog, the CAS staff compiled blog readers' top picks for the biggest actuarial news stories of 2012. The responses were compiled into a survey conducted in December 2012. The following are the top ten stories of 2012.



10. Solvency II Delayed Again

It is doubtful that Solvency II will be implemented by January 2014, given that the European Parliament delayed its vote on Omnibus II until March 2013. This delay will be costly to firms

running Individual Capital Adequacy Standards and Solvency II models in tandem.

9. Strong Economy Forecasts Rising Insurance Premiums

Insurance premiums are expected to rise as the U.S. economy grows.

8. Drought in the U.S.

As of October 2012, about 34% of the contiguous United States had been affected by severe to extreme drought, according to the National Climatic Data Center of the National Oceanic and Atmospheric Administration. (July 2012 was the worst month with 38%.) The U.S. drought of 2012 will have an impact on crop production and food prices.



7. The U.S. "Fiscal Cliff"

Budget debates and the potential "fiscal cliff" resolution might have a significant impact on social security and other entitlements.

6. Impact of Climate Change

Increasing global temperatures and extreme weather events, such as Hurricane Sandy and the U.S. drought, will continue to have an effect upon insurers.



5. U.S. Supreme Court Upholds the Affordable Care Act

In upholding the act, the SCOTUS found that the fine for not buying insurance was constitutional as a tax. The ruling may increase the need for actuaries in health-related disciplines and will likely affect actuaries working in those areas.

4. Usage-Based Insurance

Despite the associated privacy issues, usage-based insurance, or pay-as-you-drive insurance, is quickly evolving and is beginning to become a requirement worldwide in the competitive automobile insurance market.



3. NAIC Adoption of the ORSA Model Act

The NAIC's adoption of the ORSA Model Act will force most insurers to formalize their ERM process. This will affect U.S. actuaries significantly. The companion work in the EU, Canada, and elsewhere makes this material to all actuaries working in the reserving, ERM, and financial reporting space.

2. Actuarial Education and Credentialing

The Society of Actuaries will begin offering a general insurance credentialing track and will cease conducting joint examinations with the CAS.



1. Historic Impact of Hurricane Sandy

Hurricane Sandy made the first landfall in New Jersey in over 100 years. The storm may have a long-lasting impact and may change the way that

cities and other communities think about building in Mid-Atlantic and New England coastal areas. [AR](#)

Yacht Club Commodore

Dave Powell had been a sailor for 40 years but never had any desire to join (much less lead) a yacht club. He assumed that such clubs would be stuffy. That changed when a neighbor introduced Dave and his wife, Marilyn, to the Bird Key Yacht Club in Sarasota, Florida. Both Dave and Marilyn found it remarkably friendly. Members come from across the states and a dozen foreign countries; many have lived abroad as expatriates. Most have had successful careers in diverse fields. Dave and Marilyn discovered that it's simply fun to be around friendly, stimulating people. Active boaters comprise only 30–40% of the membership, but all seem to enjoy the cachet of a yacht club. The leading activities are eating, drinking, boating and tennis. There are many social, sports and recreational activities.

Shortly after joining, Dave worked on updating the club website. The first step was to decide whether the primary purpose was to communicate with existing members or attract new members. A vehicle to communicate with members requires a level of interactivity that significantly increases costs. They opted to be more externally focused. The project was then broken into two work streams: vendor selection and content. A local vendor was selected to do the heavy lifting on the technical side. Content required thinking about the message they wanted to convey in both words and pictures. As expected, they went through several editorial rounds. The site, www.birdkeyyc.com, was built on Concrete 5, a system that looks very much like Word and allows administrators to make updates internally.

Dave also was part of the organizing committee for their Sarasota Bay Cup Regatta. As a result, less than a year after joining, he was asked to become rear commodore in August 2011, as a mid-term replacement for someone who was no longer able to devote the necessary time. The club tries to involve newer members, but this was about a year faster than usual. rear commodore is a “training” position—basically watch and listen.

He then moved up to his current position of vice commodore, where his primary responsibility is membership. As a private club, as defined by the IRS, they are not allowed to advertise directly and must have a process for membership admission. As part of the process, Dave gives an individual orientation session to each prospective member. The club has an introductory trial program whereby prospects can join for 60 days without cost or obligation, and just pay for food and beverage. This offers prospective members a chance to experience the club before making the decision to join. The club has a conversion rate of



David Powell aboard his yacht Allegaroo, which is named after the cheer of his alma mater, the City College of New York.

over 75% with this program. Dave and his wife also invite new members to join them for various events.

In February 2013 Dave will become commodore—the “Chairman of the Board”—leading the board of governors in establishing overall direction, capital spending plans, initiation fee and dues levels. As there are always more projects than funds, the board must set priorities. For example, they replaced their roof this past summer. Currently, they are discussing when to expand their outdoor dining area. Dave finds an actuarial side to all this. Budgeting and capital spending depend on membership levels. Projecting the number of new members is thus an important element of capital planning. The temptation to build an actuarial model was almost overwhelming. One of the best lessons Dave learned in his actuarial career was that there is a cost to data, in hard dollars or simply time and aggravation. The membership data needed could easily fully occupy the accounting department for several weeks but would not really improve the decision making. Dave managed to not give in to the temptation. People moving into the area are a prime source of new members, so Dave tracks real estate closings online from the property assessors office and uses that as part of the process.

The commodore is also involved in the mundane decisions typical of any group. For instance, Dave will shortly be faced with the selection of the color for new staff uniforms (he intends to rely heavily on Marilyn for that one). The commodore's most important function is getting volunteers for about 30 committees that are the backbone of the club. The social committee organizes approximately 25 events a year. Other committees run kayak, bicycle and boating trips; select the art that hangs in the

club house (changing it every six to eight weeks); and organize activities such as bridge, tennis, line dancing, ballroom dancing, yoga and wine selection.

Typically, the commodore does not actually run events. Nevertheless, Dave will continue to take an active role in the Sarasota Bay Cup Regatta. The 2012 regatta had 58 sailboats in seven classes; more are expected for 2013. Dave manages the registration process. All entries, paper and online, come to him. He makes sure that all the necessary information is there and creates spreadsheets for various purposes. In the past he ran a few other events. A particularly enjoyable one was Boat Photo Day. Members went out on their boats and took pictures of each other's boats. These were then compiled and everybody got a disc. Dave suspects that some of these photos will grace a few holiday cards.

In soliciting participants for the regatta, one of the more artistic members creates a poster that is hand delivered to about 25 locations. They also have notices that are placed in print and online where sailors are likely to see them. In addition, they get a list of sailboat registrations from the Motor Vehicle Department, select local addresses and send postcards. Principal Race Officers handle the skippers' meeting, on-the-water race management, starting sequences and results. Several committees arrange food and entertainment for Friday night cocktails and Saturday dinner, provide racers with their information packets, purchase trophies, arrange dock space for visitors and handle all the details necessary to put on a first-class event. The 2012 regatta had over 400 attend for dinner. It's a popular event even for the non-boating club members, as the atmosphere when a bunch of sailors come in from a day of racing is quite special. One of the commodore's jobs is to present trophies. Dave has aspirations for a podium finish, as he thinks it would be cool to give himself a trophy.

Dave's favorite activities are Sunday racing and pub nights. Most Sundays a number of members enter their sailboats in local races and then return to the club where they are joined by non-racing spouses. They spend a few hours there rehashing the race and making excuses. On Mondays and Wednesdays they hold "Pub Night"—very informal dining with lighter fare served in the bar area. A typical crowd is 100. He and his wife usually attend, find some friends or new members, and enjoy the evening.

Despite these responsibilities, a paid staff of about 35 does most of the work. Key positions are general manager, executive chef, membership coordinator, bookkeeper, dockmaster and



Allegaroo in action!

receptionist. Most of the staff is related to food and beverage preparation and service, which is a vital part of the club. Dave believes that the club is very fortunate to have a talented, creative executive chef. Lunch and dinner are served daily as well as a breakfast buffet on Sunday.

Dave finds that the two hardest things are:

1. Budgeting on a smaller scale. While the club budget is several million dollars, it is tiny compared to insurance companies. It really took an effort to scale back thinking. This is a common problem, as most of the board comes from large company backgrounds. He remembers one discussion where he tried to convince a former CIO of a major manufacturer that \$6,000 was a meaningful amount of money.
2. Dealing with headstrong members. The club's members are mostly successful people—executives, small business owners, lawyers and the like. They are opinionated and not shy. It can be a bit like herding cats.

David Powell is retired in Longboat Key, Florida. 

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 email to ar@casact.org and let us know.

2013 RPM Seminar Set for Huntington Beach, CA!

Join the CAS in Huntington Beach, CA from March 11-13 for the 2013 Ratemaking and Product Management Seminar! RPM promises to deliver over 60 unique concurrent sessions and four preconference workshops on hot topics such as R, product development and severe weather.

The RPM Seminar is a forum for actuaries, underwriters and other insurance professionals to further their continuing education and stay current with many new sessions. This year's RPM also features a new track on usage-based insurance.

