The Actuarial Review

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Submit Your Paper to *Variance*

Have you developed a unique way to solve a problem? Are your coworkers using your valuable techniques? Share your ideas with the rest of the actuarial community by submitting a paper to *Variance: Advancing the Science of Risk.*

Variance publishes a wide range of papers that help risk professionals worldwide. You may think your ideas are not important, but if other people are finding your techniques useful they are important and *Variance* wants to hear about them. *Variance* is looking for articles that provide synthesis of existing distinct processes, solutions to substantive problems, expositions of actuarial practices, compilation of current techniques, or other practical applications.

If you are not sure how to get started, www.VarianceJournal.org has many resources, from tips on writing technical papers to advice on the submissions process. Help your fellow actuaries by submitting your new idea today. AR

Submit Your Working Paper

In order to improve the accessibility of research for members and the avenues for feedback to researchers, the CAS has launched a new Working Paper section on the CAS Web Site. This will allow authors to more quickly disseminate new ideas than would be possible with a printed publication. Discussions of Working Papers, which can be considered works in progress, are encouraged and will be posted on the CAS Web Site along with the papers. Authors can use this feedback to modify their work and better prepare the paper for submission to a publication.

If you have an idea or concept that is still being developed and would benefit from feedback, we encourage you to submit your paper to esmith@casact.org. Both CAS members and non-members are invited to submit Working Papers. AR

Rogers Earns CAE

CAS Director of Finance and Operations Todd P. Rogers has obtained the Certified Association Executive (CAE) credential. The CAE is the highest professional credential in the association industry and is granted by the American Society of Association Executives. Less than five percent of all association professionals have earned the CAE.

To be designated as a CAE, an applicant must have a minimum of three years' experience in nonprofit organization management, complete a minimum of 75 hours of specialized professional development, pass a stringent examination in association management, and pledge to uphold a code of ethics. To maintain the certification, individuals must undertake ongoing professional development and activities in association and nonprofit management. Approximately 3,600 association professionals currently hold the CAE credential, which was first awarded in 1961. AR

Communicating Uncertainty – The World of Variance

The future's uncertain and the end is always near. – Jim Morrison

Perhaps the name of our new refereed journal *Variance* will be more prophetic than we might have ever imagined. Through our study of mathematics in college and our preliminary actuarial examinations, we were focused upon developing the right answer. We learned there was one and only one right answer. The users of our work products, be it in the rate or reserve application, have expected the development of a single value for the indicated rate level, indicated rate change, or unpaid claim estimate (aka indicated reserve level). We have been primarily focused upon the estimate of the mean. As the actuarial profession develops additional sophisticated analytical tools, we should be able to increase our focus upon the relative uncertainty around our point estimates in a positive way.

The life and pension actuarial practice areas are moving from a formulaic approach towards what is referred to as a principles-based approach, which brings uncertainty into the discussion. The common methods used by casualty actuaries fall into the principles-based approach. The area of uncertainty and its communication has been a topic of discussion among some leaders of the U.S.-based actuarial associations. Since casualty actuaries have some experience with the concept, we may be in a great position to be a lead contributor as the process and tools develop.

A couple of examples from other forecasting professions that have changed to reflect uncertainty might provide some insight as to the increased value created.

The forecast of tomorrow's weather initially had singular comments such as sunny, cloudy, rain, snow, etc. The field developed with the introduction of probabilities such as 30 percent chance of rain. More recently, some local weather forecasters have provided high or low temperature guarantees. They contribute to local charities if the actual daily high or low temperature falls more than 3 degrees above or below the forecast. This is an interesting way to combine a point estimate with the possibility of other outcomes. This presentation reminds me of the classical credibility concepts.

In this American presidential election year, we will often see another example of a profession combining uncertainty with a point forecast. The various polling firms provide daily estimates of the election results weeks or even months in advance. These polls include an additional comment on the forecast uncertainty by providing a margin of error. For example, Candidate A leads with 52 to 47 percent with a margin of error of plus or minus 3 percent.

With the advent of the actuarial opinion on loss and loss adjustment reserves in the mid-1980s, the concept of a reasonable range was introduced into the vocabulary of the casualty actuarial field. Just like the weather and election forecasters, we are moving to an environment where, along with a single point estimate, additional information regarding the surrounding uncertainty can and should be provided. We need to increase our disclosure of uncertainty in a useful fashion while not giving the impression that any old estimate within the range will do.

As more sophisticated analysis tools develop, the estimate of the mean and some measure of uncertainty (i.e., the variance, percentiles, or probability distributions) can be used to assist our employers and clients to more effectively understand the impact of their decisions. This additional uncertainty information should provide great value to the users.

Traditionally, we have been concerned that the use of ranges might encourage the recipient to consistently choose the low or high end of the range depending upon the purpose. The use of probabilities might help in the uncertainty communication area as well.

Think of our typical ratemaking application. Say the recommended rate level is roughly the 55th percentile of the distribution–just knowing the percentile would be a potential improvement. In the past when a different rate level was selected, actuaries would typically calculate the revised expected profit provision from the selected rate level. In a more sophisticated analysis, we could provide an estimate of the probability that the experience at that selected rate level would be profitable at various percentages.

The potential applications are tremendous. Maybe the name of our new journal, *Variance*, will encourage usage of the uncertainty concept to a greater extent in our work products in the very near future. AR

PAUL E. LACKO

Long-Time Members Laid the Groundwork

Stan Khury sent us an e-mail several months ago suggesting that the *Actuarial Review* bring back a column called "50-Year Fellows," which posted notice of actuarial golden anniversaries. Member Resource Center staff at the CAS office dug into the membership database and compiled a list of CAS members at the absolute highest levels of seniority. Nearby are two lists. One is the roster of CAS members who attained Fellowship on or before December 31, 1958, and are still around to wonder how all the years went by so quickly. Congratulations! Younger CAS members recognize many of your names from the CAS syllabus readings. According to the CAS membership database, our eldest statesman is Morris Kole, who attained his FCAS designation in 1941. Hats off to you, sir.

We also want to recognize our senior "career Associates"—CAS members who attained the ACAS designation before December 31, 1958, and, for whatever reason, did not complete the Fellowship exams. You deserve more than a little credit, as well, for your years of service to the industry and to the CAS. Some of your names are also familiar to many readers from the syllabus readings.

Whether or not you wrote ground-breaking articles, you all had a hand in building the CAS and the insurance industry to what they are today. (I mean that as a compliment!) The textbooks in today's exam syllabus are like cookbooks: here are the materials you need, here's how you combine them, add in a tablespoon of this, multiply by a dash of that, sum over the integral from here to there, bake for one hour, and submit to the proper authority for approval. You didn't have the luxury of learning all these ideas, concepts, terminology, and methods from actuarial cookbook recipes. You discovered them, or invented them, and found ways to apply them when "advanced technology" was a desktop adding machine with a hand crank. You were the actuarial chefs slaving over the hot stove, developing the recipes from scratch and learning by trial and error what worked best.

The actuaries of your generations taught the people who taught us, as well as many of the people who taught the people who taught us.

It's so easy to take for granted nowadays the work you all did... Younger generations just never appreciate what their elders went through, do they? It seems so *yesterday* to use numerical approximations and closed-form equations, to draw a graph with colored pencils and a straightedge. We have more computing power on one desktop than used to be available in the entire industry. We build on the groundwork you laid.

Thank you.

Say, if you're running out of things to do, I would point out that the U.S. Congress could use more balance. It's overloaded with lawyers. We need senators and representatives with number skills, financial backgrounds, and a deep understanding of adverse selection, moral hazard, and the law of unintended consequences. I'd vote for you.

Whether or not you wrote ground-breaking articles, you all had a hand in building the CAS and the insurance industry to what they are today.

CAS Fellows for at least 50 years by 12/31/08		
Member	**Year of Designation**	**# of years as an FCAS**
Morris B. Kole	1941	67
Loring M. Barker	1947	61
M. Stanley Hughey	1947	61
Matthew Rodermund	1947	61
Norman Rosenberg	1947	61
Ruth E. Salzmann	1947	61
John W. Wieder Jr.	1947	61
Frank Harwayne	1950	58
Francis J. Hope	1950	58
Lee M. Alexander	1951	57
Charles C. Hewitt Jr.	1951	57
Earl F. Petz	1951	56
Robert A. Bailey	1954	54
LeRoy J. Simon	1954	53
Thomas W. Fowler	1955	53
Richard Lino	1956	52
Roy H. Kallop	1956	52
John H. Muetterties	1956	52
James R. Berquist	1957	51
Ronald L. Bornhuetter	1957	51
Stephen S. Makgill	1957	51
Richard J. Mills	1957	51
Allen D. Pinney	1957	51
P. Adger Williams	1957	51
Lester B. Dropkin	1958	50

CAS Associates for at least 50 years by 12/31/08		
Member	**Year of Designation**	**# of years as a member**
Eli A. Grossman	1940	68
Charles M. Daniel	1952	56
Geoffrey Crofts	1953	55
John Harack	1953	55
Glenn O. Head	1953	55
Justin Schulman	1954	54
William D. Coates	1955	53
Roy A. Berg	1956	52
Paul R. Flack	1956	52
Lloyd F. Mathwick	1956	52
James H. Woodworth	1956	52
John M. Bragg	1957	51
Martin F. Feldman	1957	51
Stanley C. DuRose Jr.	1958	50
John W. Schlenz	1958	50
Marvin E. VanCleave	1958	50

U.S. Economic Problems Should Have Muted Impact On P&C Insurers

BOSTON, Ma.—The weakening economy and credit crunch will have a muted impact on property/casualty (P&C) insurers, Dr. Robert P. Hartwig, president of the Insurance Information Institute (III), told attendees of the CAS Ratemaking Seminar on March 18.

In a general session, Dr. Hartwig noted that despite the slowdown in the U.S. economy, the P&C industry will be somewhat cushioned from its effects.

"Insurers are in a better position than banks and many other segments of the economy. The vast majority of P&C insurance business (98 to 99 percent) is related to renewals and is going to be renewed," he said.

Hartwig also observed that the impact on insurers in terms of exposure growth would be marginal, because many types of insurance, such as workers compensation and auto liability, are compulsory.

While insurers are sensitive to interest rates, Hartwig said the silver lining is that historically the industry's best underwriting results over the last 100 years have been turned in during or following periods when interest rates were low.

"This decade is no exception. That focuses management on underwriting and turns their attention to understanding that you're not going to be able to pay for poor underwriting and pricing decisions with what you've earned on the investment side of the equation," he said.

Even though the P&C industry produced strong financial results in 2006 and 2007, the slow cyclical and economic growth environment ahead does represent a challenge for insurers.

Hartwig noted that in 2006/2007 the P&C industry's overall profitability reached its highest level since 1988, with estimated returns on equity (ROEs) of 13 to 14 percent. But the industry is now past its peak, he said.

"Profits in dollar terms peaked at about $64 billion in 2006. They are headed down now, not surprisingly, as we move further into the soft market and the pricing situation produces a deterioration in the underwriting results," explained Hartwig.

The reality is that, on average, the P&C insurance industry does not exceed the Fortune 500 group profitability benchmark, even in peak years of profitability, he noted. Industry ROEs across personal, commercial, and reinsurance lines are all now declining.

"If history is any guide, the industry has peaks of profitability and troughs of profitability that are about 9-10 years apart from one another. If this cycle is like the past three or four cycles, it would mean in 2010 we would generate a low single-digit ROE," Hartwig said.

"That is literally the $64 billion question. Is this cycle going to be different from the past?" he added.

Hartwig went on to outline some of the key factors that will influence the length and depth of the underwriting cycle, such as capacity.

He noted that the industry has had rapid surplus growth in recent years that has left insurers with as much as $85 billion to $100 billion in additional capital, according to analysts. At the same time, management is working to return capital to shareholders through share buyback programs, the value of which reached an all-time record high in 2007.

"Rising capital can lead to greater price competition. That's what happened in the 1990s. Ultimately if it goes far enough, it takes you into the area of large-scale underwriting losses and maybe reserve deficiencies," he said.

However, unlike a decade ago, right now reserve adequacy is in the best shape in years, which could extend the depth and length of the cycle, he observed.

Turning to investment gains, Hartwig noted that with sharp declines in stock prices and falling interest rates, portfolio yields are certain to fall, contributing to greater market discipline. Rating agencies are also quicker to downgrade companies, resulting in greater focus on cycle management.

Meanwhile, managements today are able to make faster adjustments to price, underwriting and changing market conditions than in previous soft markets because they have better tools in terms of information systems, he added.

Hartwig concluded that after an extremely strong 2006 and 2007, insurers will have to rely on momentum and discipline to see them through 2008 and beyond.

"You as an insurer are facing the same expected losses in 2008 as you did last year, but if the investment side of the equation is going to contribute less to the bottom line, then the rest of the income has to come from the underwriting side."

"Many people outside the industry don't understand that," he said. AR

Mass. Commissioner Says Auto Insurance Reforms Deliver Competitive Market and Consumer Choice

BOSTON, Ma.—The Massachusetts personal auto insurance market is more competitive and offering drivers greater choice in the wake of recent reforms, Massachusetts Insurance Commissioner Nonnie Burnes told attendees of the CAS Ratemaking Seminar on March 17.

In a keynote speech, Commissioner Burnes gave an overview of reforms passed last year that will allow personal auto insurers in Massachusetts to offer competitive rates as of April 1—a move that will create a more open market for the first time since 1977.

Commissioner Burnes explained that for 30 years the Commissioner of Insurance had fixed and established the auto rates for the entire state. This led to a situation where good drivers were subsidizing the bad and fewer insurance products were being offered.

"In 1977, we had over 100 insurers writing private passenger auto in Massachusetts. From the early 1990s to 2007, 35 companies left the state. By 2007, there were just 19 companies writing private passenger auto, and I don't think there is another state that comes close to that," she said.

Commissioner Burnes noted that this was a dangerous situation for Massachusetts. "There were so few insurers and some insurers were amassing a pretty significant market share. This was not a good place for the Massachusetts consumer to be, to say nothing of the auto market itself."

As a result, in July 2007 she decided there was sufficient competition to open the market without rates becoming excessive, inadequate, or unfairly discriminatory.

All companies that wanted to write policies as of April 1 were required to file their rates as of last November. "We had rate changes ranging from -2.2 percent to -15.5 percent—a huge range. These policies are now starting to renew," she said.

"We also have one new insurer who has filed to write auto insurance starting May 1, so there is a lot of activity going on. Companies are competing for customers," she added.

The Department of Insurance is also making an effort to give Massachusetts consumers as much information as possible, to better arm consumers who shop for their own auto policies. For example, Commissioner Burnes noted that the department has launched a Web site where consumers can view sample rates from insurers writing in the state.

Commissioner Nonnie Burnes

She explained that one of the most contentious parts of the reforms was the issue of whether or not to allow insurers to use socio-economic factors in the rating process. "We banned a lot of socio-economic factors from both rating and underwriting. That was very hotly contested. But the middle-ground was: here is a group you cannot use," she said.