Two Keynote Speakers Announced

Roger Craig is the CEO and cofounder of Cotinga LLC, a predictive analytics consulting firm based in New York City. Mr. Craig has eight years' experience applying predictive analytics methods to problems in academia, government and industry. He has designed and developed applications in bioinformatics, text analytics, customer relationship management and search engine marketing. In 2010 and 2011, he appeared on 11 episodes of the quiz show *Jeopardy!*, where he set several records and became the fourth-highest winning contestant in the show's history. Text mining and predictive analytics were instrumental in his record-breaking success.

Nick Meany is the managing director and CEO for Epagogix Ltd. in London. Drawing on his experience working in risk management for the City of London, Mr. Meany founded a unique consulting company that combines innovative risk management techniques, finance and artificial intelligence. He currently works with Hollywood studios and financiers to identify and enhance commercial prospects of movie projects. According to experts such as Malcolm Gladwell, and as demonstrated by experience to date, his company's data-

led approach has the potential to fundamentally change many aspects of the creative and commercial process of major studio moviemaking. Epagogix helps Hollywood studios' independent producers and film financiers allocate their capital optimally and determine which projects to make, which to drop, and how to enhance the box office value of films produced. **AR**




Vancouver to Host the '13 CAS Spring Meeting

This spring, the CAS invites you to coastal Vancouver, British Columbia, for a dynamic program of educational opportunities, networking, and social events at the 2013 Spring Meeting! As an added bonus, you can enjoy all the natural beauty that Vancouver has to offer—majestic mountains, sparkling ocean, and rainforests, among other beautiful scenes.

The Spring Meeting will be held May 19-22, at the elegant Westin Bayshore. The Westin Bayshore is a downtown Vancouver hotel that offers guests the best of both worlds: the activities and cultural events of the city as well as a relaxing resort experience. This unique duality is just one of the features that allowed The Westin Bayshore, Vancouver, to be named to the *Condé Nast Traveler* Gold List. Enjoy views of the coastline, distant mountains, and Stanley Park, plus easy access to Vancouver attractions, all from one of the city's top hotels.

The CAS Program Planning Committee is putting together an informative, engaging program, including a featured speaker session, four general sessions, and over 25 concurrent sessions that will delve into a variety of actuarial issues covering workers' compensation, modeling, reserving, reinsurance, personal lines,


ratemaking, professionalism, research and business skills. The committee is reviewing submissions from its recently conducted call for presentations. Roundtable discussions will also be offered as optional opportunities for continuing education credits.

The Spring Meeting is a great opportunity for attendees to benefit from a first-rate educational program as well as networking and social events. Look for the brochure and registration information in the mail and check the CAS Web Site for online registration. 

Traveling to Canada

If you plan to attend the CAS Spring Meeting from outside Canada, please see the Canadian Border Service Agency's website (<http://www.cbsa.gc.ca/>) for details on entry requirements. Canadian law requires that all persons entering Canada carry both proof of citizenship **and** proof of identity. A valid U.S. passport, passport card, or NEXUS card satisfies these requirements for U.S. citizens.

Save the Date for the 2013 Reinsurance Seminar!

The 2013 CAS Seminar on Reinsurance will be held June 6-7 at the Fairmont Southampton in Bermuda! Registration for the Seminar will open in March. Additional details will be available on the CAS website. 



LEARN INTERACT GROW

30 March to 4 April 2014

www.ICA2014.org

CAS Celebrates Outstanding Volunteers

By Matt Caruso

In celebration of the spirit of volunteerism, five exceptional CAS volunteers were honored during the 2012 Annual Meeting at the Dolphin Resort in Lake Buena Vista, Florida.

During the CAS Business Session on November 12, 2012, Ginda Fisher and Aaron Halpert were acknowledged with the Above and Beyond Achievement Award (ABAA), Guillaume Benoit was awarded the New Members Award, and Charles McClenahan and Deborah Rosenberg were presented with the Matthew Rodermund Memorial Service Award.

Each year, more than a third of CAS members participate as volunteers. Among them are individuals who contribute far more than expected of a typical volunteer. The Above and Beyond Achievement Award recognizes short-term contributions during a volunteer's years of service.

Ginda Fisher was nominated by the chair of the CAS Continuing Education Compliance Committee, a new committee charged with handling the compliance audit of CAS members. The bulk of the committee's work was to determine audit procedures. Ms. Fisher was a proactive committee member, helping lead the creation of the audit process. She took lessons learned from the audit process, and then volunteered to prepare educational materials for CAS membership. Her work was

published online and in the November 2012 *Actuarial Review* ("Special Report: Observations Regarding the CAS Continuing Education Compliance Process"). Her above and beyond effort for the committee benefited CAS members. "I enjoy volunteering for the CAS," she said. "It is a way to give back to the profession, and is often fun. Volunteering is also a good way to stay up-to-date in areas of practice I have not worked in."

Aaron Halpert was also honored with the ABAA for his exemplary efforts chairing the CAS Risk Management Committee. With increasing demands from the CAS Board, Mr. Halpert ably stepped up and effectively orchestrated the completion of his committee's tasks under very tight timeframes. A recent retiree, Mr. Halpert continues to influence issues affecting the CAS and the actuarial profession through volunteering and collaborating with other members. "It is very interesting to hear different perspectives on how our profession and our Society must evolve and grow to remain vibrant and relevant," said Mr. Halpert. "I value the experience of volunteering and encourage others to take advantage of the opportunity."

Initiated in 2011, the New Members Award recognizes volunteer contributions during an individual's first five years as a member.

The winner of the 2012 New Members Award is Guillaume Benoit. Mr. Benoit was nominated for his outstanding work with the CAS Regional Affiliate *Association des Actuaries IARD* (AAIARD) in Quebec. Since becoming AAIARD president in 2010, he has organized successful conferences on behalf of the Regional Affiliate. Mr. Benoit also volunteers for the Examination Committee, writing and grading exams.

Mr. Benoit's immediate contribution illustrates how new members can positively influence the Society through volunteering. "Volunteers are a key factor of the success of the CAS and its Regional Affiliates," said Mr. Benoit. "Volunteering has allowed me to get outside my comfort zone by accomplishing more diversified tasks than my traditional actuarial responsibilities—and every time I do so, I find that I learn a lot and develop new skills."

While the New Members Award recognizes amazing recent members, the Matthew Rodermund Memorial Service Award annually acknowledges CAS members who have made considerable volunteer contributions to the actuarial profession over the course of a career. Each of this year's Matthew Rodermund Memorial Service Award winners exemplifies a



CAS President Pat Teufel (left) awards Debbie Rosenberg the 2012 Matthew S. Rodermund Service Award. Ms. Rosenberg shared the honor with Chuck McClenahan.

lifetime of service helping to accomplish a variety of CAS initiatives.

Just after achieving his Fellowship in 1974, Charles McClenahan joined the CAS Committee on Review of Papers, the group that peer-reviewed papers for the *Proceedings*. After three years as a committee member, he was asked to be chair. Mr. McClenahan served 13 years on the committee over two separate terms. He also served as chair of both the Long Range Planning and Textbook Steering Committees. Mr. McClenahan is a volunteer with many talents and interests, as his volunteer work also includes terms on the Exam, Continuing Education, and Ratemaking Seminar Committees. He also served two terms on the CAS Board of Directors.

Mr. McClenahan knew Matthew Rodermund personally. “Matt was a good and dear friend, and living proof that even practitioners of the paradigm of the nerdy sciences can retain their sense of humor,” he said. Mr. McClenahan was occasionally asked to give the annual Rodermund Lecture at Mr. Rodermund’s alma mater, Beloit College. “To this day I’m not certain whether I was invited back because of the student response or because I refused to accept Matt’s honorarium, but in either case I loved doing anything I could for one of our greatest progenitors.”

Deborah Rosenberg also has a robust volunteer history. After receiving her FCAS in 1984, she has covered almost every functional area of the CAS, including basic education, continuing education, research and administration. Ms. Rosenberg has served on the Syllabus, Program Planning, Prizes and Awards Administration, and Volunteer Resources Committees. She served for six years on the Committee on



Ginda Fisher



Aaron Halpert




Guillaume Benoit

Reserves, including three years as chair. She also served a three-year term on the CAS Board of Directors, a term on the CAS Executive Council as vice president-administration, and as a Regional Affiliate president. Ms. Rosenberg now serves on three committees, including as chair of the ICA 2014 Marketing Committee, and she is president-elect of the Seasoned Actuaries Section.


“I benefited from volunteering by learning about other areas of actuarial work that I would not have been exposed to in my day job,” said Ms. Rosenberg. “The chance to get to know and work with so many of the people that I would not have had the opportunity to connect with—that coupled with the feeling that I was contributing to the CAS made the volunteer experience truly meaningful.”

Congratulations to all of our 2012 volunteerism award winners!

Please help the CAS recognize outstanding volunteers by nominating worthy members for the 2013 Above & Beyond Achievement Award, New Members Award or Matthew Rodermund Service Award when invited to do so in May. If you have questions about the awards, please email Matt Caruso at the CAS office (volunteer@casact.org). 

Ziegler Receives Award

Cynthia Ziegler, executive director of CAS, received an award from the Conference of Consulting Actuaries (CCA) at the organization’s 2012 annual meeting. CCA President Dale Yamamoto presented Ms. Ziegler the award, which recognizes her leadership and support to the Rules and Procedure for Disciplinary Actions Task Force. The group is an inter-organizational task force formed to help implement the joint

discipline process among the U.S.-based actuarial organizations. The task force’s creation of appropriate rules of procedure for disciplinary actions was seen as a vital step towards a fair and equitable joint discipline process for the actuarial profession in the U.S. At its November 2012 meeting, the CAS Board of Directors authorized the CAS president to enter into the agreement for profession-wide joint discipline on behalf of the CAS. 

New Fellows Admitted November 2012



Row 1 (left to right): Aaron A. Wright, Darren Russell Weidner, Pascal Vincent, Minesh Kumar Patel, **CAS President Pat Teufel**, Timothy Delmar Sweetser, Peter F. Soulen, Phillip Anthony Victory, Jeremy C. Smith.

Row 2 (left to right): Peter Anthony Magliaro, Liqing Yang, Jonathan T. Marshall, Karl Veilleux, John Daniel Fanning, Daniel James Plasterer, Xiao-shu Su, Marilyn Ashley Wilson, Matthew D. Piser, Radost Roumenova Wenman.

Row 3 (left to right): Anthony M. Milano, Matthew J. Jewczyn, Amanda P. Pogson, Melody Ko Lin, Nan Jenny Zhang (FCAS May 2012), Abigail Ouimet Katuska, Chien-Ling Tai, Zachary Samuel Webber, Huinian Wang, Chi Ho Terence Ho.



Row 1 (left to right): Lauren Barozie, Paul Kutter (FCAS May 2012), David Payne, Kishen Patel, **CAS President Pat Teufel**, Yan Zhang, Gavin David Brown-Jowett, Jeffrey Grant Kinsey, Melanie Ostiguy.

Row 2 (left to right): Justin N. Pursaga, Bo Dong, John M. Gilbert, Daniel A. Engell, Xiaoyu Dong, Elizabeth Asher Sanders, Henry Hang-Lei Lim, Diana Marie O'Brien, Josee Morin, Christina Picarro Reich.

Row 3 (left to right): Michael Burnett, Colleen A. Olthofer, Ann Marie Helmann, Xiaoye Cui, Ling Bai, Alvin Kwong, Phillip F. Schiavone, Jonathon L. Silver, Neal Ray Drasga, Lauren Miranda Inglis, Nicholas Joseph LaPenta.



Row 1 (left to right): Amy M. Chang, Jennifer Cheslawski Balester, David Govonlu, Goh Jio Young (FCAS May 2012), **CAS President Pat Teufel**, Michael Rice Cenzer, Edward F. Tyrrell, John Peter Glauber, Jonathan R. Sappington.

Row 2 (left to right): Christian Kleven Myers, Subhayu Bose, Kelli Ann Broin, Margaret Hendrix Glenn, Sean O. Cooper, John E. Amundsen, Brent J. Otto, Brent P. Donaldson.

Row 3 (left to right): Hai Na Han, Seth Jason Kurpiel, Ray Yau Kui Ho, Katherine Anne Vacura, Amy Beth Green, Lucia De Carvalho, Kelly Ann Bellitti, Christopher Allard, Courtney L. Lehman.

New Fellows not pictured: Jessica Lynn Archuleta, Sarah Jane Austin, Matthew Ball, Paul Andrew Brezovec, Rachel C. Dolsky, Ryan P. Farrelly, Yifan Fu, Yun Gao, Adam Baron Hirsch, Daniel Patrick Jaeger, Megan S. Johnson, Uri A. Korn, Joyce Lee, Hua Li, Steven C. Lin, Xiaojiang Ma, Yui Pui Martin Mak, Thomas James Marshall, Hong Peng, Adam Lee Rich, Sean Thompson Ritson, Kelly A. Rothmerl, Stephen Ray Segroves, Leslie D. Svoboda, Mark Taber, Casey Ann Tozzi, Jin Wang, Jiangtao Xiong, Yan (Peter) Yan, Bei Zhou.

New Associates Admitted November 2012



Row 1 (left to right): Bryan M. Stewart, Jeffrey David Baer, Bashir Moallim, Yaming Luo, **CAS President Pat Teufel**, Diego Fernando Antonio, Cory Michael Fujimoto, Sa Chen, Roy Kohl.

Row 2 (left to right): Kellen Christopher Miller, Julie Ann Lederer, Laura Michelle Stromberg, Katrina E. Smith, Adam N. Sturt, Eric M. Sligay, Marc-Andre Lebeau, Frederic Potvin.

Row 3 (left to right): Jinbing Ma, Eric L. Greenberg, Anand Khare, Eric P. Chassie, Matthew B. Estes, Anthony Hovest, Victor Yusen Li, Daniel Lee Price.



Row 1 (left to right): Edward L. Pyle, Jason Lee Roblfs, Sarah Y. Haberman, Michael A. Wykes, **CAS President Pat Teufel**, Guillermo A. Letona, Amber M. Robde, Joshua Thomas Greene, Timothy James Gaugler.

Row 2 (left to right): Benjamin Ewbank, Alex Carges, Daphne Y. Lum, Elizabeth M. Regan, Tyler John Birkel, Steven Joseph Walsh, Kimberly Ann Walker, Brendan P. Barrett.

Row 3 (left to right): Michael Ryan Gittings (ACAS May 2012), Randall Boualay Xayachack, Carl Roy Gullans Jr., Eliezer Yosef Blum.



Row 1 (left to right): Victoria Arias Mayen, Antoine Sasseville, **CAS President Pat Teufel**, Philippe Gagne, Eric Mercier.

Row 2 (left to right): Sarah Ashley Chevalier, Emily Daters Gilek, Jonathan G. Esbelman, Ryan Crabtree, Anne Ruel.

New Associates not pictured: David M. Baldwin, Yvan Berthou, Paul Michael Eaton, Kendra C. Forrest, Brandon D. Gilbert, Eric L. Greenberg, Wei Q. Huang, Mu-Chun Huang, Apundee Singh Lamba, Amy Rachele Lerch, Steven Luther Martin, Gregory F. McNulty, Michael H. Miniaci, Yan Ren, Anne Lindsay Rowand, Jared F. Rubinstein, Christopher Merlin Schumacher, Eric K. Slavich, Leigh A. Soltis, Michael Brandon Synowicki.

2012 ASTIN Colloquium Combined Cultural Delights with Serious Scientific Talk

By Louise Francis, ASTIN Committee Secretary

I was very fortunate to attend the 2012 ASTIN Colloquium, which took place from October 1-4, 2012, in Mexico City. This colloquium was different from past events in that the IAALS (Life Section), AFIR-ERM (Financial and ERM) and ASTIN (Non-Life) sections of the International Association of Actuaries all held their colloquia together, with shared plenary and section-specific breakout sessions. The 2012 program included a full-day outing to the pyramids at Teotihuacan, one of our host country's many magnificent cultural sites.

Paul Embrechts' plenary session presentation focused on the modeling of rare events. Dr. Embrechts began with a historical overview of modeling of extreme events beginning with Bernoulli. He mentioned a new journal, *Extremes*, which publishes papers related to extreme value theory, and devoted some time to introducing the generalized Pareto distribution as a handy tool for modeling extreme values. He also stressed that the actuarial profession, and others, need to understand the limitations of black box models such as those implicated in the financial crisis. He mentioned that the problem often is not with the theory but with the questions that are asked. Dr. Embrechts also noted that there is no unique extreme value theory for multivariate data.

Patricia Guinn, the risk and financial services business segment leader for Towers Watson, spoke about the role of the actuary in risk management. She believes more companies should use stress and scenario testing. She raised some unsettling questions such as, "What if 2008 happens again?" and "What if the Eurozone dissolves?"

The CAS was well-represented at the colloquium. Gary Josephson, then CAS president-elect, and Jim Christie, past president of the Canadian Institute of Actuaries and a past CAS Board member, both spoke on professionalism.

Frank Cuyper presented a paper on the Szwejk distribution function, which can be used to model heavy-tailed distributions such as those for P&C severities in many lines. Mr. Cuyper first spoke about the Czeledin distribution, which gives a heavy tail to skewed distributions by blending a lognormal and a Pareto. It has three parameters to fit. The Szwejk distribution incorporates a heavy tail into a symmetric distribution by blending a normal with a Pareto for both tails. Certain other alternatives such as Levy processes are more complex and can be harder to



The littlest Mariachi: The author (left) and Paul Embrechts show off their festive sombreros at the 2012 ASTIN Colloquium in Mexico City.

parameterize.

"Stochastic Models for the Assessment of Earthquake Risk in Insurance" by Diego Jimenez-Huerta and Ragnar Norberg won the ASTIN prize for best paper. The paper presents a new model for earthquake assessment that combines a point process for earthquakes with a conditional insurance loss process. The earthquake process is modeled with a Poisson process and a spatial gamma process. The authors also present an analytical approximation to the aggregate insurance loss distribution and discuss a procedure for the simulation of losses.