Turning to the coastal homeowners insurance market in Massachusetts, Commissioner Burnes outlined the challenges of the current market environment for consumers, insurers and regulators. "This is a problem for which I as a regulator have few strings to pull," she noted.

The Commissioner said part of the issue is that "people just move to the higher risk areas" and that insurers have been managing their risk by reducing their exposure or withdrawing from the market.

She noted that there are a number of proposed solutions, including establishing a state catastrophe fund, revamping the state's Fair Access to Insurance Requirements (FAIR) plan, and establishing a wind pool.

"None of these seem satisfactory in isolation and many of these solutions are outside the scope of my authority," she observed, adding: "For the regulator this is a real conundrum. The consumers want low prices and high coverage but companies want to manage their exposure to risk. Meanwhile, the government wants availability and affordability for consumers and we want a healthy insurance market." AR

ERM Lessons from the Credit Crisis

By Jonathan Bilbul, U.K. Correspondent

Which car can travel faster around a race track, one with brakes or one without? A car will face many obstacles, let alone many bends in the track before it reaches the finish line. The ability to brake allows the race car driver to slow down to meet these challenges and to accelerate only when there is the most gain to be had. Similarly, companies want to be resilient in the face of risk and also to be able to exploit it should opportunities for gain arise. Especially in the financial community, an enterprise risk management system that is quick and responsive to change is central to ensuring success.

Solvency II, the new regulatory regime to be implemented across the European Union in 2012, recognizes the ability of insurance companies to use risk management systems to their benefit. The Use Test of internal models ensures that risk measurement and key decision making processes throughout the organization are aligned. Much more than a regulatory requirement, having a handle on a company's risks can be a recipe for success if the information provided is relevant and timely.

Insurers can learn much from banks, our sister companies in the financial sector, and the hardship they have experienced in the recent financial turmoil. Banks also use internal models to measure risk associated with their activities and for management decisions. However, the banks' models came into question when daily trading losses in the third quarter of 2007 exceeded the possible losses indicated by the Value at Risk (VaR) measure at a 99% confidence level on several occasions. While two or three such occurrences can be expected in a typical year, some investment banks reported as many as 16 exceptions. If the internal models do not accurately represent the risk inherent in positions taken, then the models cannot be effectively used to guide management decision.

Some examples will help illustrate enterprise risk management failures as demonstrated by the current credit crisis. First, two failed business strategies will be examined.

The credit crisis triggered a run on Northern Rock, the first time this had occurred on any British bank in 140 years. While the bank was always technically solvent, with asset values exceeding liabilities, it faced a liquidity problem. Northern Rock's strategy placed far greater reliance on money markets to fund its mortgage lending than any other retail bank. When investors lost their appetite to finance any mortgage-related activities, whether subprime or not, the bank was no longer able to meet its required payments.

In September 2007, Northern Rock sought emergency funding assistance from the Bank of England, the lender of last resort. By last February, the government had provided £25 billion in loans and £30 billion in guarantees. The ultimate solution was to nationalize this troubled bank.

Bear Stearns was another victim of the fallout from the subprime mortgage crisis. Its business model was highly dependent on the U.S. fixed income market. While this investment bank flourished from 2001–2007 when interest rates were low and the housing market was booming, its luck ran out when demand for securities backed by subprime mortgages faded. Its capital cushion of $17 billion evaporated within a matter of three days from March 13 through March 15, 2008. This led JP Morgan Chase, backed by the Federal Reserve, to make a buy-out offer at $2 per share (later raised to $10) when its stock had traded as high as $171.51 a year earlier.

The failings of Northern Rock and Bear Stearns show how strategies are doomed to fail when expected future financial conditions fail to materialize. To put it another way, they both hit the crash barrier because they failed to apply the brakes at the right time. In contrast, Lehman Brothers, another large investment bank, had also been heavily dependent on the fixed income markets about ten years earlier. However, it took steps to diversify its revenue sources and has not suffered the same fate as Bear Stearns.

Further examples of the difficulties faced in the credit crisis are found by examining the stories of large monoline insurers, such as MBIA and Ambac. The financial strength of these companies was questioned since they underwrote insurance policies that promised to indemnify bondholders from issuer default, certain of which were for mortgage-backed securities. Their top notch, AAA credit rating was placed under review by the rating agencies and any downgrade might have had severe effects on the cost of borrowing in the larger economy.

These insurers guarantee, amongst other things, debt issued by governments to build hospitals, roads, and schools. Any downgrade of the insurers would imply increased borrowing costs for bond issuers who acquire the same credit rating as their insurer. Additional capital had to be raised by both companies by issuing stocks and bonds and eliminating dividend payments in order to reinforce their financial strength and maintain their credit ratings.

These are only a few examples of the difficulties faced during the credit crisis. In the first two cases, the companies ceased to

exist as independent firms, while in the third, certain monoline insurers were forced to seek additional capital from various sources.

Why have internal models not been more robust at estimating the risk inherent in companies' activities? The recent prior years used to calibrate these models were of benign market conditions. Models used by banks that incorporate results from one to five prior years of history would not reflect the volatility and extreme events of the second half of 2007.

There are two possible solutions: either build models that are more responsive to current conditions or calibrate models over a longer time horizon to incorporate a more realistic level of volatility. In either case, judgment is required to assess the appropriateness and completeness of the data used.

According to the Use Test under Solvency II, internal models should reflect the risk profile of the company and be based on current information. However, this is easier said than done. It requires a slick and quick process that allows for the latest data to be continually incorporated into the calibration model. The model should be compared, on a regular basis, to actual experience in order to validate its accuracy, but the user should also question whether deviations of actual from expected are sufficient to warrant a change in parameters or assumptions. For example, a property and casualty insurer that sees poor underwriting results emerge in the first quarter might cause it to question the realism of its business plan and the likelihood of the various possible outcomes. In response, the insurer should take proper action to mitigate unfavorable outcomes and their resulting effects on capital.

Another example relates to price inflation. With the prices of oil, gold, and wheat achieving new heights and unusual levels of volatility, inflation has become more difficult to predict. Current data will change estimates of future inflation, which will lead to different conclusions on how to mitigate or capitalize this risk. Similarly, new levels of volatility in asset markets could cause a financial company to question whether the probability of missing a dividend payment or failing to meet rating agency requirements had reached an unacceptable level.

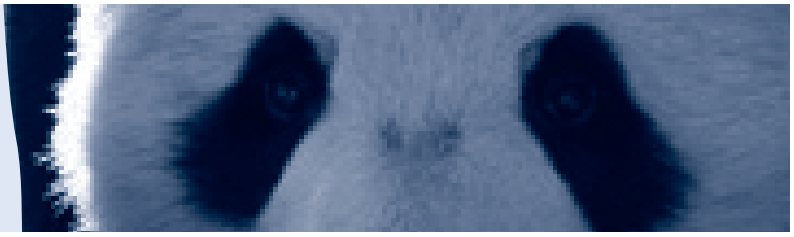
However, incorporating the most recent data will not be sufficient on its own to ensure that the company develops appropriate long-term business strategies. In this case, incorporating a longer time horizon of historical data that encompasses a more complete set of possible events is desirable. In the case of the credit crisis, similar events occurred as recently as 1998, typified by the collapse of the Long Term Capital Management hedge fund. Then, too, an increase in the credit spreads between risk-free and risky bonds caused significant losses in a particular arbitrage trading strategy that was supposed to be risk-free. The credit crisis and "flight to quality" in the bond market at that time was caused by the Russian government defaulting on its treasury debt and came on the back of Asian financial market turmoil. It is true that stress testing of assumptions is required when recent history does not provide adequate precedents. However, in the case of the current credit crisis, an historical benchmark for performance was readily available.

The failings of Northern Rock and Bear Stearns show how strategies are doomed to fail when expected future financial conditions fail to materialize. To put it another way, they both hit the crash barrier because they failed to apply the brakes at the right time.

Companies that are suited to withstand future crises are those with appropriate enterprise risk management practices in place. Current and timely results are required to inform appropriate management decisions. Similarly, the cars most likely to cross the finish line at a race are those capable of slowing down to meet the challenges on the road.

Jonathan Bilbul, FCIA, FCAS, is a consultant at EMB Consultancy in England. He can be contacted at jonathan.bilbul@emb.co.uk.

CLRS Set For Washington D.C.



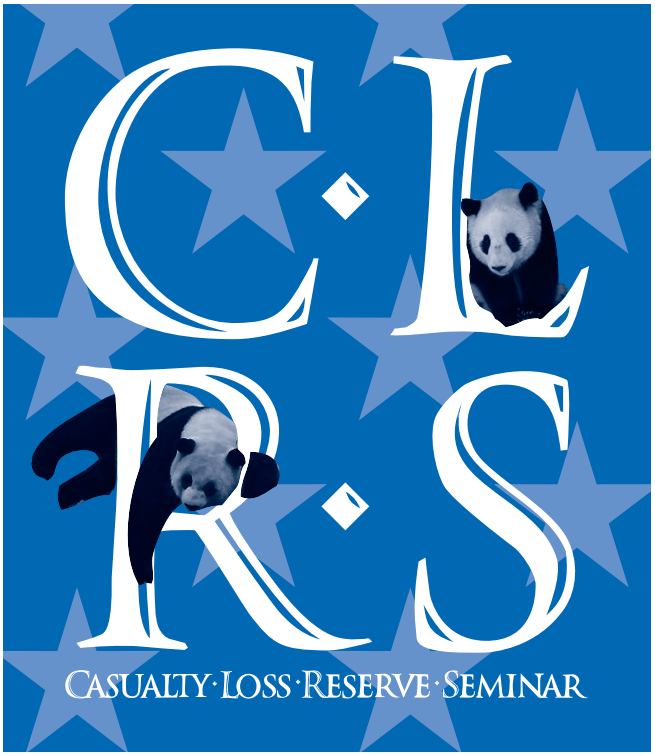
The 2008 Casualty Loss Reserve Seminar (CLRS) will offer actuaries, analysts, accountants, regulators, and other interested parties an opportunity to learn more about loss reserves in today's fast-changing environment. Attendees will also be able to receive 15 continuing education credits during the seminar held at the Omni Shoreham Hotel in Washington, D.C., on September 18-19.

The theme for this year's seminar is "New Rules, New Standards: A Practitioner's Guide to Traversing Troubled Waters." The seminar will feature two general sessions, one addressing fair value accounting and the other covering Actuarial Standard of Practice 43, Property/Casualty Unpaid Claim Estimates.

The CLRS sessions will acquaint attendees with basic and advanced topics in finance and financial risk management, including applications to the pricing and analysis of property/casualty insurance. The sessions cover a variety of topics and tracks, including reinsurance reserving, financial reporting, variability and ranges, international issues, catastrophes and mass torts, professional development, emerging issues, and other areas specific to individual lines of business.

Additionally, the CLRS is a great occasion to learn about the activities of the sponsoring organizations—the Casualty Actuarial Society, the Conference of Consulting Actuaries, and the American Academy of Actuaries—as they continue to respond to the evolving insurance environment. Learn about what they are doing as a profession to improve the actuarial work product and the Statement of Actuarial Opinion. CLRS attendees are invited to share their own views, criticisms, and concerns on actuarial communication and the reserving process, and to participate in a number of interactive sessions.

Don't miss this opportunity to learn and network! More information on sessions and registration will be posted on the CAS Web Site soon. AR



The University of Regina to Host 2008 Actuarial Research Conference

Academics and practitioners will gather at the 43rd Actuarial Research Conference (ARC) on August 14-16, 2008. The conference is an opportunity for academics and practitioners to meet and discuss actuarial problems and solutions. It is also a forum for discussing general issues regarding actuarial education.

This year's conference will be hosted by the University of Regina in Regina, Saskatchewan, Canada. The CAS and other actuarial organizations in North America are cosponsoring the conference. For more information, contact Sofi Garcia, Society of Actuaries Project Specialist, at sgarcia@soa.org or (847) 706-3597. AR

2008 Spring Meeting: A Joint Affair in Canada in June

Fairmont Le Château Frontenac

Come to the 2008 CAS Spring Meeting and experience the unique charm and history of Québec City as it gears up to celebrate its 400th anniversary this summer. Our meeting location, Fairmont Le Château Frontenac, is situated on a picturesque bluff overlooking the St. Lawrence River. Many consider Le Château the heart of Old Québec. The meeting will be held June 15–18, 2008. The meeting on the 15th through the 17th will be at Le Château Frontenac while the meeting on the 18th, held jointly with the Canadian Institute of Actuaries (CIA) and the Society of Actuaries (SOA), will take place at the Québec City Convention Centre. The CAS also designates this educational activity to have a maximum of 22.8 CE Credits; 3.0 credits out of the total meeting CE Credits will be in the area of professionalism education.

Monday's keynote speaker, Evan Mills, Ph.D., is a staff scientist at the U.S. Department of Energy's Lawrence Berkeley National Laboratory, one of the world's leading research centers on energy and environment. Dr. Mills' work includes the effects of global warming and climate change on natural and economic systems. Dr. Mills will address the mounting recognition within the insurance community that the impact of climate change on future insured losses is likely to be profound. The growing destructive power of extreme weather events coupled with increasing insured exposures poses a material financial challenge to insurers. However, leading insurers are mobilizing a wide array of creative and proactive strategies to get in front of the problem. After presenting the scientific basis of climate risk for insurers, the talk will review a wide spectrum of insurance opportunities.

In today's variable world, no actuarial society is an island. Wednesday's luncheon will feature a round table of the presidents from the sponsoring organizations. The SOA, CAS, and CIA all address many of the same obstacles and opportunities, as well as their own unique concerns. The presidents of these Societies will discuss a range of topics including the growth of the profession into nontraditional areas like ERM, recent changes to the continuing professional development requirements of their respective Societies, and various emerging technical issues, such as the shift from developing models to interpreting models.

Four general sessions are also planned. See the box on page 12 for details.

Concurrent Sessions

On the 16th and 17th, concurrent sessions will delve into topics including public insurers in Canada, reserve ranges, Standards of Practice, predictive modeling, claim audits, underwriting audits, the market cycle, solvency, reinsurance, corporate governance, 2007 Hachemeister Prize Paper, 2008 Discussion Papers (practical application of multivariate statistics), *Variance* papers, and much more!

The joint day on the 18th affords CAS meeting attendees the opportunity to attend concurrent sessions organized by each of the three Societies, including the presentation of the 2007 ARIA Prize Paper. Session topics include predictive modeling, medical trend/inflation, measuring operational risk, non-traditional reinsurance, negotiation skills, International Actuarial Association, loss reserve discounting, product development, taxation, financial reporting standards, Internet insurance marketing, and a risk and capital roundtable.

Travel and Meeting Tips

As you make your travel plans, please note that the meeting will not end until 3:30 p.m. on the 18th and passports are required for entry into Canada. Also, be prepared to print your handouts in advance, because the Spring Meeting is going "paperless." You will be able to access slides online prior to the meeting. Look for the brochure and registration information in the mail and at www.casact.org.

Coming Events, page 12

Coming Events, From page 11

2008 Spring Meeting General Sessions

Economic Capital Modeling: A Report-Card—Over the last five years enterprise risk models have become instrumental in how we view our business. Modelers face crucial questions every day concerning areas such as expectations, reliance, and techniques. This roundtable discussion will explore the successes, failures, and opportunities of our modeling efforts.

Insurance and Reinsurance Runoff—Estimates of the global run-off market place are well in excess of $500 billion. As companies focus on optimizing the use of capital, capital tied up in nonproductive run-off business will be regarded as an inappropriate use of shareholders' funds. What are the implications for the market and how best can these risks be managed?

Catastrophe Modeling Update—Representatives from the leading catastrophe modeling firms will describe the post-Katrina landscape. They will discuss the lessons learned from recent catastrophic events and some advances that have been made in the application of catastrophe models. Specific topics to be covered include demand surge and pandemic modeling.

Sustainability Management—Sustainability risk management deals with risks emanating from the environmental and social justice areas. This presentation will discuss sustainability—what it is and what it means for your company. It will include some of the benefits and challenges associated with becoming sustainable, and show that sustainability is a key part of who we are and what we do for our customers.

Manchester, England, to Host 38th ASTIN Colloquium in July

ASTIN invites you to come to Manchester to learn about emerging issues, Solvency II, and ERM at its annual colloquium. The opening session will be presented by Professor Julia Slingo, the eminent climate change professor in the U.K. Manchester and its attractions are heavily featured in the social and accompanying persons program.

The Actuarial Profession is hosting the 38th ASTIN Colloquium at the historic Town Hall in Manchester on July 13-16, 2008. ASTIN is the section of The Actuarial Profession for non-life (general insurance or property/casualty) actuaries and researchers worldwide and is the only actuarial organization of its kind in the world. Its annual colloquium is the top international conference bringing together academics and practitioners with mutual interests in the field of non-life insurance and insurance enterprise risk management. The breakout sessions will offer plenty of opportunities for discussion on the practical applications of the papers presented while still accommodating the theoretical debate for which ASTIN is well-known. Members of the actuarial professional can claim up to 15 hours continuing professional development credits.

For more information about the conference and to register, please visit www.actuaries.org/ASTIN2008, or Actuarial Studies in Non-life Insurance, is a section of the International Actuarial Association, which is part of The Actuarial Profession.

2008 ERM Call for Papers Award Winners Announced

Three awards to recognize outstanding research papers on ERM topics were announced at the 2008 ERM Symposium, held April 14-16 in Chicago. Authors submitted 32 papers, covering theoretical and practical topics, in response to the 2008 ERM Call for Papers.

The Actuarial Foundation's ERM Research Excellence Award for Best Overall Paper was awarded to B. John Manistre for his paper, "A Practical Concept of Tail Correlation." The award included a monetary prize of $4,000.

The PRMIA Institute's Award for New Frontiers in Risk Management, with a monetary prize of $3,000, was awarded to Klaus Böcker and Martin Hillebrand, who co-authored "Interaction of Market and Credit Risk: An Analysis of Inter-Risk Correlation and Risk Aggregation."

Don Pagach and Richard Warr received the Joint CAS/CIA/SOA Risk Management Section Award for Practical Risk Management Applications, along with a monetary prize of $3,000, for "An Empirical Investigation of the Characteristics of Firms Adopting Enterprise Risk Management."

These three papers, along with six others, were presented by the authors during sessions at the 2008 ERM Symposium. All of the research papers submitted to the 2008 ERM Call Paper Program are available for download from the ERM Symposium Web Site at www.ERMSymposium.org.

"There were many outstanding papers submitted during this call for papers and I regret that we could only acknowledge three," commented Max Rudolph, who chaired the program. "The presentations were stimulating, with a good mix of papers from both practitioners and academia. The body of knowledge of ERM is advancing at an exponential rate, and I encourage actuaries to read these papers and keep pace with the cutting-edge practice and theory of ERM."

"In addition to outstanding authors, the call for papers benefited from an inspiring group of volunteers and staff, who spent much time and effort reviewing the papers and working with the authors. We're already looking forward to next year's program," he added. "Authors should start thinking about ideas for papers now. We are always looking for those documenting best practices in ERM, along with papers that expand our working knowledge. All types of papers are accepted."

The 2009 ERM Call for Papers will be announced in July. Questions regarding the ERM Call Paper Program should be directed to Steven Siegel, Research Actuary, Society of Actuaries, at ssiegel@soa.org. AR

Get Continuing Education Credits for Peer Reviewing!

Are you willing to serve as an occasional peer reviewer for *Variance*? Do you have experience or interests in particular areas of actuarial science? You probably do! Your real-world expertise developed from years of actuarial work makes you uniquely qualified to serve as a peer reviewer for an applied actuarial science journal like *Variance*.

The *Variance* Editorial Board is building a database that lists potential peer reviewers and their fields of expertise. This database will supplement our dedicated staff of Editorial Board peer reviewers who regularly review papers. Sometimes there is a need for peer reviewers with special expertise. At other times the flow of papers is so heavy that a few extra reviewers are needed.

What's in it for you? Here are some of the benefits:

- You can claim Continuing Education Credits for peer reviewing! This is especially valuable with the new requirements that started in 2008.
- You will expand your knowledge of actuarial science.
- You may be stimulated to write a paper.
- You will help the CAS promote education and research in property/casualty actuarial science.

Thanks to the many people who signed up using the 2007 CAS Participation Survey. If you did not sign up via the survey and are willing to add your name to the peer reviewer database, please go to www.variancejournal.org, choose the pull-down menu "About *Variance*," choose "Expert Sign Up," and follow the instructions. AR

CAS Board Approves Changes to the Basic Education and Examination Structure

By Nasser Hadidi, Chairperson, CAS Syllabus Committee

Over the years, the CAS has initiated a number of changes to its basic education and examination structure in order to keep pace with marketplace realities. The latest effort to consider substantive changes began in 2004 when the CAS Board of Directors commissioned a task force to consider revisions to the educational requirements to achieve Fellowship, with a focus on the upper level exams. That effort led to a series of cascading steps, as chronicled in the time line below, which culminated in some decisions at the March 11, 2008, Board of Directors meeting. During that meeting, the board reviewed and unanimously approved changes to the CAS education structure.

Features of the Revised Basic Education System:

a. Validation by Educational Experience (VEE)—Economics, Corporate Finance, and Applied Statistical Methods. The revised structure does not call for any changes to VEE.

b. Preliminary Actuarial Exams—Probability, Financial Mathematics, Financial Economics, Life Contingencies and Statistics, and Construction and Evaluation of Actuarial Models. The revised structure does not call for any change to the content of the Preliminary Actuarial Exams. Currently the exams on Probability and Financial Mathematics are offered by computer-based testing (CBT). The CAS, CIA, and SOA intend to move the other jointly sponsored exams to CBT by the end of 2011.

c. A self-paced Internet-based course in two modules consisting of:
   i. Introduction to P&C Insurance, Insurance Operations, Specialized Lines of Business, Miscellaneous Ratemaking Topics, Actuarial Control Cycle.
   ii. Insurance Accounting Principles, Reinsurance, Background Law, Regulation of Insurance (offered in Canadian and U.S. versions).

d. A four-hour exam covering Basic Ratemaking and Basic Reserving.

Time Line–Chronicle of Developments Leading to the Revised Basic Education Structure

Sept. 2006	The board resolves to expose the White Paper on CAS Education Strategy to the membership for comment with the understanding that it presents a framework for further development as opposed to a final plan.
Nov. 2006	The CAS widely circulates the White Paper on CAS Education Strategy and invites comments to be submitted via an online survey form. A total of 533 completed surveys are submitted, which includes over 200 individual comments.
March 2007	The board receives a report on the feedback to the White Paper. The board acknowledges that portions of the original proposal will need to be reconsidered and appoints a small board-level Task Force on CAS Education to review the feedback in more detail.
June 2007	The recommendations of the Task Force on CAS Education are presented to the board. The board asks for suggested transition rules and requests that additional feedback be gathered from employers of actuaries.
Sept. 2007	The Task Force on CAS Education presents a follow-up report that features three options for restructuring the basic education system, along with transition rules and feedback on the options from employers. The board addresses a number of issues related to the restructuring through a series of straw polls. The board asks the task force to consider the guidance from the straw polls and to seek feedback from the Syllabus Committee.
Nov. 2007	The CAS Board Chair, CAS President, several directors, and an Examination Committee general officer attend the Syllabus Committee meeting to discuss the issues around restructuring the basic education system. The Syllabus Committee forms two subcommittees that are assigned the task of reviewing the proposals and making recommendations.
March 2008	The Syllabus Committee develops its proposal for a revised basic education structure and submits it to Jim Christie, VP-Admissions, for presentation to the board. The final proposal for changes to the basic education structure is reviewed and unanimously approved by the board during its meeting held March 10-11, 2008. The changes are announced on the CAS Web Site.

e. A four-hour (nation-specific) exam covering Regulation and Financial Reporting.

f. The Course on Professionalism.

g. A three-hour exam on Advanced Ratemaking.

h. A three-hour exam on Advance Reserving, Reinsurance, and ERM.

i. A three-hour exam on Investment and Rate of Return.

Candidates who successfully complete items a-f will be awarded the ACAS designation. The FCAS designation also requires successful completion of items g-i.

The revised structure is different from the current system in several respects:

- Establishment of an Internet-based course in two modules consisting of parts of current Exams 5, 6, and 7. Consistent with favorable feedback received in response to the White Paper on CAS Education Strategy, material that should only be tested at the familiarity level will be separated from the remaining material and moved to an online format.
- Reduction of the upper level exams from a total of 20 hours (5 exams x 4 hours) to 17 hours, consisting of 2 four-hour exams and 3 three-hour exams.
- Addition of Stochastic Reserving and Reserve Ranges to the Advanced Reserving Exam and addition of the Actuarial Control Cycle to the Internet-based modules.
- Deletion of redundant elements of current Exam 8, which have been moved to the preliminary exams.
- Reduction of volume of study material made feasible by enhanced cohesion of topics within each exam.

Pre-Fellowship tracks and a mandatory capstone seminar, ideas included in the White Paper, will not be pursued at this time. While the board felt that these changes could improve the basic education process, the board ultimately agreed with stakeholder input that the associated risks could outweigh the potential benefits of implementing these requirements.

The rationale for the revisions includes:

- Delivery of educational material and testing can be enhanced by leveraging the use of widely available technologies.
- Those parts of the syllabus that candidates need only become familiar with can be more efficiently learned online as self-paced units. This may provide for a more timely achievement of ACAS and FCAS designations.
- A significant portion of the Financial Economics (Exam 8) syllabus is now covered in lower level exams, which allows for restructuring and reducing the exam lengths.
- In contrast to fewer exams of longer duration, more exams of shorter duration are considered to be pedagogically advantageous.
- Syllabus cohesion can be enhanced by covering related and complementary topics in the same exam, thus reducing the amount of study material and length of exams. This is feasible now, in view of another major initiative the Syllabus Committee is undertaking at the direction of the CAS Board of Directors. That initiative relates to preparation of comprehensive study manuals for the basic ratemaking and reserving topics, which is currently underway.

The Transition Rules will be as follows:

- Current Exam 5—Credit for Half Exam on Basic Ratemaking and Internet Module 1.
- Current Exam 6—Credit for Half Exam on Basic Reserving and Exam on Advanced Reserving, Reinsurance, and ERM.
- Current Exam 7—Credit for Exam on Regulation and Financial Reporting and Internet Module 2.
- Current Exam 8—Credit for Exam on Investments and Rate of Return.
- Current Exam 9—Credit for Exam on Advanced Ratemaking.

The board is aware of the need to provide a transition process that will minimize the disruption for candidates and has instituted options to facilitate the conversion. To receive credit for the new exam on Basic Ratemaking and Reserving, the candidate must have credit for both old Exams 5 and 6. Note though, that if at the time of transition a candidate has credit for only one of the required exams (either Exam 5 or Exam 6), the candidate will be allowed to take just the part of the exam for which he or she is missing credit (i.e., either the basic ratemaking section or the basic reserving section of the new exam) in order to obtain credit for the new exam. It is anticipated that this option will be available for multiple sittings after the official conversion to the new education structure, which will occur no sooner than 2011.

The approved revisions presume that the ACAS and FCAS classes of membership will continue. The board had been discussing the possibility of discontinuing conferment of the ACAS credential and agreed to table that discussion until the CAS education strategy is finalized. With its decision on changes to the basic education system, the board plans to resume deliberation on the ACAS credential during its meeting in June 2008.

While the board has approved a general outline of the revised structure, details remain to be worked out. The Syllabus and Examination Committees will be diligently working on this crucial issue and additional details will be released as soon as they are available. AR

GLENN MEYERS

The Value of Lift

A new word, "lift," has become part of the standard actuarial vocabulary in the past few years. It is generally used in the context of evaluating the performance of predictive models in developing better risk classifications. Most of what I have seen on the subject treats lift as a statistical concept. In this column, I would like to explore ways of evaluating lift in a business context.

Before I make a proposal for evaluating lift, I would like to frame the discussion with a brief history of risk classification. In the early twentieth century, cartels dominated the insurance industry and risk classification was very coarse by today's standards. With the breaking up of the cartels in the middle of the century, insurance became competitive and refined class plans were developed. Insurers who did not refine their class plans found that their most profitable business was taken away by their competitors and their profits were severely reduced.

The early class plans were based on cheap and readily available information. For example, consider auto insurance. Age, gender, garaging address, and vehicle type are easy to get, and through the '50s, '60s, and '70s auto class plans were developed with hundreds of possible classifications. Then they hit what I call the credibility barrier. There was not enough data to reliably calculate the expected costs of further refinements.

Sometime in the '90s, there were some new developments. First, there was an explosion of new and different kinds of data that could be used in ratemaking and underwriting. Credit data is probably the first example that comes to mind. Second, the widespread availability of personal computers made it possible to apply powerful statistical methods to predict the expected loss for better calibration and further refinements of the class plans. The generalized linear model (GLM) is the first example that comes to mind in this area.

As I am sure that anybody who has tried will tell you, these new methods are not easy to implement. Also, the existing class plans are not all that bad. The low-hanging fruit has been taken. Given that one has to invest both time and money to refine a class plan, how does one measure the return on that investment?

The following table shows a simple illustrative case of a class plan refinement.