Glenn Meyers presented the paper, "The Leveled Chain Ladder Model," which is part of a series of papers he has written using

2012 ASTIN, page 23

Member Profile: Bob Downer

By Matt Caruso

The 2012 CAS Annual Meeting was a homecoming for CAS member Bob Downer and his wife, Marti. For the first time, their careers were celebrated in the same place.


Bob Downer earned his FCAS in 1983, an alumnus of the student program at Aetna. While Mr. Downer was serving as chief actuary at Farmers Insurance in Los Angeles, Marti Downer was a Disney cast member at the company's Burbank headquarters (Disney refers to its employees as "cast members"). Mrs. Downer served as head of corporate recruiting and founded Disney's diversity program.

Now retired, Mr. and Mrs. Downer took the opportunity to attend the CAS Annual Meeting and visit Disney World. The CAS Tuesday night dinner held at Epcot on the Disney property proved to be a special evening for the couple. The dinner was a confluence of the CAS and Disney, two organizations of great import to their lives and careers. Mr. Downer said, "It was joyous to share Disney's red carpet treatment of guests with CAS friends and colleagues."

Mr. Downer attended the Jubilee Meeting in New York When



Bob and Marti Downer

the CAS turned 75 in 1989. In the ensuing 25 years, he has seen the CAS grow dramatically in size and stature. A volunteer on the CAS Centennial Marketing Committee, Mr. Downer is looking forward to planning and attending the CAS 2014 Centennial celebration. "[My] personal goal is to encourage seasoned and retired actuaries to assemble in numbers for this important occasion," he said. 


2012 ASTIN, From page 22

the CAS loss reserve database. The model Meyers described fits Bayesian MCMC models. His paper addresses limitations presented in previous papers (see the Summer 2012 CAS *E-Forum*). Mr. Meyers' adventures with the CAS loss reserve database have also been detailed over the last few years in the *Actuarial Review's* "Brainstorms" column.

Emiliano Valdez's paper concerns modeling multivariate claim counts using copulas. The paper discusses modeling over-dispersed claim count data using distributions such as the negative binomial, and incorporates this into the model's framework.

Many of the presentations and papers from the colloquium are posted at https://www.actuaries.org/mexico2012/papers_astin.cfm?ACCESS=Y.

The 2013 ASTIN colloquium will be held May 21-24 at the Hague in the Netherlands. The Hague is home to the Queen's palace, the Dutch Parliament and the International Court of Justice. The meeting will be at the World Forum Convention Center. Proposals for papers are now being accepted.

To learn more about the ASTIN Committee's discussions and decisions reported to the General Assembly, contact the author at louise_francis@msn.com. 

CAS Announces Decisions Regarding Preliminary Education and Access to Syllabus Materials

Statement issued 11/15/2012

PRELIMINARY EDUCATION

In response to the Society of Actuaries announcement that it will discontinue the Joint Preliminary Actuarial Examination Agreement with the CAS as of December 31, 2013, the CAS Board of Directors, at its November 2012 meeting, approved revised qualification standards for the material covered on current CAS Exams 1 through 4 in accordance with established learning objectives considered appropriate for CAS candidates.

For CAS learning objectives currently addressed through Exams 1, 2, 3F, and 4, the CAS will grant credit to candidates who receive credit for examinations offered by other organizations deemed to cover the CAS learning objectives in acceptable depth and breadth. Other organizations will include, but will not be limited to, the Actuaries Institute (Australia), Canadian Institute of Actuaries, Institute and Faculty of Actuaries (U.K.), Institute of Actuaries of India, and Society of Actuaries. The CAS will monitor programs of these and other organizations and will approve credits that are deemed appropriate by the Education Policy Committee in accordance with the current waiver process. CAS anticipates reviewing exams sponsored by the Joint Board for the Enrollment of Actuaries and will consider others as well.

Beginning in 2014, the CAS will offer two new preliminary examinations: 3LC, covering life contingencies and survival models, and 3ST, covering statistics and stochastic modeling. These examinations will be produced and administered independently by the CAS and will replace the current Exam 3L.

At present, the CAS anticipates offering the following credits, which are consistent with current exams/waivers [shown below]:

The transition rules will allow a candidate who has credit


for Exam 3L or MLC from exam sittings administered prior to January 1, 2014, to receive credit for both Exams 3LC and 3ST.

The CAS believes these changes align preliminary educational objectives to the appropriate coverage for these topics, while recognizing the increasing importance of statistics in casualty actuarial practice. In addition, this approach allows the CAS to focus on exams that validate knowledge that is uniquely relevant to casualty actuaries, in keeping with the CAS mission to be recognized globally as the premier organization in advancing the practice and application of casualty actuarial science and educating professionals in general insurance.

ACCESS TO SYLLABUS MATERIAL

In October 2012, the Board of Directors agreed to make CAS examination study materials freely available only to members and candidates, and to other users on a case-by-case basis. Password security was implemented on these materials in order to protect CAS intellectual property.

The CAS has subsequently received a number of inquiries that indicate that these materials are being used much more frequently by non-members than the Board had anticipated, including university professors and insurance professionals. The Board of Directors respects the fact that these users consider this material the best available source for ratemaking and reserving instruction and that these users wish to recommend the material to students and other professionals alike.

In order to make CAS materials available to these users, the Board has opened access to this material such that it is freely available on the CAS website. The CAS maintains its copyrights on this material and will take appropriate actions to protect it as necessary. 

Learning Objectives for CAS Exam	Subject of The Institute and Faculty of Actuaries (U.K.), Actuaries Institute (Australia), and Institute of Actuaries of India	Society of Actuaries Exam
1	CT3	P
2	CT1	FM
3F	CT8	MFE
3LC	To be determined	MLC
3ST	To be determined	None
4	CT6	C

What is Our Sustainable Competitive Advantage?

I believe that “you work to profit from your efforts.” Profit can be defined in a number of ways, not just money, but it can be prestige, votes, social acceptance, and so forth. To that I add, “you associate with others that influence you in reaching your goals.” Note that I don’t say you “should” associate with others who assist you in reaching your goals, because the people with whom you associate *are* moving you towards some destination, whether it is one you have selected or one you have chosen *not* to pursue.

The flip side of “you work to profit from your efforts” is your employer’s goal. The company that pays your salary does so because it believes it also profits from your efforts—you should be providing a better “return on investment” (i.e., your salary and benefits) than other alternative “investments.” If not, you are at risk of being replaced by a better-performing asset—i.e., another employee, a consultant, or some other alternative.

That said, our work with the CAS should be helping its members profit from those efforts. There is a dual purpose—the CAS should help me as a member with my professional pursuits. If not, I will no longer have an incentive to contribute. But wait, some of you say—I feel I “owe” the CAS for providing me the wherewithal to reach my goals, and I need to pay it back. The payment of that debt is also a form of “profit”—relieving you of the perceived obligation.

And just like the relationship with the employer, the members of the CAS should be helping the Society “profit” from their own contributions.

So why does the CAS exist, and what does it do or what does it offer that is unique to it?

Whenever I think about the profitability or sustainability of an organization, I think back to a course taught by Dr. Michael Moch that I took at Michigan State’s Executive MBA program.

Dr. Moch had four core requirements or attributes of a sustainable competitive advantage. These can be held as universal for any organization, and thus form the basis for my opinion about the future of the CAS.

The four attributes of a sustainable competitive advantage are: Valued by the Customer, Rare, Difficult to Imitate, and

Leverageable in Multiple Markets. (I will define Leverageable later.)

Valued by the customer is pretty obvious—if you do not have value, the customer will not buy. And “buy” can mean exchange money, spend time, or even cast votes. But value is not enough. There must be sufficient value to incite the customer to purchase. Customers need to believe that your service is worth more than the expenditure it takes to get such service; customers need to believe they will profit by the exchange. In addition, there needs to be enough customers purchasing enough of your services to be able to support the volume of what you are selling.

Keep track of your customer. If your customer goes away, so does your market. Look what happened to the pension actuaries when the defined pension plans started disappearing.

That leads us to Rare. **Rare** implies that something is in short enough supply for the law of supply and demand to operate to the supplier’s advantage. This is tricky. Too rare and the cost gets too high, the availability too low, and the customer is encouraged to find alternate solutions or substitutions. Too common and market forces will cause cost to be the only differentiator among providers.

Difficult to imitate is important with respect to keeping the good or service rare. If it is easy to duplicate or imitate, or if substitutions are readily available, being rare is of no lasting effect. If anyone can do it, then anyone will do it. Usually, if the good or service is valuable enough, and the supply is not sufficient, there will be pressure to find alternatives to that good or service. A sufficiently high barrier to entry, described as a difficulty to imitate, is needed to prevent the good or service from becoming a commodity.

Leverageable in multiple markets is an important hedge against your prime market disappearing or diminishing, and against competition and overbreeding. Leverageable can be defined as “able to be used in alternate markets with similar success.” (I did not find it in the dictionary, but that was the meaning I recall from class.) This is the category in which expansion happens. It is also the attribute that enables an organization to survive as customers and markets change.