Current Class	Current Premium	Insurer's Expected Loss	Break-Even Loss Amt.	Accurate Expected Loss	Profit	Profit Lost Due To Adverse Selection
A	60	30	36	20	16	16
A	60	30	36	30	6	
A	60	30	36	40	(4)	
B	80	40	48	30	18	18
B	80	40	48	40	8	
B	80	40	48	50	(2)	
C	120	60	72	50	22	22
C	120	60	72	60	12	
C	120	60	72	70	2	
D	140	70	84	60	24	24
D	140	70	84	70	14	
D	140	70	84	80	4	
Total	**1,200**	**600**	**720**	**600**	**120**	**80**

This table describes a book of business consisting of four different risk classes. Based on the insurer's expected loss estimates, each risk in the class is charged the same premium that is priced to yield a 10% expected profit as measured by the return on premium. On a per-risk basis, the profit is measured as the difference between the accurate expected loss and a calculated break-even loss amount.

Now suppose a competitor performs an analysis that accurately identifies which risks will have a lower expected loss. Based on this information, it lures these better risks away by competing on price, with the lost profit identified in the right-hand column of the table. In looking at the column totals, we see that the competitor can take away 80 of the original insurer's expected profit of 120.

How much should the insurer invest to avoid adverse selection? Here I would like to coin a term called the "Value of Lift," or VoL, which is the expected profit that would be lost from business that a potential competitor would take away with a more accurate classification plan. The VoL in the above example is 80.

The VoL should be thought of as an upper limit of cost that an insurer might pay to avoid adverse selection. In a well-run insurance company, there will be a number of policyholders that will not jump for the lowest price. In general I expect that the cost of introducing a new class plan would be noticeably less than the VoL.

The VoL should be compared to such expenses such as the following.

"Value of Lift," or VoL,... is the expected profit that would be lost from business that a potential competitor would take away with a more accurate classification plan.

- The cost of obtaining information needed to determine the class. Examples of such costs include the cost of a credit report or a motor vehicle report.
- The amortized cost of the research and development needed to develop the class plan. This includes the cost of the predictive modeling unit plus the cost of developing the infrastructure needed to administer the plan.

Depending on the context, it may be appropriate to express the VoL as a percentage of premium or a dollar amount per policy. AR

Cultivate Potential Actuaries!

Want to help the CAS membership to grow? Consider volunteering as a University Liaison and connect with students with potential for actuarial careers. See the CAS Web Site at http://www.casact.org/academic/index.cfm?fa=ulvolunteer for more details. AR

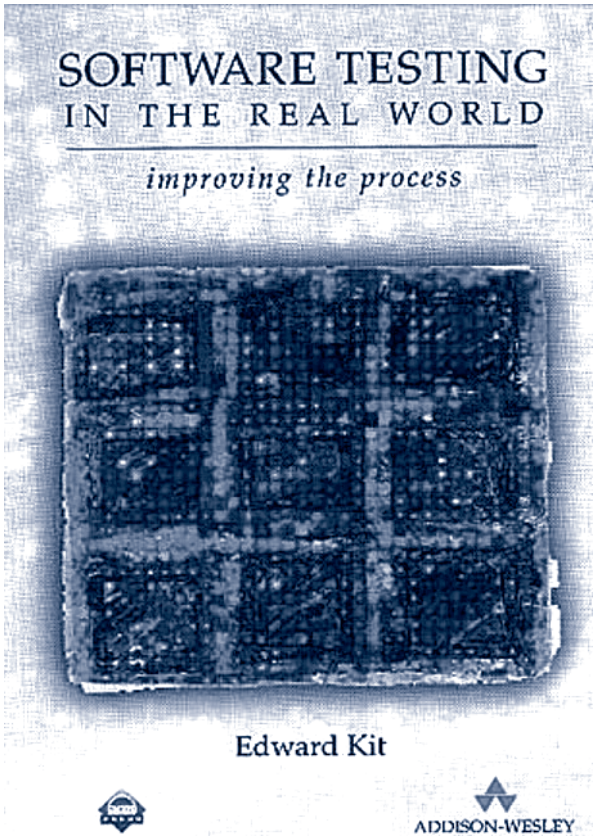
Putting Software to the Test

Software Testing in the Real World by Edward Kit (Addison-Wesley Professional, 1995, $59.99)

Reviewed by Aleksey Popelyukhin and Keith Allen,
Members of the CAS Data Management and Information Educational Materials Working Party

Editor's Note: This is the second to last review in the CAS Data Management and Information Educational Materials Working Party's series of book reviews. The complete set of nine texts are reviewed and compared in "Survey of Data Management and Data Quality Texts," published in the Winter 2007 CAS Forum.

This book's main goal is to convince software companies that they need dedicated testing departments at least as big as their development departments. Actuaries are not in the business of making shrink-wrapped software packages for numerous outside customers, so the "real world" in the title rarely intersects with the actuarial universe. Parts of the book, however, will still be of interest to actuaries.



Considering that actuaries implement their models in software, this activity could conceivably be called "software development." The book's notions of testing should not be foreign to actuaries; they just have to be adapted to the actuarial situation.

According to the book, testing should start from the "specifications" and end with "final product evaluation." and should be performed by an "outsider." Testing techniques range from verification to validation, i.e., from checking the code to examining final product outcomes. In the actuarial paradigm, the final product could be an Excel spreadsheet, Mathematica notebook, or Oracle stored procedure. Correspondingly, specifications could be a reserve test or pricing method, and the "code" would be formulas, VBA subroutines, or SQL statements. Evidently, checking everything from methods and assumptions to spreadsheet formulas and query results makes perfect sense.

The content of Kit's book is divided into four parts. Part I includes chapters 1 through 3. The material in these chapters is somewhat esoteric. There is much discussion about what is needed to get started on the testing of software and the history of software testing. These chapters may be of limited interest to the actuarial science field.

Chapters 4 through 6, which form Part II of the book, establish a framework for conducting tests on software. This section establishes some useful terminology that one could use to test a student's familiarity with testing procedures. The question we need to ask is will everyone in the industry adhere to the same terminology? For example, in Chapter 4 there are several terms used to designate a general failure in the software code. Such terms include: "mistake, fault, failure, [or] error." Would these terms be generally accepted in the actuarial industry? There are several examples of these types of definitions within this section. One definition in particular could prove to be useful in the actuarial science field: "the purpose of testing is to discover errors." It is a nice, short and sweet definition. Chapter 5 gets to some substance, including the question of when a tester should be giving special attention to the testing process. Discussions about verification (checking the code) and validation (testing the program) are also discussed in Chapter 5.

Chapter 6 is less helpful to actuaries. This chapter regurgi-

tates different top-down methods on how to approach testing, and is probably more useful to software engineers than to actuaries. In this section of the book, some examples would have been helpful. Several lists of questions are developed for testing methods but none of them are ever answered. More testing standards are discussed in a theoretical sense but lists of standard questions are not given. The section on "Testware" (a collection of software tools for testing) is somewhat useful. It describes what is actually used to test software and calls for maintaining the best Testware tools beyond the testing of a single product.

Part III, which includes chapters 7 through 12, provides several testing methods. Some of this material can be applied to what we do in actuarial science. For example, the methods used for verification could become a basis for technical reviews of an actuary's work. Still, the text lacks examples and exercises for the reader to follow. There do not appear to be definitive methods to apply to specific circumstances. The recommendations at the end of the chapters contain many phrases such as "usually it is better to do…" or "there's a real trade-off when you do…" A decisive recommendation on a method to use in a particular situation would have been more helpful. A relevant exercise is given on page 67 of the book, however. It refers to documents in Appendices B and C. The exercise shows how verification testing can produce gains on developing software for a minimal amount of effort. Also, the section in Chapter 7 on how a tester should report an author's mistakes is useful.

There are several terms used to designate a general failure in the software code. Such terms include: "mistake, fault, failure, [or] error." Would these terms be generally accepted in the actuarial industry?

Part IV includes topics on structural designs for testing software, practices used by software engineers in testing, and gains from software testing. This section would not be applicable to actuarial science.

The appendices are clearly the most useful part of the book to actuaries. This section appears to be more organized and less theoretical than the rest of the book. Appendix A contains lists of software testing standards, which may be useful when a tester presents results to a management team or to a group of people within the industry. For testing actuarial work, one could refer to similar standards much like we do for reserving and valuation methods.

Appendix B has many useful sample checklists. It is ironic that there is a functional design checklist that has a requirement to look out for designs "without examples or examples that are too few." The author could have taken this requirement and applied it to the earlier chapters in the book. Appendices C and D contain verification and validation exercises and solutions that seem very useful, but extra work would be needed to translate the exercises into practical advice for Excel "developers."

Appendix E contains a bibliography that is a good reference for guides on software testing. Appendix F gives source information on conferences, journals, and newsletters that may be useful for someone who wants more information on software testing. Appendix G gives a list of software technology used to check software. Appendix H contains a list of improvements in the area of terminology, product requirements, testing tools, and documentation that should be considered. The text should have referred to the lists and information in the appendices more frequently.

In conclusion, actuarial practitioners who are heavily involved in spreadsheet design may find some useful tidbits in this book. However, there simply are not enough examples or case studies to make any of the testing methods easy to implement. Therefore actuaries not heavily involved in systems development should probably pass on this text and wait for a more directly applicable book or article on the subject. AR

DOUG OLIVER

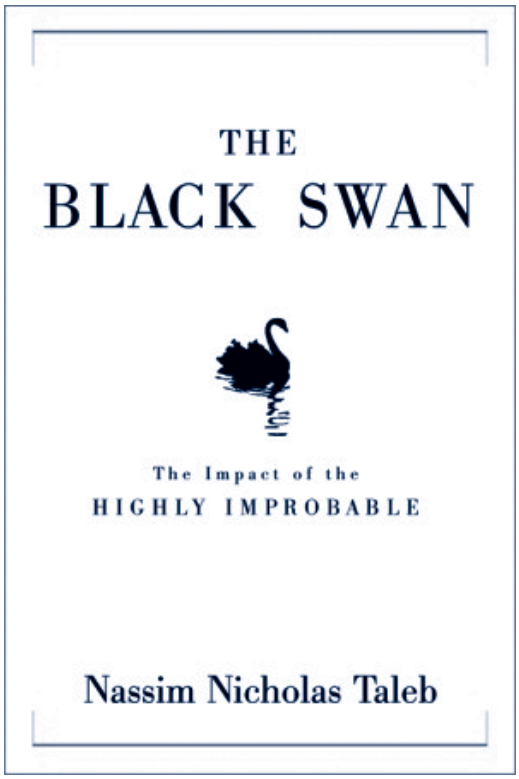
The Impact of What We Don't Know

The Black Swan: The Impact of the Highly Improbable by Nassim Nicholas Taleb (Random House, 2007, $26.95)

Then-U.S. Secretary of Defense Donald Rumsfeld made the following statement at a Defense Department briefing in February 2002:

> Reports that say that something hasn't happened are always interesting to me, because as we know, there are "known knowns"; there are things we know we know. We also know there are "known unknowns"; that is to say we know there are some things we do not know. But there are also "unknown unknowns"—the ones we don't know we don't know.

Regardless of your opinion of Mr. Rumsfeld, his statement hints at the underlying premise of Nassim Nicholas Taleb's book, The Black Swan: the things we don't know we don't know are unpredictable and have the most impact should they occur. The term "Black Swan" is used because until the first black swan was discovered in Australia in the 18th century, it was common knowledge that all swans were white. The existence of a single outlier can completely change our view of the data set on which we base our living or our lives. A black swan is a rare, hard-to-predict event with an impact that is beyond the realm of normal expectations.



Nassim Nicholas Taleb (or "NNT" as he sometimes refers to himself) has written an intriguing yet challenging book. The concept of rare events should not come as a surprise to any actuary, nor should having to deal with the impact of randomness. However, Taleb's premise that we should be focusing all our efforts on these rarities (and the potentially catastrophic nature of their impact) runs contrary to traditional actuarial teachings. The Central Limit Theorem and Gaussian Analyses are referred to by Taleb as "GIF: the Great Intellectual Fraud."

The challenge in reading this book also arises out of Taleb's writing style. At times the text feels disjointed and lacking in structure. It is written in a style that reminds me of a Dennis Miller or Steven Colbert soliloquy, if they were to discuss tail liabilities or data outliers. At other times, the prose seems arrogant, mixing narrative fiction with scientific and technical knowledge (and a bit of an "I know more than you" attitude).

Taleb spends most of his book "defining" certain concepts that actuaries will have undoubtedly found themselves facing in their professional lives, such as the following:

- Confirmation Bias: The tendency to look for (or ignore) evidence that supports (or conflicts with) views one already holds.
- Narrative Fallacy: Construction of stories about historical events with unjustified causality assumptions that result in a false sense of understanding.
- Platonicity: The focus on pure, well-defined, and easily discernible objects at the cost of ignoring objects of seemingly messier and less tractable structures.

He provides quite a few examples from biology, the social sciences, and his self-proclaimed profession of mathematical investor. In fact, when Taleb begins to drift into a philosophical state, he reminds me of Robert Pirsig, author of *Zen and the Art of Motorcycle Maintenance*. For those of you who have also read *Zen*, Pirsig's "platypus" concept will seem familiar here. The concept is used to describe things that we can not come to grips with because of biases in our intellectual framework.

While I'm sure most readers of this article would agree that data point outliers can have enormous social and economic impacts (9/11, Hurricane Katrina, failure of long-term capital management), I'm not sure many would agree with Taleb's proposition that we should ignore the Bell Curve in favor of

Stepping out of our actuarial comfort zone once in a while is good for the profession.

Mandelbrotian Fractals as a way to predict the future. His premise is that while we still may not be able to predict the next black swan, we can turn them into grey swans, thus reducing their surprise effect. Taleb agrees that fractals do not solve the problem, but they mitigate the problem by making such large events conceivable.

His conclusions and recommendations, however, do ring true, and I generally agree with them. For example, Taleb states:

> The way to avoid the ills of the narrative fallacy is to favor experimentation over storytelling, experience over history, and clinical knowledge over theories. Being empirical does not mean running a laboratory in one's basement: it is just a mindset that favors a certain class of knowledge over others.

I'm not sure what actuary, having a sufficient supply of reasonable data, would favor a pure Expected Loss Ratio method over a Cape Cod analysis in setting reserves.

Similarly, he suggests that since positive black swans tend to develop slowly while negative black swans develop quickly, we should all put ourselves in situations where favorable consequences are more profitable than unfavorable ones. In other words, you should "maximize the serendipity around you."

Overall, Taleb's work runs the gamut from statistics and data scrubbing, to predictive modeling and the measure of uncertainty. It is a book that should be read with equal doses of skepticism and appreciation. Stepping out of our actuarial comfort zone once in a while is good for the profession. Who knows what black swans we might discover if we open ourselves up to the randomness that is suggested by Taleb and his ideas? AR

25 Years Ago in *The Actuarial Review*

Kilbourne Challenges Readers: Are We a Profession?

By Walter C. Wright

Frederick W. Kilbourne, in "From the President," asks members to consider what it means to be a member of the CAS. These are big questions that still merit consideration. Following are extracts from his article. How would you answer these questions, 25 years later?

Do we constitute a profession? Probably not. Our numbers are too small, and non-life insurance is too narrow to describe a self-sufficient profession, or science. And we haven't always acted wholeheartedly as professionals, independent of the industry that happens to buy the bulk of our services.

What profession is that? The actuarial profession, comprised in this country of members of the Academy, the CAS, the Society of Actuaries, the Conference of Actuaries in Public Practice, and a small number of other individuals accurately described as being "actuaries." Is that too many organizations for a profession of fewer than 10,000 members? Can we uniquely define our profession, and is it needed by the public? If not, should we stop claiming to be members of a profession, much less practitioners of a science? Yet it does seem that the public needs independent experts to analyze the future costs of contingent events, if independent experts are what we are.

What can we offer the world? A good deal more than we're now providing...Perhaps we can offer a lot more than we're now providing to private and public efforts to deal with the costs of fires, and negligence, and income loss, and other acts of God and man.

What should we refer to others? Anything for which those others are better prepared than we are to provide the services needed, it would seem. This surely includes life and pension actuarial matters, and all problems best handled by an economist, accountant, or dentist.... AR

MARTY ADLER

Hot Rod

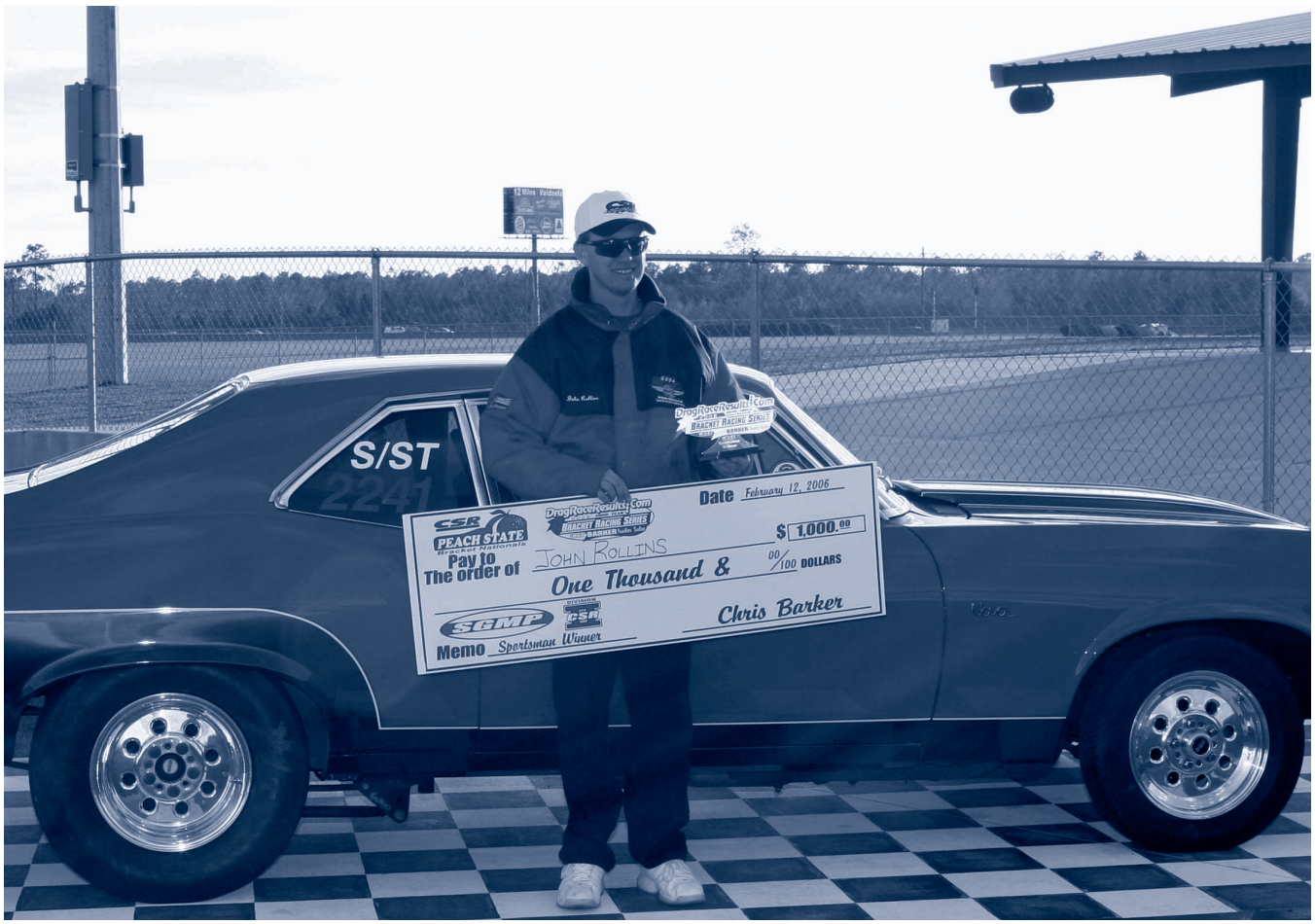
You probably would not expect a Fellow of the Casualty Actuarial Society to be a drag racer, but John Rollins was more or less bred into it. His family has been building racecars professionally since 1975, and he grew up in their gas station and high-performance shops. John jokes that he is the black sheep of his family for becoming an actuary. His brother Jason now runs the shop, Rollins Performance Automotive, in Gainesville, FL. His mother and father have recently retired but are still occasionally active in the business.

John started racing when he got his driver's license in 1986 and has continued on and off ever since, though he did not race much in college and for a few years during the "crunch" from Exams 7 through 10. Now it is his burning passion and relaxation away from work—something that occupies his mind and consumes his energy in a completely different way.

John competes in races sanctioned by the National Hot Rod Association (NHRA). There are many classes of competition, depending upon the type of competition or type of vehicle. He races in a class called Super Street, which requires the cars to look somewhat like stock vehicles but allows engine and other modifications. The modifications are taken into account in a complex handicap system. His car is a 1972 Chevy Nova.

The track on which they race is two lanes for side-by-side competition. The first racer to the finish line wins the round, but only if he does not go quicker than his permitted elapsed time. This form of handicapping is called an "index." Because of the index, sportsman racing is a lot like a quarter-mile rally, with consistency rather than top speed the main goal. Also, this makes quick reaction time to the green light the most critical element of each round, as this is not counted as part of the elapsed time against the index.

The index for a class determines the minimum elapsed time for the quarter-mile—any run quicker than that is disqualified. Two



John Rollins poses with his '72 Chevy Nova, a trophy, and a rather large check for winning one of the contests at the Peach State Bracket Nationals in 2006.

racers could have different indices, based on how their vehicles are classified and weighed. The racer with a slower index may get a handicap start equal to the difference in elapsed time indices, and the faster racer's green light comes on that much later. Any launch before the green light is an automatic disqualification as well. The faster vehicle, however, should allow its racer to "catch" the slower racer at the finish line—a theoretical tie. In reality, the ability to "cut the light" or get a quick reaction time to the green, and "drive the stripe," i.e., beat the other car to the finish line by as little as possible to ensure no disqualification from a "breakout" quicker than the index, determine the round winner. The index system allows cars of different types to race together in one tournament. Before the mid-1970's technology that allowed this, classification was laborious. Because it had to be meticulously fair, everyone had to race "heads up," i.e., with no handicap.

Analyzing reaction times, split times to various points on the track (usually 60 feet, 330 feet, 660 feet, and 1,000 feet), and elapsed time—the "response variables"—in relation to weather conditions, engine heat, and other "explanatory variables," allow good racers to predict their next run and know how much room they have to win within their index. They also allow racers to adjust either their own preparation, or their vehicle attributes (such as weight on the front end) to get a better reaction time without a "red light" or false start.

The competition occurs during an "elimination day," also referred to as a "race." To win a race you have to defeat all your opponents. Each run down the track against an opponent is called a "round." It's like tennis, where you win one match at a time and win the tournament only if you win all your matches. Typically there are six to eight rounds in a tournament or elimination day. In order to win several tournaments a year, you need to win about 70% of your rounds. In his best year, John won 11 tournaments, winning about 80% of his rounds. So far John has won 45 elimination days.

NHRA offers championships in every class at various venues and times. Typically the season in the South runs from February to early November. John has won four track championships at a specific facility, plus three big NHRA tournaments.

Analyzing reaction times, split times to various points on the track...and elapsed time—the "response variables"—in relation to weather conditions, engine heat, and other "explanatory variables," allow good racers to predict their next run and know how much room they have to win within their index.

Maintenance of the racecar is a big part of both consistency and speed. John races in classes that are relatively low-maintenance compared to the professional classes. The use of a handicap index also helps keep costs down. Oil and tire changes along with annual engine and transmission maintenance, plus fixing anything that breaks in the driveline, wiring, or plumbing (fuel and water systems), are part of the routine.

It should be apparent that drag racing requires one's complete attention. John says that racing is no sport for the scatter-brained actuary. He once launched down the track having forgotten to close his hood latch. When he hit about 50 mph it flew up, forcing him to slow down quickly or risk a crash. That got plenty of laughs from the spectators and was very embarrassing.

John Rollins is vice president of AIR Worldwide Corporation in Tallahassee, FL.

The Analysis of Risk is Universal: Limited Attendance Seminars Focus on this Common Theme

By Mark Shapland

Actuaries on both sides of the Atlantic are coming together around a common topic: reserve variability and the power of risk modeling. Held November 29-30, 2007 in London, The Actuarial Professions' limited attendance seminar titled "Stochastic Reserving and Modelling" is one of the latest of the growing number of cooperative efforts. This budding cooperation is well timed, since international collaboration is a priority the CAS has identified as we approach the Society's 100th anniversary in 2014. These collaborative efforts are bringing the CAS closer to reaching its Centennial Goal.

As noted in the article "The Top Ten Casualty Actuarial Stories of 2007" (*Actuarial Review*, February 2008), the increased use of stochastic reserving techniques aimed at quantifying uncertainty is number eight on the list. It should not be surprising then that the CAS Limited Attendance Seminars on Reserve Variability have all been well attended. What might be surprising to many is that some of the materials created for the CAS seminars were used in the Stochastic Reserving and Modelling seminar last November in London.

The seeds of cooperation were actually planted by the CAS Vice President-Research and Development Roger Hayne at the September 2006 General Insurance Research Organization (GIRO) Conference. At the GIRO Conference, Roger invited The U.K. Actuarial Profession to send a delegate to attend the inaugural CAS Limited Attendance Seminar on Reserve Variability, which debuted in October 2006. Our casualty colleagues across the pond took him up on the offer, and, a little over a year later, the first Stochastic Reserving and Modelling Seminar was held in London.

For both the CAS and U.K. seminars, participants were asked to bring their laptops and their questions, with the intention that the hands-on experience would lead to better understanding. The U.K. seminar took place at the famed Staple Inn, the headquarters of the Institute of Actuaries. Learning and applying tomorrow's techniques in such a venerable location, one can't help be humbled by the history of such a place—one that has witnessed the growth of the U.K. profession into its current state.

In years past, insurance markets and their actuaries could be somewhat insular. Today's global economy offers more opportunities for cooperation and these seminars provide a hands-on opportunity to reinforce that cooperation and to learn from one another. While there are language, cultural, and marketplace differences that affect the global actuarial profession in ways different from what we see here in the U.S., the analysis of risk is universal. There are distinct practices and considerations from one location to another, but the potential for learning from one another is far more profound than the differences that may get in the way of sharing ideas.

Looking ahead, both the CAS and the U.K. profession anticipate continuing these seminars. If you think you might like to celebrate the Fourth of July in London, please consider registering for next the U.K. seminar. For more information, visit the CAS Web Site or The Actuarial Profession Web Site (www.actuaries.org.uk) or drop me a line. I hope to see you at a future seminar. AR

Limited Attendance Seminars on Reserving Issues Offered

The CAS will be holding two meetings in May: the Reserve Variability Limited Attendance Seminar (May 6-8) and the Testing Loss Reserve Assumptions Seminar (May 5). See www.casact.org for more information.

If you missed these opportunities stateside, The Actuarial Profession is offering the second Limited Attendance Seminar on Stochastic Reserving and Modelling, to be held July 3-4 in London. Visit www.actuaries.org/uk for more information.

MICHAEL D. ERSEVIM

Actuarial Insults and Sayings

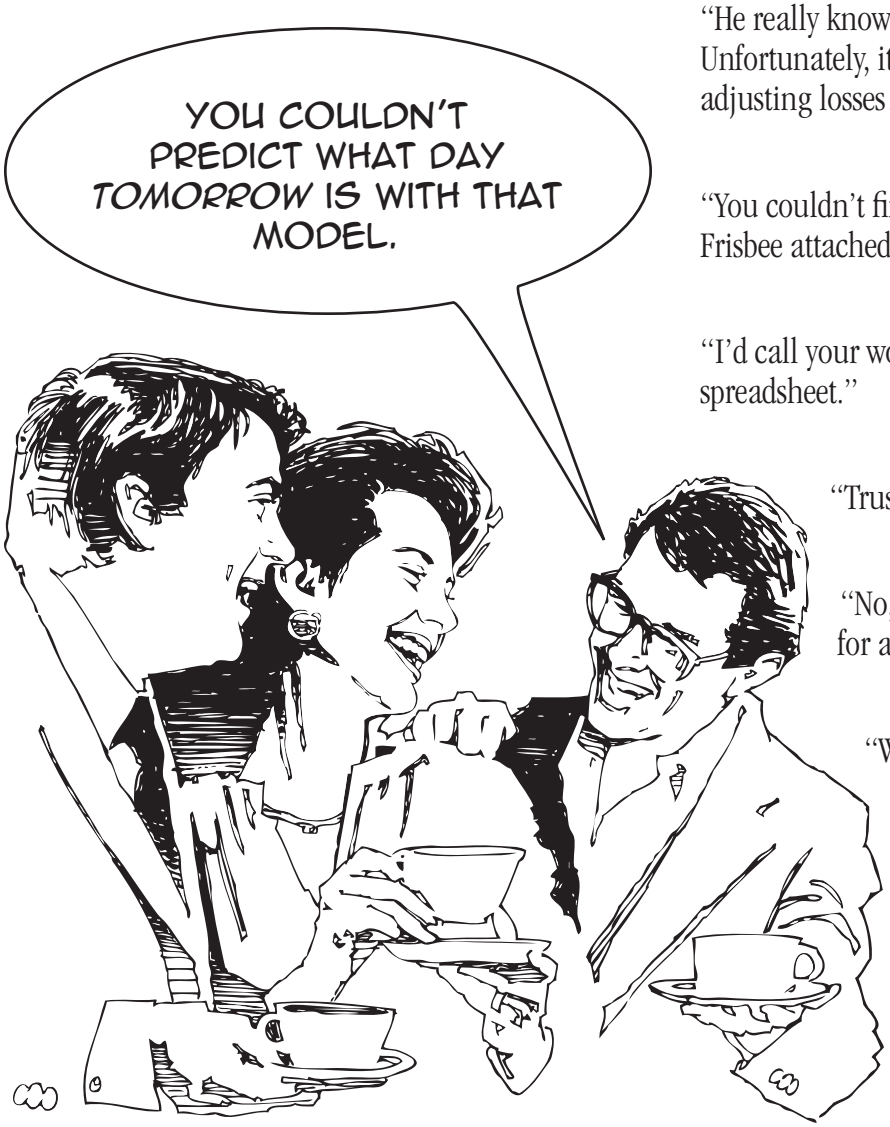
Try some of these on your coworkers or in a big client meeting—they are sure to go over big!