**Keep track of
your customer.
If your customer
goes away,
so does your
market.**

In My Opinion, page 26

By now, I suspect you have been evaluating how the CAS is doing with respect to these attributes. Here are my views.

Valued by the customer—I think we do a good job here, but there is always room for improvement. We need to continue to expand our customer base, within and outside the insurance industry. We also need to keep a keen eye on our existing as well as potential customers, the changes they are faced with, the opportunities they have, and what constitutes their competition. Think of self-insured activities when markets harden.

Rare is another area in which we seem to be doing fine. We have seen a great deal of growth in our society, and some (including my wife, Diane) say we have grown too much. I think we are at a transitional size—too small to be able to permeate all of the operations in which an actuary's skill is needed, yet too large to command the salaries we did when I first got in the business. When I think of the intersection of the supply and demand curves for actuaries, I know that the only way the cost-equilibrium point can increase is for us to increase the demand. Not much chance we will decrease the supply.

Lately, I am beginning to think that anyone who actually thinks objectively is rare in the population at large, but certainly not within our Society. People with our skills, tenacity, and desire to find and examine the truth, (rather than to believe the “spin” or “gut” of others) coupled with our logic and ability to reasonably predict future outcomes are rare indeed. It comes after much effort and practice, which might be why it is rare. Stated otherwise—to increase the rewards flowing from our work, which may include compensation, prestige, or whatever, we need to increase the demand for our services.

Difficult to imitate is now being challenged by the SOA. That organization is likely the only serious contender in our space. Certified financial advisors and MBAs can only encroach on a part of our territory, although some insurers are using MBAs instead of actuaries as product managers. Statisticians and other mathematicians have also taken over some of our potential market in pricing and predictive modeling applications of our work. We need to be aware of alternative producers of our services.


Being **leverageable** in other markets is the future of the CAS. Not that pricing and reserving will cease to be important—

they provide the basis for a lot of what we do—but our entries into ERM and financial and capital modeling are all ways we can apply our core skills and expand the market for our skills. We are doing well here by moving into nontraditional roles, but we cannot rest on our laurels. Change is the only thing that is constant. And even that comes at variable rates, sometimes as a paradigm shift and sometimes gradually and almost imperceptibly.

What is the future of the CAS? Where will we be in ten years? It is up to you. And me.

One of the most valuable things my CAS membership provides me is the connections to other actuaries in the industry, in the U.S. and around the world. I can learn all the stuff in the books, take and pass all the tests, and read as much of the published articles as I have time to read, and still miss one of the most important values of the CAS—the social and professional interactions among the actuaries. The association with others of like skills, goals, and problems gives me something valuable that I cannot get from any other place. These valuable associations cannot be easily duplicated.

You, the reader, add value to me personally when we meet at a seminar or meeting and talk shop, and when you provide me with feedback about my writings, even when it is critical of it. I am thankful to the editors of the *AR* who provide very useful guidance and insight when they comment on my writings, which happens (to your advantage) before this column “hits the press.” I gain valuable insight attending meetings and learning what is going on in the industry, the country, and globally. The recent CERA seminar was a real eye-opening experience for me. The CAS Annual Meeting offered up extremely worthwhile perspectives into a variety of subjects, and much of what I learned was during the breaks, at lunch and dinner, and, yes, even over cocktails at the receptions.

As long as we continue to meet in such settings, the CAS will offer a service that no other organization in the world can—connection among casualty actuarial practitioners. As we all strive to enhance our value proposition, the connections and learnings that flow from our involvement in the CAS are a direct contributor to our own value and that of the casualty actuarial profession. 

The association
with others
of like skills,
goals, and
problems gives
me something
valuable that I
cannot get from
any other place.

Correlations Between Accidents Years in Loss Reserve Models

Within three weeks of the publication of my November 2012 *Actuarial Review* column, “Who Can See the Black Swans,” I actually saw some. It was on a cruise Down Under, where I saw two black swans in Tasmania, and several dozen on the South Island of New Zealand. Our tour guide said that they are considered to be pests in New Zealand. Checking this out when I got home I found out that in New Zealand “about 5,000 birds (black swans) are legally shot each year out of a national population estimated at 60,000.” I also learned that the black swan is the state bird of Western Australia.¹

All of this changes, at least in my mind, the popular image that black swans represent rare, high-impact events. I found this interesting.

Getting back to business, a few of us have performed retrospective tests that suggest that most (if not all) of our currently popular stochastic loss reserve models underpredict the variability of loss reserve outcomes.² The explanations given by a number of actuaries could be summarized by saying that there are “black swan” events (i.e., changes in the claims environment) that our stochastic models do not anticipate. The gist of November’s column was to suggest that, like the real black swans, changes in the claims environment are common enough to be seen by claims adjusters, and that it is possible to use their estimates in a stochastic model that validates on a retrospective test.

This column follows up on November’s by describing one such model, and it provides R code that implements this model on Schedule P loss reserve triangles. A key feature of this model is that it allows for correlation between accident years. This differs from the currently popular models, such as the Mack model, which assume that losses in different accident years are independent.

Here is the model. Let $C_{w,d}$ denote the cumulative incurred losses for accident year w and development lag d . A Schedule P loss reserve triangle gives $C_{w,d}$ for $w = 1$ to 10 and $d = 1$ to $11 - w$. Let

$$1. \mu_{1,d} = \alpha_1 + \beta_d$$

$$2. \mu_{w,d} = \alpha_w + \beta_d + \rho \cdot (\log(C_{w-1,d}) - \mu_{w-1,d}) \text{ for } w > 1.$$

3. $C_{w,d}$ has a lognormal distribution with parameters $\mu_{w,d}$ and σ_d subject to the constraint that $\sigma_1 > \sigma_2 > \dots > \sigma_{10}$.

Line 2 resembles an AR(1) model across accident years. Like an AR(1) model, it can be demonstrated that the coefficient of correlation between $C_{w-1,d}$ and $C_{w,d}$ is equal to ρ .

To prevent the model from being overdetermined, set $\beta_1 = 0$. This leaves 10 α s, 9 β s, 10 σ s and a ρ for a total of 30 parameters to be estimated.

With the data in Table 1 taken from a real insurer in the CAS Loss Reserve Database, I used Bayesian MCMC estimation with the JAGS software package to obtain a sample of 10,000 draws of parameters from the posterior distribution. I used a uniform distribution as the prior for all of the parameters. The ranges of the priors for the α s and β s were wide. The σ_d s were constrained so that σ_d decreased as d increases. The range for ρ ’s prior was between -1 and +1. With each of the 10,000 parameter samples, I simulated lognormal random draws with each $\mu_{w,10}$ and σ_{10} starting with $w = 2$. ($C_{1,10}$ was given in the triangle.) I then summed all the $C_{w,10}$ s, by accident year and in total to get the predictive distribution for the stochastic model. The histogram and summary statistics for this model, as well as the Mack model, are given in Table 2. As expected, this model predicts a significantly higher variability than the Mack model.

Brainstorms, page 28

Table 1

$w \backslash d$	1	2	3	4	5	6	7	8	9	10
1	1,722	3,830	3,603	3,835	3,873	3,895	3,918	3,918	3,917	3,917
2	1,581	2,192	2,528	2,533	2,528	2,530	2,534	2,541	2,538	
3	1,834	3,009	3,488	4,000	4,105	4,087	4,112	4,170		
4	2,305	3,473	3,713	4,018	4,295	4,334	4,343			
5	1,832	2,625	3,086	3,493	3,521	3,563				
6	2,289	3,160	3,154	3,204	3,190					
7	2,881	4,254	4,841	5,176						
8	2,489	2,956	3,382							
9	2,541	3,307								
10	2,203									

¹ <http://www.nzbirds.com/birds/blackswan.html>

² See papers in the 2012 CLRS call paper program by Jessica Leong, Shaun Wang and Han Chen, and by me at <http://casact.org/pubs/forum/12sumforum/>.

Table 2

w	Premium	Model Estimate	Std Error	Mack Estimate	Std Error
1	5,812	3,917	0	3,917	0
2	4,908	2,545	60	2,538	0
3	5,454	4,112	114	4,167	3
4	5,165	4,316	131	4,367	37
5	5,214	3,550	123	3,597	34
6	5,230	3,321	148	3,236	40
7	4,992	5,287	291	5,358	146
8	5,466	3,809	330	3,765	225
9	5,226	4,188	609	4,013	412
10	4,962	4,205	1,294	3,955	878
Total	52,429	39,251	1,777	38,914	1,057

Figure 1

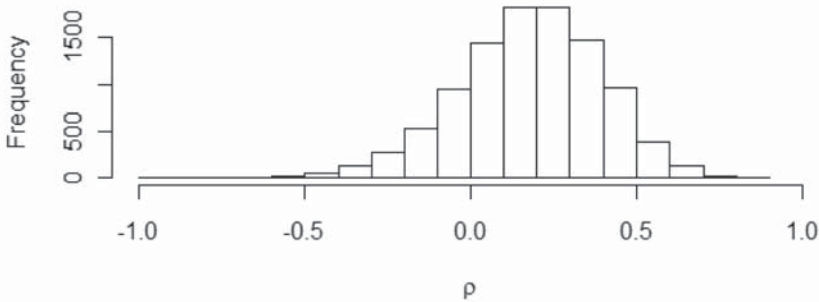
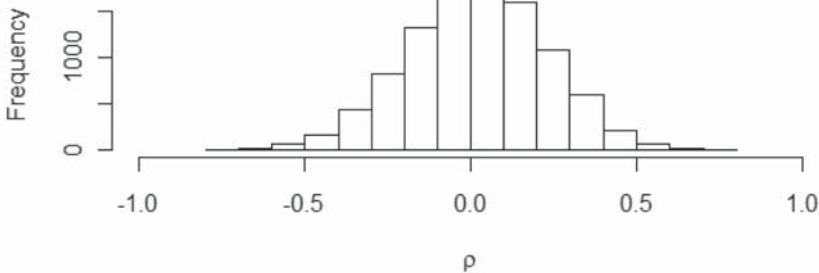


Figure 2




In a test similar to that described in my 2012 CLRS call paper, this model has been successfully validated on 200 loss triangles taken from the CAS Loss Reserve Database.