"You can pick your LDFs and you can pick your friends, but you can't pick your friend's LDFs."

"Heck, I've seen better rating plans in *Massachusetts*!"

"Hey, did your *mom* pick those ultimates for ya?"

"If at first you don't succeed, try shooting for ACAS."



"He couldn't pin a tail on a donkey, much less on those LDFs."

"Oh, so you finally passed Part 7—how many $100 bills did you staple to your answer sheets?"

"Your reserve indications are so inflated, they could raise the Titanic!"

"He really knows how to use the BS method. Unfortunately, it's the one that *doesn't* involve adjusting losses…"

"You couldn't find a good ultimate if it had a game of Frisbee attached to it!"

"I'd call your work more of a 'drop-cloth' than a spreadsheet."

"Trust me; 'IBNR' is *not* a movie rating."

"No, I don't think asking the proctor out for a date is a good idea."

"We were so busy we barely had time to Schedule P…." AR

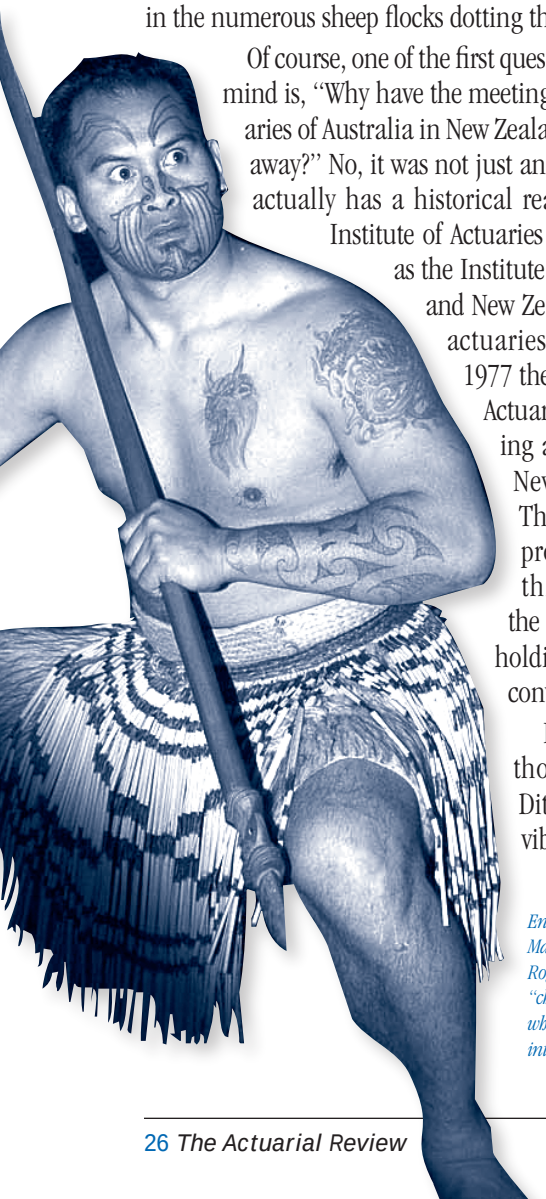
Back to the Future—From Down Under

By Roger Hayne, CAS Vice President-Research and Development

Tom Myers and I had the privilege of representing the CAS at the 2007 biennial meeting of the Institute of Actuaries of Australia (IAAust) held in Christchurch, New Zealand. For the few geographically challenged individuals who may be reading this, New Zealand is a relatively short three-hour flight southeast of the East Coast of Australia across the Tasman Sea (affectionately known there as "The Ditch"). New Zealand has two main islands, dubbed "North Island" and "South Island," with Christchurch on the generally cooler South Island. Being south of the Equator, the late September timing of the meeting was at the start of spring, as evidenced by the large number of lambs seen in the numerous sheep flocks dotting the countryside.

Of course, one of the first questions that might come to mind is, "Why have the meeting of the Institute of Actuaries of Australia in New Zealand, three or so air-hours away?" No, it was not just an excuse for a junket, but actually has a historical reason. Prior to 1977 the Institute of Actuaries of Australia was known as the Institute of Actuaries of Australia and New Zealand and encompassed actuaries in both countries. In 1977 the New Zealand Society of Actuaries was formed, providing an independent body for New Zealand's actuaries. The Australians felt it appropriate to celebrate the thirtieth anniversary of the New Zealand Society by holding their 2007 biennial convention there.

I quickly learned that though separated by The Ditch, both countries have vibrant actuarial communities with some aspects familiar and some new.



En route through a "jungle" at a Maori cultural center in Christchurch, Roger Hayne and his wife we were "challenged" by this Maori warrior who, after ascertaining their peaceful intent, allowed them to pass.

It has been said that the United Kingdom and the United States are two great countries separated by a common language. Much the same can be said for the United States compared to Australia and New Zealand. A few aspects of the actuarial profession Down Under took a bit of getting used to. Probably the most striking for a CAS member is scale. I believe the 2006 Annual Meeting in San Francisco, the last one prior to the IAAust, had more than 1,000 attendees, almost exclusively property and casualty actuaries and their guests. In contrast, 2007's IAAust Biennial Convention set an attendance record at around 400 attendees, with actuaries covering all areas of practice including superannuation (pension), life insurance, and general insurance (property and casualty). Another difference is in meeting frequency; while we meet as a society twice each year, they get together once every two years, although the general insurance actuaries do also get together by themselves every two years, now in the off years.

Even with an attendance similar to what I remember as the level of CAS meetings from the early 1980s, the program was rich in content and, compared to our meetings, a bit more intense. They had a total of five plenary (general) sessions plus eight blocks of concurrent sessions, with an average of six sessions per block. The meeting itself spanned a full two-and-one-half days without our customary "light" afternoon on the second day. Just as we have tracks, the concurrent sessions tended to be spread around the topics of general insurance, health insurance, investment, life insurance/wealth management/superannuation, risk management (ERM), and others with most concurrent sessions having a selection from these categories.

Although we might think it strange to attend a meeting with all disciplines present, that is business as usual for the Australians and New Zealanders. I was pleasantly surprised that the content selected for the plenary sessions had broad interest across practice areas with topics such as "Global Forces" encompassing private vs. public ownership and climate change, "Ahead of the Game" covering the IAAust's strategic plan, and a very entertaining and informative session on communications titled "Just an Actuary Minute" challenging actuaries to get their point across in a single minute. Other plenary sessions covered (enterprise) risk management, global securities regulation, and global issues largely touching on insurance, both life and general, as well as

within the actuarial profession.

The Australians have taken the entire topic of (enterprise) risk management to heart. Not only was a plenary session devoted to the topic but there were also ERM-related sessions in all the concurrent session blocks. It is clear that they share our belief that actuaries are the professionals best equipped to lead ERM efforts, not only in insurance companies but in enterprises across the economic spectrum.

Even though the days were quite full with sessions, I had ample opportunity to renew old acquaintances and to form new contacts, particularly in the research community. In addition to the customary breaks and lunches, the evenings were available for socializing and the meeting was capped off with a gala dinner held at the Air Force Museum amidst vintage aircraft and servers in uniforms with a World War II era flavor, all while being serenaded by a group that sounded quite a bit like the Andrew Sisters. Later a more contemporary band took up the beat with the floor open for dancing. Rumor has it that at the end of the scheduled activities a small group of intrepid souls continued the celebration at a local "watering hole" well into the next morning.

Something a little less familiar to CAS members is the idea of corporate sponsorship of the meeting and various functions. Although we experienced this last June when our spring meeting overlapped with the ASTIN Colloquium, it is not the norm for CAS meetings. Although odd, it was generally rather unobtrusive, and did provide for a bit more "swag" than we are accustomed to receiving. One sponsor provided rather nice backpacks that, surprise, contained even more merchandise with the logos of the various sponsors.

In the end, I came away from this meeting with a much closer relationship to our Australian brethren and a much stronger realization that we can learn quite a bit from our friends Down Under. AR

***Top**: A view of New Zealand's Southern Alps.*

***Middle**: The railway trestle in the Waimakariri Gorge, taken from a jet boat on the Waimakariri River in New Zealand's South Island.*

***Bottom**: Sheep graze in a bucolic New Zealand setting.*

Photos courtesy of Roger Hayne.

Coming Soon: Enhancements to the CAS Membership Database and Web Site

The CAS office is transitioning to a new Web-based membership database, replacing a Windows-based system that was procured in 1998. The new system, which was designed specifically for associations, will allow members to:

- Update their profile in real time. This means that when a member updates his or her contact information, the change will be reflected immediately in the master membership database.
- Have their credit card payments validated in real-time using VeriSign Pay Flow Pro. This will allow for immediate payment confirmations.
- Update their committee status as well as download committee-related documents.
- View the shipping details of products they order online.
- View a history of products they have purchased and meetings they have attended.
- Have fees automatically computed on online registration forms based on membership type.

Additionally, the staff will be able to respond more efficiently to member inquiries due to streamlined customer service modules.

This transition, which will be finalized in June, will affect members in a few other ways as some of the member features on the CAS Web Site will be updated. For example, usernames will change to the members' e-mail addresses. Additionally, the Membership Directory will be powered directly from the membership database, replacing the current online Directory.

The CAS leadership and staff are excited about this new software and the many ways in which it will improve service to CAS members, candidates, and others. If you have any questions about this transition, please contact the CAS Office at office@casact.org or by calling (703) 276-3100. AR

CAS Launches New Online Career Center

Does your company have an open position or are you looking to advance your career? Good news, the CAS has launched a new online Career Center with enhanced functionality and services for both employers and job seekers!

With the new system, employers will be able to post job openings more efficiently. In addition, employers will be able to search a database of resumes; a fee is charged only when they decide to contact a candidate and the candidate indicates an interest in making a connection with the employer. Employers can save money by purchasing bulk job packages. For example, buying a 5-pack or 10-pack of job postings provides a significant discount off the individual job posting price. The new Career Center will feature advertisements, allowing employers to stand out among a sea of competitors.

Job seekers will also find the new system advantageous as they can organize their job search for maximum results. The system allows jobs seekers to save job postings for quicker reference and sign up for job alerts to make sure they don't miss the perfect opportunity. Resumes can be posted anonymously; prospective employers only find out who is behind the resume when the job seeker responds to the interested employer.

To find the perfect person to fill your open position or start planning for your next career move, visit the CAS Web Site and click on "Career Center." AR

When are Reasonable Alternative Assumptions Worth Noting?

Editor's Note: This article is part of a series written by members of the CAS Committee on Professionalism Education (COPE) and the Actuarial Board of Counseling and Discipline (ABCD). 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.

Robert N. Certainty, FCAS, MAAA, has prepared an unpaid loss liability estimate for Low Margin Widgets, Inc. that self-insures the first $1,000,000 per occurrence related to its workers compensation claims. In his analysis, Robert has selected tail loss development factors (paid and incurred) and increased limit factors based on a combination of the client's data and available industry information. The approach is consistent with that used in past reports for this client and similar analyses completed for other clients. Further, in Robert's opinion, Low Margin Widget's situation is common and does not represent an increased level of uncertainty compared to analyses produced for several of Robert's other clients. Despite this belief, Robert thinks that there are other selections for these loss development and increased limit factors that would also be reasonable. These alternative assumptions could easily produce an increase or decrease in the estimated unpaid losses of more than 15%.

Robert's report contains standard language that informs the client about the general uncertainty associated with actuarial projections, including the statement that the actual results may be more or less than the projections presented in the report, possibly by a significant amount.

In this situation, is Robert required to include additional disclosures in his report and specifically contact his client to discuss the level of uncertainty in his projections?

Is Robert required to include additional disclosures in his report and specifically contact his client to discuss the level of uncertainty in his projections?

Yes–The second paragraph of Section 3.6.2 of the recently implemented Actuarial Standard of Practice (ASOP) 43 states:

> The actuary should consider the sensitivity of the unpaid claim estimates to reasonable alternative assumptions. When the actuary determines that the use of reasonable alternative assumptions would have a material effect on the unpaid claim estimates, the actuary should notify the principal and attempt to discuss the anticipated effect of this sensitivity on the analysis with the principal.

Even though the situation with Low Margin Widgets is not unusual and does not represent a higher than normal level of uncertainty, if 15% of the unpaid claim estimate has the potential to be material to his client, additional investigation is required. First, Robert needs to determine what represents a material amount to his client. If reasonable alternative assumptions would produce a variance from his unpaid claim estimate that exceeds his client's materiality threshold, Robert is required to notify his client and attempt to discuss this uncertainty.

No–The actuarial process involved in estimating unpaid workers compensation claims has an inherent level of uncertainty that is generally understood by risk managers, including Robert's contact at Low Margin Widget. This inherent uncertainty is described in the standard language included in this and all of Robert's actuarial reports. Section 3.6.2 of ASOP 43 is referring to extraordinary situations where two or more distinct sets of assumptions exist as opposed to the general range of reasonable assumptions that would be present in ordinary actuarial analyses. The strict interpretation of Section 3.6.2 would go far beyond generally accepted practice, "desensitizing" the user by including additional disclosures in every report instead of only those reports where disclosures are truly needed. Since there is not an elevated level of uncertainty associated with the analysis for Low Margin Widgets, no additional disclosures or communication with the client are necessary. AR

Actuarial Foundation Update

A Call For P&C Expertise on Homeowners

The Actuarial Foundation, in a joint project with the Insurance Information Institute (III), will be developing background papers on different aspects of how insurance works. The background papers will eventually be developed into consumer-friendly materials that will help educate consumers and the media about different aspects of insurance.

The first paper will cover the topic of homeowners insurance. The Actuarial Foundation's Consumer Education Committee is recruiting individual volunteers to help develop a background paper that gives a good solid understanding of questions people have about homeowners insurance.

If you are interested in volunteering, or for more information, please contact Debbie McCormac at The Actuarial Foundation at debbie.mccormac@actfnd.org or (847) 706-3600.

Foundation Newsletter

Keep up to date with all The Actuarial Foundation's good works by checking out the latest newsletter at http://www.actuarialfoundation.org/news/news.htm#newsletter.