Of particular interest is the posterior distribution of the coefficient of correlation, ρ . Figure 1 gives a histogram of the ρ s that came from the MCMC simulation. The predominance of positive ρ s, which lead to higher predictive variability, demonstrates that allowing for correlation between accident years in stochastic loss reserve models is important.

I also ran this model on the cumulative paid triangle for the same insurer that I used in Table 1. Figure 2 shows that the posterior distribution for ρ is centered close to zero. As I previously reported in November's column for a similar model, when this model is applied to paid data, it does not validate on the set of 200 loss triangles. What this does show is that the autocorrelation appears to be a feature of the case reserves.

The R and JAGS code for this model are included with the Web version of this column. The code reads a Schedule P triangle in the CAS Loss Reserve Database. Since this database contains outcomes through development lag 10, the code also calculates the percentile of the outcomes from the distribution predicted by this model and the Mack model.

Note that this model is slightly different from the model in my recent paper in the CLRS call paper program. My thoughts on how best to model loss reserves are still evolving. 

The Spill-Free Beer Mug

Here's a problem a local bar had recently when selling 20-ounce beers: carousing customers were spilling a lot of the beer. In the course of clinking beer mugs and raising toasts, the mugs are often tilted at up to 45 degrees from vertical. The establishment redesigned the mug, making the inside a cylinder, open at the top. The new mug spills no beer when tilted 45 degrees. To minimize dishwashing costs, the new design minimizes the interior surface area. How full is the new mug when 20 ounces of beer are poured into it? Thanks to Jon Evans for suggesting this puzzlement.



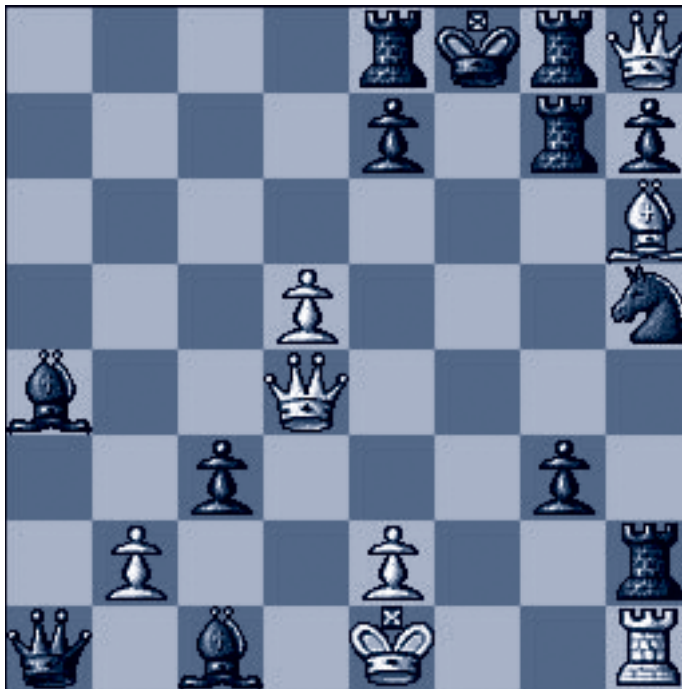
Equal Positions?

First, I am embarrassed to say that after the online November *AR* appeared, I asked the *AR* staff to replace what was the correct diagram for this puzzlement with an incorrect one. That error has now been corrected. The diagram in the print edition is the intended diagram. I apologize to anyone who tried to solve this using the wrong diagram.

Andrea Boudreau observes that at the table where White is happy, White can castle, allowing a forced mate in 3. Moves are 1. Q(d4) xR(g7) + N(h5) xQ(g7) (forced) 2. O-O+ B(c1) f4 (forced) 3. R(c4) xB(f4) ++. At the table where Black is happy, White cannot castle, and Black has an attack that White cannot defend against. If the game continues 1. Q(d4) xR(g7) + N(h5) xQ(g7) 2. R(h1) f1 B(c1) f4+ 3. K f2, the White King is on the run, and Black can keep up a strong attack.

Thanks again to Tom Struppeck for a great puzzlement!

We also received solutions from Ron Bertrand, Adam Capulong, Jeff Dvinoff, Richard Harlan, Anton Hu, Paul M. Giangregorio, Paul Ivanovskis, John Jansen, Jeff Lamy, Richard Lord, Dennis Lebedev, Kevin Lonergan, Bob Matthews, James Monaghan, Brad Rosin, David Skurnick, Étienne Trudel, David Uhland, Glenn Walker, Michael Walters, Chad Wilson and Ed Zonenberg. [AR](#)



Know the
answer? Send
your solution to
ar@casact.org.

As CROs Rise In Prominence Actuaries are Increasingly Filling the Role

LAKE BUENA VISTA, FL.—As enterprise risk management (ERM) has grown from buzzword to corporate must-have, the chief risk officer, or CRO, has emerged as an important corporate position.

At insurers and other financial firms, actuaries commonly fill the CRO role. And the job is growing in complexity while rising in prominence, as three risk officers pointed out at the Casualty Actuarial Society's Annual Meeting, November 11-14, 2012.

Moderator Stephen Lowe, a managing director at the consulting firm of Towers Watson, led a broad roundtable discussion with Barry Franklin, senior vice president and CRO of general insurance for Zurich North America; Patricia Matson, vice president of financial risk management at MassMutual Financial Group; and Mark Verheyen, a senior vice president and CRO of CNA Insurance Companies.

Most major insurers have a CRO in their senior management team, and even in these uncertain financial times, their offices are growing, Ms. Matson said. Companies new to ERM are figuring out how to structure a program while regulators worldwide are hoping to use a company's ERM program to help them monitor the company's financial strength.

Not all companies design their ERM programs the same way. At CNA, Mr. Verheyen said, he works with approximately 20 people in three core areas:

- Risk and capital modeling, in which a team of people develop computer models that help determine how much capital each business area requires. This knowledge helps the company determine whether an area's profits justify the amount of capital it needs. The group also helps in evaluating reinsurance purchasing.
- A catastrophe modeling group that builds tools for use by each business area to better assess and price for catastrophe risk.
- A core risk management and purchasing group that performs more traditional risk management functions, such as helping CNA purchase its own workers' compensation insurance.

Within Zurich, the work is organized by segment—life insurance, general (property-casualty) insurance, group operations and a separate function for Farmers Insurance Group, a major subsidiary. Each of these segments across the world has both global and regional CROs, said Mr. Franklin, who fills his company's general insurance role in North America.

Worldwide the group employs about 150 for ERM activities, he said, including the central modeling team and those responsible for internal controls over financial reporting. The Zurich North American ERM operation has a team of five, including people with backgrounds in actuarial, finance, underwriting, claims and internal audit. "As we continue to build the team," Mr. Franklin said, "we'll likely add more people with an actuarial background."

At MassMutual, Ms. Matson reported, the central ERM function includes about 20 employees, including six that handle control testing similar to that required by Sarbanes-Oxley. Ms. Matson leads a team that develops economic risk metrics, such as economic capital, to support enterprise decisions based on consideration of risk and reward.

All this enjoys significant support from company executives and boards of directors, the CROs agreed. It helps businesses take intelligent risks, Mr. Franklin said.

As the C-suite learns to depend on ERM, regulators are following suit. By 2015, the National Association of Insurance Commissioners will require an ERM-style Own Risk and Solvency Assessment, or ORSA. It will require that a company carry out one of the fundamental parts of enterprise risk management—a self-assessment of how well the company manages the risks raised by its business plan.

The panel generally welcomed the regulators' approach of trying to avoid making the ORSA rules prescriptive. Insurers generally prefer regulations that focus on the goals of the regulation rather than a "check-the-box" approach that generates a lot of busywork for companies but might not accomplish the regulator's goal.

Mr. Verheyen said that NAIC "was very flexible" in its original requirements to find out how insurers assess their own ability to manage risk. He noted that NAIC's approach may cause confusion for some insurers, because the flexibility NAIC provided means there isn't a detailed checklist of items to provide.