Do You Know An Actuarial Student?

The Foundation offers a few scholarships for promising actuarial students. The John Culver Wooddy Scholarship was established in 1996 by the estate of John Culver Wooddy, a distinguished actuary who set aside funds to provide scholarships to actuarial students.

Applicants must be receiving their undergraduate degree by August 31, 2009; rank in the top quartile of their class; have successfully completed one actuarial examination; and be recommended by a professor from their school. (Limit one application per school.) For more information, visit http://www.actuarialfoundation.org/research_edu/prize_award.htm#wooddy.

The Actuary of Tomorrow-Stuart A. Robertson Memorial Scholarship was established in 2006 in Stuart Robertson's name to honor his dedication to excellence and to recognize his tremendously positive influence on the professional lives of many colleagues.

Applicants must be a full-time undergraduate student entering as a sophomore, junior, or senior in the fall 2008/2009 term; must have a minimum cumulative GPA of 3.0 (on 4.0 scale); must have successfully completed two actuarial exams. For more information, visit http://www.actuarialfoundation.org/research_edu/prize_award.htm#robertson.

Recognize Outstanding CAS Volunteers

Have you recently worked with a CAS volunteer who performed far beyond what was expected of him or her? Do you know someone who has made significant volunteer contributions to the actuarial profession over the course of a career? Of course you do, because one of the core CAS values is volunteerism, and noteworthy CAS volunteers abound. The CAS wants to recognize meaningful volunteer contributions, and we need your help. Nominate a worthy CAS volunteer for the 2008 Above & Beyond Achievement Award (ABAA) or the 2008 Matthew Rodermund Service Award.

The ABAA is made annually to CAS members who have made a recent contribution that is clearly outside of expected volunteer responsibilities and duties. In addition to participation on CAS Committees and Task Forces, consideration is given to contributions to the committees of other actuarial organizations (such as the American Academy of Actuaries) that benefit CAS members.

CAS members serving on committees, especially committee chairs, are encouraged to consider the especially hardworking members of their committees for nomination. Any CAS member who is not a current board member or officer is eligible to receive this award. Keep in mind that an extraordinary effort can be shown in an assignment of limited scope, as well as on a larger task.

While the ABAA recognizes short-term contributions, the Matthew Rodermund Service Award is intended to recognize CAS members who have made significant volunteer contributions to the actuarial profession over the course of a career. Volunteer

CAS Volunteers, page 31

You Might Be an Actuarial Consultant

Jeff Foxworthy, comedian and host of *Are You Smarter Than a 5th Grader?*, has made me laugh for fifteen years with his "You Might Be a Redneck" bits. Recently it occurred to me that, while Foxworthy might get mileage out of deriding "Rednecks," he is missing an even easier target—actuarial consultants. So, I offer the following:

If you can say "my standard rate is $500 per hour" without giggling, you might be an actuarial consultant.

If your reports contain more caveats than conclusions, you might be an actuarial consultant.

If you have enough frequent flier miles to take your entire family to London, first class, but spend your vacations within ten miles of home, you might be an actuarial consultant.

If you spend more time explaining how you do your work than you spend actually doing it, you might be an actuarial consultant.

If you refer to your resume as your curriculum vitae, you might be an actuarial consultant.

If you have four airlines and a limo service on speed dial, you might be an actuarial consultant.

If all of the meals on your expense report are less than $10 or more than $200, you might be an actuarial consultant.

If you spend more money on stationery marked "DRAFT" than you do on your letterhead, you might be an actuarial consultant.

If your second language is PowerPoint, you might be an actuarial consultant.

If your child asks if it would be alright to take your unemployed brother-in-law to school for "careers day," you might be an actuarial consultant.

If you have spent more time reading the new Qualification Standards than you spent studying for your last exam, you might be an actuarial consultant.

If you can intelligently compare the nation's airports in terms of the quality of their snack bars, you might be an actuarial consultant.

And finally, if you have ever been deposed about something you wrote for the *Actuarial Review*, you might be an actuarial consultant. AR

CAS Volunteers, From page 30

contributions include, but are not limited to, committee involvement, participation in CAS meetings and seminars, volunteer efforts for regional affiliates or special interest sections, and involvement with non-CAS actuarial professional organizations. Service as an elected CAS officer or director and authorship of papers published by the CAS are not considered. Past presidents are not eligible.

The award, which is not necessarily made every year, was established in 1990 in honor of Matt Rodermund's years of volunteer service to the CAS. The funding for this award is provided by The Munich American Reinsurance Company and the amount is currently $1,000.

Nominations are due by June 30 for both awards and the winners will be announced at the 2008 CAS Annual Meeting in Seattle. To learn more about these awards and the nomination processes, please visit www.casact.org and site search for "awards and prizes." AR

Cordier Named Mutual Recognition Fellow

CAS Fellow Thomas Cordier (FCAS 2006) successfully attained Fellowship of the Institute of Actuaries of the U.K. via mutual recognition of his qualification with the Casualty Actuarial Society. Cordier is a senior consultant with PricewaterhouseCoopers LLP in London, England. AR

FINANCIAL REPORT – FISCAL YEAR ENDED 9/30/2007

FUNCTION	*REVENUE*		*EXPENSE*		*DIFFERENCE*
Membership Services	$1,584,563		$2,352,020		($767,457)
Seminars	2,333,707		2,096,074		237,633
Meetings	1,078,725		1,103,517		(24,792)
Exams	4,688,514	(a)	4,181,201	(a)	507,313
Publications	17,468		44,317		(26,849)
TOTALS FROM OPERATIONS	$9,702,977		$9,777,128		($74,152)
Interest and Dividend Revenue					178,077
Realized Gain/(Loss) on Marketable Securities					49,076
Unrealized Gain/(Loss) on Marketable Securities					303,466
TOTAL NET INCOME (LOSS)					*$456,465*

NOTE: (a) Includes $2,305,812 of Volunteer Services for income and expense (SFAS 116).

BALANCE SHEET

ASSETS	*9/30/2006*	*9/30/2007*	*DIFFERENCE*
Cash and Cash Equivalents	$1,035,668	$1,037,219	$1,551
T-Bill/Notes, Marketable Securities	4,458,323	5,145,292	686,969
Accrued Interest	14,855	17,978	3,123
Prepaid Expenses / Deposits	236,315	228,590	(7,725)
Prepaid Insurance	34,234	33,067	(1,166)
Accounts Receivable	106,266	83,579	(22,687)
Intangible Pension Asset	4,241	0	(4,241)
Textbook Inventory	6,581	4,066	(2,514)
Computers, Furniture, Leasehold Improvements	372,142	576,060	203,918
Less: Accumulated Depreciation	(277,213)	(334,915)	(57,702)
TOTAL ASSETS	$5,991,411	$6,790,937	$799,526

LIABILITIES	*9/30/2006*	*9/30/2007*	*DIFFERENCE*
Exam Fees Deferred	$867,320	$978,865	$111,545
Seminar Fees Deferred	244,690	253,350	8,660
Accounts Payable and Accrued Expenses	567,772	499,700	(68,072)
Accrued Pension	211,648	156,912	(54,736)
Deferred Leasehold Improvements Allowance	0	171,888	171,888
Deferred Rent Obligation	0	71,285	71,285
TOTAL LIABILITIES	$1,891,430	$2,132,000	$240,571

MEMBERS' EQUITY

Unrestricted	*9/30/2006*	*9/30/2007*	*DIFFERENCE*
CAS Surplus	$3,539,619	$3,996,085	$456,465
Pension minimum liability (net of unamortized service cost of $5,742 - 2005 and $7,860 - 2004)	(37,407)	0	37,407
Michelbacher Fund	140,769	147,424	6,655
CAS Trust - Operating Fund	159,008	172,624	13,616
Centennial Fund	82,265	117,683	35,418
ICA 2014 Fund	0	12,936	12,936
ICAS 2010 "Cape Town" Fund	0	25,873	25,873
ASTIN Fund	21,379	0	(21,379)
Research Fund	85,634	93,330	7,696
Subtotal Unrestricted	$3,991,268	$4,565,956	$574,687

Temporarily Restricted	*9/30/2006*	*9/30/2007*	*DIFFERENCE*
Scholarship Fund	$5,212	$4,958	(254)
Rodermund Fund	7,007	7,338	331
CAS Trust - Ronald Bornhuetter Fund	0	52,006	52,006
CAS Trust - Ronald Ferguson Fund	27,385	28,680	1,295
Subtotal Temporarily Restricted	$39,604	$92,981	$53,377
TOTAL MEMBERS' EQUITY	$4,030,871	$4,658,937	$628,065

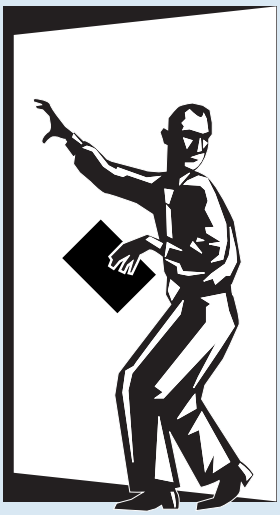
Kenneth Quintilian, Vice President - Administration

AUDITED

CAS Audit Committee: Brian A. Brown, Chairperson;
Steve Johnston and Natalie Vishnevsky

Who Stole the Book?

This puzzle is from M. Golumbic's *Algorithmic Graph Theory and Perfect Graphs*. Six students visited the library on the day a rare book was stolen. Each student entered once, stayed for some time, and left. For any two of them that were in the library at the same time, at least one of them saw the other. The dean questioned the students and learned the following:



Student	Reported seeing
Alice	Bob, Eve
Bob	Alice, Frank
Charlie	Doris, Frank
Doris	Alice, Frank
Eve	Bob, Charlie
Frank	Charlie, Eve

The dean believes that each student reported all the others that he or she saw, with the exception of the thief who, in an attempt to frame another student, reported that other student as being seen when that other student was, in fact, not in the library. Assume the dean's belief is correct. Who stole the book? AR

Unknown Double Crostic

The solution to Alan Putney's very popular double-crostic is:

> We have a professional responsibility to ensure our estimates reflect all that we know—the known knowns. At the other extreme, the public is very tolerant of our inability to predict the unknown unknowns. We must improve our ability to communicate our understanding of the middle ground—the known unknowns. We cannot decline to quantify the known unknowns because of the lurking shadow of the unknown unknowns.

This quote is from a presidential address by Mary Frances Miller.

Jack Brauner, Mary Ellen Cardascia, Ann Conway, Kevin Conway, Todd Dashoff, John Herder, Charlie Hewitt, Ruth Howald, Joe Kilroy, Rich Kollmar, Joe Morris, Jim Murray, Joe Rakstad, Peter Royek, Gregory Scruton, Bruce R. Spidell, David Uhland, and Melissa Vaughn submitted solutions.

Correction

In the column "It's a Puzzlement" titled "Double Crostic—Unknowns (Actuarial Review, February 2008), the letter P114 appears over a black space. The letter is part of the solution and the space should have been clear. AR

The Market For Actuarial Talent

By Arthur J. Schwartz

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

Angie Wachholz, from DW Simpson in Chicago. Angie is a senior recruiter. Her firm specializes in actuarial recruitment within all lines of business, including property & casualty, life, health and pension as well as all levels from entry to Fellows. She can be reached at angie.wachholz@dwsimpson.com.

Margaret Resce Milkint, from Jacobson Associates in Chicago. Margaret is a Partner. Her firm places all types of specialties for insurers; actuaries of course, but also underwriters and claims specialists. She can be reached at margaretmilkint@jacobsononline.com

James Coleman, from Nationwide Actuarial Search in Las Vegas. Jim's firm specializes in placing casualty actuaries only. He can be reached at jim@actuary-recruiter.com

Pauline Reimer, ASA, MAAA, from Pryor Associates in New York. Pauline has been director of the actuarial placement division since 1986 and has nearly a decade of actuarial employment experience in insurance and consulting firms. She can be reached at Paulinereimer@aol.com.

Schwartz: *[Looking at Table 1,] how active is the job market for each of these categories? Are there any areas (either types of practice, skill sets, or backgrounds) that are really "hot" right now? What areas are really "cold?"*

Reimer: All areas of property & casualty are in extremely high demand, especially in comparison to their life, health, and pension actuarial counterparts. All levels of exams and all experience levels are in demand. Especially hot right now are any form of modeling: generalized linear modeling, predictive modeling, or cat modeling. Reinsurance pricing and reserving are always in high demand. On the cold side, in just the last few years, former Attorney General Eliot Spitzer put the kibosh on the once-hot financial reinsurance market, so the demand for people with those skills is low. Also, because of the subprime mortgage debacle, investment banks are not hiring at this time. Hopefully this is just temporary and if we look beyond March 2008, the investment banks will once again recognize the contributions of property & casualty actuaries in performing the securitization of cat bonds and side cars, and they will begin to

Table 1
Typical Salary Ranges for Actuarial Job Candidates
As of Spring 2008
(Based on the roundtable participants' responses)

Applicant	Salary Range*	Approx. Yrs. Experience Needed to Obtain High End Salary†
Students With 1-2 Exams	$45K-$70K	3-4
Students With 3-4 Exams	$55K-$90K	5
Pre-Associate With 5-6 Exams	$65K-$110K	5
New Associate	$80K-$110K	5
Experienced or Career Associate	$90K-$180K	10
Pre-Fellow	$85K-$140K	10
New Fellow	$100K-$175K	10
Experienced Fellow	$115K-$400K+	10+

*These numbers are intended as base salaries without any bonus. Most private firms pay annual bonuses. Bonuses can vary widely among companies, and from year to year, and percentages can range from single digits to double digits.

†At the upper end of the compensation scale, differences in management responsibilities or work responsibilities result in wide differences in the compensation levels of individuals.

rehire actuaries.

Wachholz: We see that actuaries with skills in cat modeling and generalized linear modeling are definitely "hot." Other nontraditional areas of interest to employers are actuaries with skills in ERM (enterprise risk management). The new CERA (certified enterprise risk analyst) designation is becoming an impressive credential for actuaries to have if they want to demonstrate their expertise in ERM. The CERA designation is open to actuaries with an SOA or a CAS background. In addition, at DW Simpson, we are seeing more employers that are interested in hiring actuaries with good "business skills," and they are hiring actuaries into positions like CFO (chief financial officer), which is a nontraditional career path for actuaries. For these employers, the actuarial "skill set" is very attractive; they are looking to actuaries to fill roles that are not specifically "actuarial" but that do require a broad understanding of business trends.

Coleman: Everything's hot in the actuarial marketplace right now. If you have a solid P&C background and are able to communicate effectively, there's a company out there looking for you! All employers, of course, will evaluate the total experience level the candidate brings.

Milkint: We see the same intensity in the market now. The demand for actuarial talent at all exam levels is at a peak. The hot areas are in the nontraditional "space"—predictive modeling, business intelligence and management reporting, product management, and ERM. Actuaries are continuing to move into broad-based business roles and are being sought out for those posts like never before.