While Mr. Franklin liked the idea of an ORSA, the regulators' inquiries raise questions for him. He observed that the regulators require a formal statement of risk appetite, in which the company states which risks it wishes to assume and which it wishes to minimize or avoid. Such a statement would be

CROs Rise in Prominence, page 31

ICA 2014 Scientific Program Developing




The ICA Scientific Committee, chaired by Roger Hayne, will soon make publicly available a list of session topics for the 30th International Congress of Actuaries, March 30-April 4, 2014, in Washington, D.C. In response to its call for papers presentations last fall, the committee received over 230 submissions from 49 countries. This input represents the true international focus of ICA 2014. At the end of December 2012, the committee preliminarily selected over 200 submissions for further review and consideration.

Congress attendees will be able to select sessions from seven tracks: health, life, non-life, pensions/social security, enterprise risk management/financial, professionalism and consulting. Three plenary sessions will cover topics that will appeal to attendees. The committee is close to selecting the plenary session

speakers, who are well-known industry experts and academics.

With the famed Washington cherry blossom trees expected to be in bloom, attendees and guests will also be able to explore the sites and attractions of the District of Columbia, including the national monuments and Smithsonian museums, foods and flavors of this international city, and entertainment venues, plus much more.

Save the date now for the 30th International Congress of Actuaries and plan to take advantage of the world-class educational content. The non-life track will take place Wednesday, April 2 through Friday, April 4, 2014. More information is posted on the ICA website, <http://www.ica2014.org>. 

CROs Rise in Prominence, From page 30

difficult at Zurich, a company that writes both life insurance and property-casualty and does so across the globe. "Is it possible to construct a single risk appetite statement that covers the entire Zurich Group and satisfies the preferences of multiple regulators?" he asked rhetorically. "We decided that would end up being a camel with a dozen humps. How could that be summarized in an ORSA report?"

Complicating matters is a drive to harmonize financial services regulation worldwide. This would, in theory, subject companies in different countries to similar levels of regulation. And it could streamline regulation, in theory, for global carriers. But there are challenges.


Even a simple balance sheet can get complicated across political boundaries, as moderator Stephen Lowe pointed out. Some countries rely on GAAP standards. Others use IFRS. Many U.S. insurers report on a statutory basis. And ERM often focuses on economic value (the fair market value of everything the insurer owns) and economic capital (the economic cost of the risks an insurer takes on). As to which a regulator should require, Mr. Lowe responded that any of them would be acceptable "as long as it's not all of the above."

Ms. Matson worried that regulators could seek harmony by writing more regulations. "I think the intent is very good," she

said. But the level of detail is amazing "in a bad way." It's hard, she said, to have a common framework that all regulators accept and can still satisfy the business needs of management in their strategic decision making processes.

To make sure U.S. insurance concerns are heard, top risk officers formed the CRO Council. The council tries to advise regulators on any issues relating to ERM practices and is analogous to the CRO Forum, which focuses on European issues. The council also develops papers outlining sound practices in the fast-evolving trade, Mr. Verheyen said.

Actuarial training, with its focus on understanding both the underwriting and financial aspects of insurance, is a great starting spot for a would-be CRO, Mr. Franklin said. "But you don't know everything," he said. "You need to understand at a ground level how things are done within an insurance company."

Getting involved with industry committees is an important way to start working toward the CRO chair, especially with committees looking into emerging risks, according to Ms. Matson and Mr. Verheyen. Active participation is important in an emerging field like ERM, Mr. Verheyen said. "The playbook for how we do our job is being developed as we speak," he said. 

What about the “S” in ORSA? Actuaries Raise Their Hands

By Micah Woolstenhulme, FCAS

The 2012 CAS Annual Meeting general session, “Economic Capital Modeling for ORSA in the U.S. P&C Industry: The Stakeholders Convene,” afforded participants a novel opportunity to satisfy their continuing education credits. In this session, we hypothetically viewed the P&C industry as a single large company. Audience members were shareholders and session panelists adopted various executive and leadership roles in the company.

The meeting’s task was to vet an economic capital model before the board of directors, allowing individual shareholders the freedom to openly question the model’s input and results. This model, if properly developed and embedded into the company’s strategic management, would represent a key component of the Own Risk and Solvency Assessment (ORSA) Summary Report that will be required of large companies in the industry as early as 2015.

Along the way, we stopped the presentation and board discussion to poll the audience members on several interesting questions. You can find the model presentation on the CAS website for the 2012 Annual Meeting.¹

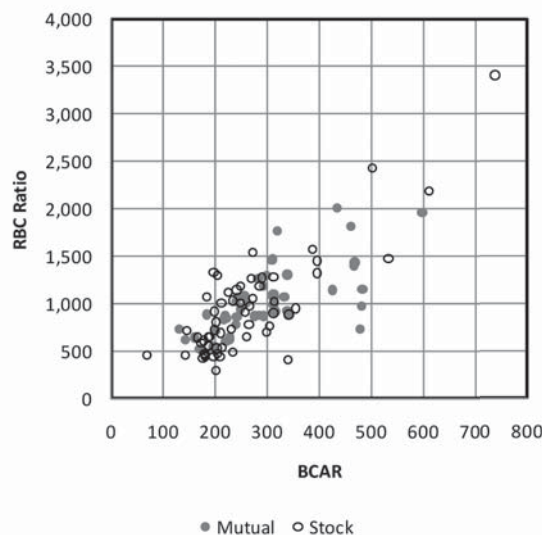
Is Solvency Modeling Necessary at the Industry Level?

Before detailing the questions and responses to the audience polling, one anonymous respondent asked if a stochastic model is useful in addition to risk-based capital (RBC) and Best’s capital adequacy ratio (BCAR) for assessing the solvency of the industry.

In Figure 1, RBC ratio is defined as the ratio of aggregate total adjusted capital to authorized control level RBC for each of 111 combined insurance groups. Plotted against BCAR, there is clearly a strong correlation between the measures, though the relationship is not perfect.

One explanation of the mismatching is that intentions are different between the measures. RBC provides legal authority to regulators to take control of companies clearly in distress. BCAR, in contrast, is intended to assess the financial capacity of a company to pay claims.

Figure 1



The NAIC has stated that, “Group risk capital should not be perceived as the minimum amount of capital before regulatory action will result . . . rather, it should be recognized that this is the capital needed within a holding company system to achieve the group’s business objectives.”²

In light of the variances between RBC and BCAR, and recognizing that the intention of ORSA requirements are to establish economically efficient capitalization targets, there is plenty of room for discussion of an industry economic capital model to enter our actuarial forums.

What follows are tallied responses to the questions put to the stakeholders.

Presentation of Model Inputs

Q: Was the presentation of model inputs sufficiently clear for the board to understand?

Response	Count	Percent
Yes	54	82%
No	12	18%
Total	66	100%

¹ <http://cas.confex.com/cas/annual12/webprogram/Session5533.html>

² See *NAIC Own Risk and Solvency Assessment (ORSA) Guidance Manual*, p. 8, http://www.naic.org/documents/committees_e_or_sa_wg_or_sa_manual.pdf.

The first section of the presentation provided an overview of key model inputs. The \$507.5 billion of industry statutory surplus at 12/31/2011 was down 1.5% from 12/31/2010. Overall reserve duration is 3.85. Expected combined ratio for 2012 is 106%, of which 4.1% is AAL (average annual loss) from property catastrophe events. Finally, a projected increase in the yield curve leads to a significant difference between the expected change in statutory surplus and GAAP equity.

Adequacy of Risk Parameterization

Q: Rate the adequacy of risk parameterization on a scale of 1 to 10 (10 being the most adequate).

Response	Count	Percent
1	2	3%
2	1	2%
3	1	2%
4	3	5%
5	7	11%
6	14	22%
7	20	31%
8	17	26%
9	0	0%
10	0	0%
Total	65	100%

Average: 6.5

The model is comprised of the following components:

- (1) Statutory filing data provided by SNL.
- (2) Risk parameters from the industry risk benchmarks research produced by Guy Carpenter and Risk Lighthouse.
- (3) Economic Scenarios provided by Barrie and Hibbert.
- (4) AIR version 14 event files for modeling losses on residential property, commercial property, and auto physical damage for three perils: hurricane, earthquake, and winter storm.

(5) The MetaRisk® modeling platform.

The most common written comment for improvement to the parameterization was that the model should be extended to a multiple-year projection, as opposed to its current single-year specification. Whereas property risks diversify across time, casualty risks accumulate, and a multiple-year projection would better facilitate risk analysis and capital allocation between these lines.

Strategic Value

Q: Do you believe the model is sufficient to influence strategic decisions?

Response	Count	Percent
Yes	44	67%
No	22	33%
Total	66	100%

Where could a model of this specification be used in the hypothetical company? Among the applications cited were capital allocation, reinsurance strategy, business strategy, target capitalization and risk decomposition.

Risk Preferences

Q: Do you find the risk preferences expressed (i.e., 50/50 weighting of 1-in-7 and 1-in-100 TVaR) appropriate?

Response	Count	Percent
Yes	39	64%
No	22	36%
Total	61	100%

The capital allocations presented from the model were based on contributing losses from two tail value at risk (TVaR) metrics, one interpreting capital as a buffer for short-term volatility, and the other interpreting capital as insurance against extreme potential losses.

It can be shown that weighting the two together (and potentially including additional TVaR levels) is an exercise


What about the "S" in ORSA?, page 34

³ See Kreps, Rodney E. "Riskiness Leverage Models," Proceedings of the Casualty Actuarial Society XCII, 2005, <http://www.casact.org/pubs/proceed/proceed05/05041.pdf>.

2012 Annual Report of CAS Discipline Committee to the Board of Directors

1. **Background.** The CAS Rules of Procedure for Disciplinary Actions (as amended May 3, 2009 by the Board of Directors) requires an annual report by the Discipline Committee to the Board of Directors and to the membership. This report shall include a description of its activities, including commentary on the types of cases pending, resolved and dismissed. The annual report is subject to the confidentiality requirements.
2. **2012 Activity.** The Discipline Committee received two cases during the year.

The first case resulted in a recommendation of public discipline, including membership suspension for two years, and was reported to the Board during the July 11, 2012, Executive Session teleconference. The announcement of the public discipline is being delayed in order to coordinate the announcement with the American Academy of Actuaries, which is currently in the process of hearing the case. If the Academy panel determines the same outcome as the CAS panel, a coordinated release will be used later this fall. If not, the CAS will announce the discipline this fall.

The second referral from the ABCD is unusual in that additional information has been forthcoming that was not considered by the ABCD. The CAS Discipline Committee has appointed its own investigator to delve further into the details before a panel is convened. The case is expected to be addressed during 2013.
3. This notice will be published in the February 2013 issue of the *Actuarial Review*.
Tom Myers, Chairperson of the 2012 Discipline Committee 

What about the "S" in ORSA?, From page 33

analogous to probability transforms such as the Wang transform, except that the riskiness leverage function³ is a step function rather than a smooth curve. The advantage to using weighted TVaR is transparency and ease of communication with executive leadership.

Overall, industry stakeholders favored the risk preferences demonstrated in the presentation, but it is important to note that choices for an individual company are unique and strongly related to the business strategy, capital structure and risk profile.


Industry Capitalization

Q: Do you believe the industry is overcapitalized, adequately capitalized or undercapitalized?

Response	Count	Percent
Overcapitalized	26	39%
Adequately capitalized	34	52%
Undercapitalized	6	9%
Total	66	100%

Whereas the prevailing view on industry capitalization is clear from the numbers, perhaps it is useful to consider the written comments of an alternative opinion. Another participant noted that not everything that is critically important can be quantified. In addition, the impact of uncertain economic situations such as deficits, taxation and the “fiscal cliff” are large enough to justify maintaining higher levels of capital for many companies, even if some would consider this overcapitalization.

Summary

Facilitating dialogue around ORSA, risk tolerances and capitalization serves several valuable purposes. Given the changes in regulatory requirements we expect in the next few years, actuaries need to become key voices at the tables of process change. With the power of more sophisticated data retrieval, modeling services and software, this type of model-driven dialogue on prospective industry financial health is possible like never before. Let's take it to the next level and keep the computers running. 

Advertisement



Our Company

Ezra Penland Actuarial Recruitment conducts the industry's leading actuarial salary surveys and employs an exceptional actuarial recruiting staff, placing all levels of actuaries. Our goal is to be the top actuarial recruitment firm in the world while serving the long-term needs of clients and actuarial candidates.

Our Partners

Founding partners Sally Ezra and Claude Penland, ACAS, MAAA, have over 35 years of combined industry experience.

Sally Ezra (sally@EzraPenland.com) has spent nearly two decades recruiting actuaries, developing strong professional relationships and a vast network of clients—clients who value her commitment, resourcefulness, her personal attention, and her high level of professional ethics. Sally knows and serves the domestic, offshore, and international markets. She works with all levels of actuaries, from students to Fellows, and has placed senior-level actuaries, chief actuaries, and consulting firm practice leaders—and she genuinely enjoys guiding actuaries through their careers. Sally has published articles in several actuarial and professional publications and has participated in round table discussions and interviews. She attends a wide variety of professional, SOA, and CAS functions each year.

Claude Penland (claudio@EzraPenland.com) has over 20 years' experience as a casualty actuary and as a Web strategist for actuarial recruitment organizations. Claude has written many articles and presentations, available at EzraPenland.com/publications, and regularly

contributes to U.S. and international periodicals on actuarial recruiting and online social networking issues. Claude has worked as a property & casualty actuary with two global insurance companies and a leading international consulting firm. His responsibilities included commercial lines and specialty lines pricing/reserving, alternative risk solutions, latent risk reserving, financial modeling, and supervisory duties.

Our Salary Surveys

We publish state-of-the-art, industry-standard, U.S. actuarial salary surveys at EzraPenland.com/salary. These surveys cover consulting, reinsurance, insurance, and all other employers of actuaries, separately. All examination levels and credential levels are considered, in one-year experience increments. Base salary and paid bonus actuarial compensation data is compiled by Claude Penland himself.

Our Website

EzraPenland.com offers much more than a sizeable number of jobs postings. Visit these helpful links:

Submit actuarial roles or job postings..... EzraPenland.com/submitjobs
Apply for open positions EzraPenland.com/contact
Subscribe to email and
RSS notifications of new roles EzraPenland.com/subscribe
Connect with various social media EzraPenland.com/socialmedia
Review client and candidate
recommendations..... EzraPenland.com/testimonials
Read recruiter biographies EzraPenland.com/recruiters
Apply for the Ezra Penland
actuarial scholarship EzraPenland.com/scholarships

Ezra Penland Actuarial Recruitment

4256 North Ravenswood, Suite 200, Chicago, IL 60613

Contact: Sally Ezra or Claude Penland; Phone: (800) 580-3972; Fax: (773) 340-4209; actuaries@EzraPenland.com; www.EzraPenland.com

CAS Announces Strategic Plan


In a letter addressed to CAS members and candidates, CAS President Gary Josephson announced that the CAS Board of Directors adopted a new CAS Strategic Plan at its November 2012 meeting. The strategic plan “sets the direction for the CAS’s continued growth and success and represents a compass that will guide our work over the next five years,” said Mr. Josephson in the letter, which was posted on the CAS website.

“As the CAS prepares to celebrate our centennial in 2014, we find ourselves in a rapidly changing environment with an evolving membership working in a dynamic marketplace,” Mr. Josephson explained. “Now, more than ever, it is important to articulate a long-range strategic vision for our organization that will chart our course through our 100-year anniversary and beyond.”

The strategic plan is the outcome of a year-long series of strategic planning meetings by the board of directors, as well

as input from the executive council, committee chairs and vice chairs, and CAS staff. It is organized around six specific areas in the CAS that provide a strong foundation to advance the organization’s mission. These areas include basic education, continuing education, influence and outreach, research, professionalism, and member community.

Along with the plan, the CAS Board adopted a planning process that calls for the plan to be reviewed annually, to make sure that the plan’s provisions are assessed against emerging issues faced by the CAS and its members.

To view the strategic plan, visit http://www.casact.org/cms/files/CAS_Strategic_Plan_2012.pdf. To provide feedback to the board, please send an email to office@casact.org. If you would like to participate in achieving any of the CAS goals outlined in the strategic plan, please contact Matt Caruso at mcaruso@casact.org. 



Casualty Actuarial Society
4350 North Fairfax Drive, Suite 250
Arlington, Virginia 22203 USA
Phone: 703-276-3100, Fax: 703-276-3108
www.casact.org

PRESORTED
STANDARD MAIL
U.S. POSTAGE PAID
LANHAM, MD
PERMIT NO. 4410

BOOKMARK THE
ONLINE CALENDAR AT
WWW.CASACT.ORG/CALENDAR

CAS

PROFESSIONAL

EDUCATION

CALENDAR

March 11-13, 2013
Ratemaking & Product
Management (RPM) Seminar
Hyatt Regency Huntington Beach
Resort & Spa
Huntington Beach, CA, USA

April 22-24, 2013
11th Enterprise Risk
Management Symposium
Swissôtel Chicago
Chicago, IL, USA

May 19-22, 2013
CAS Spring Meeting
The Westin Bayshore Vancouver
Vancouver, BC, Canada

June 6-7, 2013
Seminar on Reinsurance
Fairmont Southampton
Southampton, Bermuda

September 16-17, 2013
Casualty Loss Reserve Seminar
Boston Marriott Copley Place
Boston, MA USA

November 3-6, 2013
CAS Annual Meeting
Hilton Minneapolis
Minneapolis, MN USA

IN MEMORIAM

Ronald J. Sanko
(ACAS 1973) 1938-2012

Joseph A. Gage
(FCAS 2008) 1980-2013

Follow Us



FSC LOGO

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

SEND YOUR COMMENTS AND SUGGESTIONS TO:

The Actuarial Review
Casualty Actuarial Society
4350 North Fairfax Drive, Suite 250
Arlington, Virginia 22203 USA
Or e-mail us at AR@casact.org