Wachholz: We do not see any really cold areas but the recession in 2001 led to a reduction in new students for a few years. There was a hesitancy to add to staff then. That has led to a shortage of students at that level (of about 5 exams to 7 exams). So we see a lot of demand from employers for students at that exam level.

"I like to remind actuarial students that we are the only profession...that is privileged to receive a special package of a study program plus strong study encouragement from employers."
—Pauline Reimer

Coleman: There's really high demand in the 3 exam to 5 exam range now. It seems like almost every company out there is trying to hire students in that exam range.

Reimer: There's really high demand to hire new Associates through new Fellows right now.

Schwartz: *Let's discuss student programs, their features and any trends you are noticing among employers in designing these programs. First, what is the average amount of study time granted per exam?*

Coleman: For the first exam sitting, employers typically offer 120 to 130 hours. If a person doesn't pass the first sitting their study time may be reduced. It generally reduces by as much as half after the first sitting.

Reimer: Not every company reduces the study hours, so some students would continue to receive the same amount of hours for a second or later sitting.

Milkint: We see that as well. Companies have a program but many are using the program as a guideline and will "humanize and personalize" it when appropriate.

Schwartz: *To what extent do employers generally have a required passing rate or a required score (for example, the employer requires one exam passed per three or four sittings or where the employer requires a certain score achieved)?*

Wachholz: Employers generally don't care what your score was: if you pass, you pass.

Reimer: There are some employers that, on a second attempt, will reduce your study time more if your score was a 3 or below (rather than a 4 or 5). If they see you did an honest attempt and got a 4 or 5, or if they know you had a major project to handle during your normal study sessions, these employers may not reduce your study hours. A major trend in the last decade is that companies are offering bonuses for students passing on the first attempt, in addition to the regular standard exam raise. This is an excellent concept because it truly does increase the incentive

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to pass an exam on the first try.

Schwartz: *It's a win-win situation. The candidate wins because they are getting through the exams faster and they are becoming more valuable to the employer with the additional knowledge gained on every successful exam; bluntly, they can tackle more varied projects for their employer. The employer wins as they do not have to spend as much on study time (for a second or third retaking of the same exam) and the employer reduces the costs for their student to retake an exam (the fees to register for and take exams have become very expensive in recent years). A bonus for passing on the first try would definitely add to a student's enthusiasm for doing a good job on their studies and "getting it right the first time."*

Coleman: An interesting observation that we have made recently is that at least one major company has pared back their exam support. This company has clearly moved away from the generous traditional actuarial support that most larger companies continue to offer. With this employer, less emphasis is placed on whether a person is passing actuarial exams, as long as they can do the work.

Reimer: Those property/casualty employers that have a strict rule of requiring students to pass one exam every 3 or 4 sittings tend to be employers that are tied to a life insurance company. Life companies require students to pass according to some fixed frequency—or the student's out of the study program.

"It's important to note that although in a larger company, you get rotated around for 18 to 24 months, in a smaller company... You are essentially rotating every day that you are there!"
—Angie Wachholz

Wachholz: Another important point is whether you are working for a traditional insurance company versus a consulting firm. If you are working for a consulting firm, you may not get as much study time, because when a client calls, you have to jump.

Coleman: That's particularly true in the first half of the year when reserving and Annual Statement work make for a super-busy workload. Consulting companies are particularly challenging environments for students to find study time. Study time is often easier to take toward the second half of the year.

Reimer: I like to remind actuarial students that we are the only profession, not only in the insurance industry but among any type of financial services company, that is privileged to receive a special package of a study program plus strong study encouragement from employers. Even looking at other professions, such as lawyers, doctors, CFAs, or CPAs, there usually is no strong level of employer support for their studies. Not all actuarial students seem to appreciate how special the privilege really is to study during an employer's normal working hours. The companies that Coleman mentions are putting actuarial students on the same level as other college graduates with strong economic, financial, or quantitative backgrounds.

Milkint: The P&C actuarial student is really in an enviable position today. He or she is being groomed technically for success through the CAS examination process plus many students are being groomed for leadership and management roles at earlier and earlier stages of their career. As a trend, companies see the value of providing a balanced experience to their actuaries at the student level and certainly at the Associate level. It's great for the recruitment and the retention of Generation Y!

Schwartz: *Do employers generally grant attendance at exam seminars, and if so, how often?*

Wachholz: Employers typically let a student go to one seminar per each exam taken. If you pass two exams per year, then a student can usually attend two exam seminars. It depends on the company. Most employers prefer that you attend a seminar that's close by (in town or geographically). They'll typically pay for travel to the seminar, the hotel, meals, and the seminar fees as well.

Schwartz: *Do employers usually pay for study materials and exam fees? [Study materials include texts on the syllabus, and exam questions with model answers.]*

Coleman: In general, employers pay for these materials and fees fully. However we do see some employers (relatively few) asking students to pay for these costs up front, with the employer reimbursing the student after the exam if the student has been successful and passed.

Wachholz: I have seen this happen recently with two candidates. This policy does make sense. Another twist on this is that the employer pays for half of these materials and fees up front. If you pass, they will reimburse you the other half. This gives students more of an incentive to pass the exam. This trend though is pretty rare; the vast majority of employers pay fully for

study materials and exam fees. Some materials like books have to be returned to the company.

Coleman: Books and other study materials are often part of an employer's library and are shared with other students coming up through the exams.

Milkint: Companies are typically very generous. We see all costs being covered and have not heard of any scaling back with this benefit.

Reimer: Some employers won't pay for study materials that are duplicative. For example, employers will generally pay for only one provider of study notes, not two.

Schwartz: *How do employers plan a student's job rotation to other parts of the company (to help the student become more well-rounded and knowledgeable about the employer's business)?*

Coleman: Large employers generally have rotations lasting 18 to 24 months in different areas such as pricing, reserving, and underwriting. Smaller employers may not have formal rotation programs—but students in smaller companies are going to get much broader exposure in their duties and therefore may have a more thorough experience base.

Wachholz: It's important to note that although, in a larger company, you get rotated around for 18 to 24 months, in a smaller company that lacks a formal rotation program you are not doing the same thing every 18 to 24 months. You are essentially rotating every day you are there! Sometimes that's important to point out to students who get blinded by the large company's rotation program. In the smaller company, the student actually gains more business and actuarial skills. In the smaller company, the result is the same—and possibly better!

Coleman: You see projects from start to finish in a smaller company, that in a large company you may see rarely, if ever.

Wachholz: Also in a small company, the student may be working right alongside the chief actuary, whereas in the large company you may not ever work with the chief actuary.

Milkint: We see many companies creating a career strategy with their new hires. The rotational program has evolved into a true career development and a management development tool. There is shared decision-making to ensure that the student actuary is seeing and being exposed to the areas or disciplines they are most attracted to or appear to be well-suited for. Many rotations now include moves into non-actuarial areas like underwriting, finance, investments, or even IT.

Reimer: A novice to the actuarial profession is in awe of a rotational program. They think it's gold. They don't realize that in a small company, they could have the equivalent of ten different rotations in a single year.

Schwartz: *Table 2 shows figures on the average salary increase per exam passed. What other trends do you see regarding salary and exams?*

Reimer: A very important trend is the first-time bonuses, for passing an exam on the first sitting, and that ranges from 50% to 100% of the flat dollar exam increases. There are some companies that have a percent increase per exam passed rather than a flat dollar amount; these percents range from 5% to 7% per exam. These percent increases are very rare among employers; however, they are very productive in creating a significant incentive for their students to pass exams quickly.

Wachholz: It's important to note that in most companies passing exams is a significant and integral part of a student's position. Students who progress quickly and successfully through the exams are also more likely to be successful from an overall career perspective.

Schwartz: *To what extent will you see a student choosing among employers based on an employer's student programs and, if so, what features do students most appreciate?*

Table 2
Average Raise Per Exam Passed or Credential Received

Exam Passed	Salary Increase
Exams 1-2	$1,500-$2,000
Exams 3-4	$1,800-$2,500
Exams 5-7	$1,800-$3,000
Exams 8-9	$2,500-$4,000
Attaining Associateship	$2,000-$3,500
Attaining Fellowship	$2,500-$5,000

"If you have a solid P&C background and are able to communicate effectively, there's a company out there looking for you!"
—Jim Coleman

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Wachholz: Students really like it when they can take study time at home or at their office—but only when there's a quiet area for them at the office, so that they don't have to study at their desks. Some students, especially those facing a long commute, like to take a full day off or come in late while getting in their study time at home. The reason is that if students are sitting at their desks, they may be pulled into other projects. On the other hand, some employers really want students to study at their desks, so if an emergency comes up, they can bring the students in quickly.

Reimer: Employers with the latter policy want to ensure that students don't abuse their study time. They want students that treat their study time as a privilege.

"The P&C actuarial student is really in an enviable position today. He or she is being groomed technically for success through the CAS examination process plus many students are being groomed for leadership and management roles at earlier and earlier stages of their career."
—Margaret Resce Milkint

Coleman: Most students strongly prefer when an employer lets them take study time in half-day or full-day blocks (as opposed to two hours here or one hour there, when they can find the time). Also students strongly prefer to take the study time away from the office.

Wachholz: It's a matter of flexibility. In today's job market, employees are looking for some flexibility in their work schedules. Many students are trying to achieve an appropriate "work-life" balance. Having the flexibility to take some study time at home is very attractive to many students.

Milkint: The student program is a big factor for most students. They often become experts in their employer's attitude towards exams by closely studying the features of the student program. Employer support and flexibility in applying the program to an individual student's needs and talents are critical to attract and retain the top students.

Schwartz: *Are there any other interesting or unusual features of student programs or trends in student programs that you see?*

Coleman: Many employers keep the features of their student programs in confidence. They are reluctant to put the details in the open; perhaps they don't want it shared with other employers (whom they're competing with for actuarial talent).

Wachholz: Many employers see the features of their student programs as proprietary information. They prefer to keep things close to the vest.

Coleman: Some employers will tell you exam range increases, but they won't send prospective new hires anything in writing. Also, employers may show exam increases in percentages of base pay versus a flat dollar amount.

Milkint: A trend that we see incorporated in a few innovative student programs is the appointment of a mentor to guide the student through the process of exams and also into assimilation into the company. The mentor is typically not the student's manager. This added feature is very well received.

Wachholz: One trend that we see is that students often want to see a copy of the student program before they join a company. Often companies will walk them through the features verbally. Once the student accepts a job, then companies will send them something in writing. They feel the student's now "part of the team."

Schwartz: *How do companies know if their student programs are competitive?*

Reimer: There are forums such as ASNY (Actuarial Society of Greater New York) where we'll actually have annual meetings for employers to discuss and compare details of their student programs. Most employers do not want actuarial talent leaving their company just because their student program is not competitive.

Wachholz: Students talk a lot amongst themselves about student programs. They often use the CAS discussion forums or the Actuarial Outpost, a Web site that DW Simpson sponsors. The students are on the Actuarial Outpost, asking questions, discussing features of their current employers program. That discussion gets back to employers and helps to equalize the program features.

Milkint: The actuarial profession is so committed to its growth and the success of each student that sharing and collaboration is the norm—not the exception. Hiring managers will share high-level information with each other and companies are constantly "testing" their competitiveness. It is good for the profession and the industry.

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

Family Ties Redux

The February 2008 *AR* article on brothers James and Kenneth Leonard receiving their Fellowships generated quite a few responses to the call for actuarial family ties. Following is a partial list of CAS members who are related to each other taken from the CAS database (2006-2008).

Spouses (Wives and Husbands)

Irene Bass and Stan Khury

Rachel Marie and Tapio Boles

Nancy and Paul Braithwaite

Luyuan Chai and Scott Klabacha

Rebecca J. and David B. Gordon

Stephanie Groharing and Christopher David Bohn

Julie Joyce and Kyle Falconbury

Kim and Scott Kurban

Catherine Larson and Steven M. Wilson

Sally and John Levy

Reng Lin and Yuxiang Lei

Debra and Chuck McClenahan

Robin and Dave Murray

Ginette Pacansky and Charles Gegax

Donna Reed and Andy Kudera

Christina and David Rosenzweig

Marie-Pierre Valiquette and Philippe Gosselin

Yanjun Yao and Zhijian Xiong

CAS Members	Relation
Jason J. Culp and Paul B. Deemer	Cousins
Philip M. Imm, Kenneth Lee Leonard Jr., and James J. Leonard	Cousins
John E. Kollar and John J. Kollar	Son and Father
Jennifer Marie Lehman and Layne Onufer	Daughter-in-law and Mother-in-law
Steve Lehmann and Todd Lehmann	Father and Son
James J. Leonard and Kenneth Lee Leonard Jr.	Brothers
Kevin C. McAllister and Sean M. McAllister	Father and Son
Brad M. Ritter and Bruce A. Ritter	Brothers
Jennifer Lee Scull and April Scull Truebe	Sisters
Damon Raben and Kim R. Rosen	Brother-in-law and Sister-in-law
Jay Rosen and Kim R. Rosen	Brother-in-law and Sister-in-law
Bryan C. Ware and Gabriel Matthew Ware	Uncle and Nephew
Ronald J. Zaleski Sr. and Ronald J. Zaleski Jr.	Father and Son

Jeffrey Pluger wrote of his family situation as follows:

"My family has:

Jeffrey Pfluger FCAS (2004)—me

Mary Swyers FSA (1996)—my sister (formerly Mary Pfluger)

Mikel Swyers FSA (2002)—my brother-in-law (Mary's husband)

Ronald C. Nelson FSA (1987)—my brother-in-law (married to a different sister of mine)

"Somewhat obviously, Ron started it all. Unfortunately for my family, I am the only P&C actuary."

Thanks to Jeffrey Pfluger, Sally Levy, Min Jiang, Julie Joyce, and John J. Kollar for their contributions to the list.

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

CAS PROFESSIONAL EDUCATION CALENDAR

June 15-18, 2008
CAS Spring Meeting
Fairmont Le Château Frontenac
Québec City, Québec, Canada

July 03-04, 2008
The Actuarial Profession's Limited Attendance Seminar on Stochastic Reserving and Modelling
London, England, U.K.
www.actuaries.org/uk

XXXVIIIth ASTIN Colloquium
July 13-16, 2008
Manchester Town Hall
Manchester, England, U.K.
www.actuaries.org/ASTIN2008/

September 15, 2008
CAS Reinsurance Limited Attendance Seminar
Embassy Suites
New York, New York, U.S.A.

September 18-19, 2008
Casualty Loss Reserve Seminar
Omni Shoreham
Washington,DC, U.S.A.

October 06-07, 2008
CAS Predictive Modeling Seminar
The Westin San Diego
San Diego, California, U.S.A.

November 16-19, 2008
2008 CAS Annual Meeting
Sheraton Seattle Hotel
Seattle, Washington, U.S.A.

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

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