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On July 3, 2006, Huang Linfang (right), Vice President of Shanghai University of Finance and Economics, met with Stephen P. D'Arcy, then chairman of the CAS Board of Directors. D'Arcy lectured at the University in summer 2006.



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CAS Announces Ronald Bornhuetter Loss Reserve Prize

San Francisco, Ca.—At the 2006 CAS Annual Meeting CAS President Paul Braithwaite announced that the CAS Reserves Prize was being renamed the Ronald Bornhuetter Loss Reserves Prize to commemorate Bornhuetter's contributions to the CAS and the actuarial profession.




Ronald Bornhuetter

Bornhuetter's remarkable record of service to the CAS and its members includes membership on the CAS Board of Directors from 1989 to 1992, giving the address to new members in both 1997 and 2005, and serving as CAS president in 1975-76. He has published numerous papers in the *Proceedings* including "The Actuary and IBNR," a paper he cowrote with Ronald Ferguson. Published in 1972, the paper introduced the Bornhuetter-Ferguson approach. As of the 2006 Annual Meeting, he has attended exactly 100 CAS meetings during his career. Bornhuetter earned his FCAS designation fifty years ago in 1957.

When recently contacted, Bornhuetter said, "I wish to thank the directors of the CAS for allowing my name to be associated with the loss reserves prize. I am very proud of the honor. Loss reserves has always been my passion, especially in the casualty reinsurance area. Both Ron Ferguson and I are always amazed as to how long and far the 'B-F formula' continues to be cited by actuarial professionals worldwide."

In 1979, CAS president Jim MacGinnitie and AAA president Ron Bornhuetter put together the first Loss Reserve Seminar at Allstate. "[It] was held for regulators, financial analysts, and others who did not have an actuarial background. We have marveled as to what it has become," said Bornhuetter.

The Ronald Bornhuetter Loss Reserve Prize will be awarded to the author or authors of the best paper submitted in response to a call for papers on reserves, whenever such call is conducted by the Committee on Reserves of the Casualty Actuarial Society. The award be announced at the Casualty Loss Reserve Seminar where the papers are presented. Glen G. Meyers received the 2006 Loss Reserve Prize for "Estimating Predictive Distributions for Loss Reserve Models. 

Revisiting “Models vs. Methods”

This issue contains more articles and letters responding to my “Models vs. Methods” column (*The Actuarial Review*, November 2006). I have enjoyed reading them, and they made me realize that I wrote from a very narrow perspective.

I operate in a very small band of the insurance spectrum, excess workers compensation for self-insured employers. Some industry sources estimate that more than a third of all workers compensation exposure in the U.S. is self-insured. Several insurers write this coverage, but only two insurers in the U.S. specialize in it. Roughly 90% of my company’s annual written premium is XWC. For practical purposes, then, I work for a monoline insurer. Our risk management process is relatively simple compared to that of any multiline insurer.

Let me describe this niche business briefly. Large employers in most states are permitted to self-insure their workers compensation exposure, providing they meet certain standards of financial strength. Many states also allow multiple employers, usually in the same industry, to form an association and self-insure as a group. The self-insurer (or self-insured group) is responsible for reporting to the state, handling claims, and paying all workers compensation benefits to injured employees. A third-party claims administrator is typically hired to serve as the employer’s claims department, but the employer is the insurer.

Whether by regulation or by choice, self-insured employers usually buy XWC coverage—per occurrence, aggregate stop loss, or both—to limit their financial risk. It’s similar to a primary WC insurer buying reinsurance. The XWC insurer reimburses the employer for benefit payments that stem from a single occurrence and exceed the employer’s self-insured retention, or SIR. If the XWC policy provides aggregate excess coverage, then the XWC insurer reimburses the employer for total benefit payments during a specified period of time that exceed the employer’s aggregate attachment point, also called the “loss fund.”

We have spent more than thirty years studying this XWC line of business, and I have been here for the last twenty. We have not

found a reasonable, well-behaved, closed-form distribution that fits our claim frequency or our claim severity closely enough to suit us. As a result, we rely on a variety of time-tested methods in our pricing and reserving. More correctly, we still use non-stochastic, deterministic models. That’s what methods are. The term “methods” sometimes seems to connote mindlessly applying rote formulas to raw data and accepting the results at face value. We believe the deterministic models give us reliable and reasonably accurate results. In stochastic modeling, the “signal” would be overwhelmed by all the “noise,” and we would not glean much useful and credible information that we don’t already know about the risk characteristics of this line of business.

We don’t know how many years it takes on average for ultimate XWC losses to reach ultimate, but we do know it’s at least forty.

We have not been able to develop stochastic models that fit our experience well enough to dispense with the deterministic models.

It takes about ten years on average until reported XWC accident year claim count reaches 50% of ultimate. The injuries generally stem from what can best be described as random, freak accidents. Medical technology and treatment of traumatic injuries has advanced so much that a permanent total claim twenty years ago might be a medical only claim today. Everything has changed so much over the last thirty years—medical technology, WC benefit levels, wage levels, drug utilization, definitions of compensability, you name it—that we have to take our estimates of current-level losses with several grains of salt.

A \$500,000 SIR is not unusual these days, and few WC claims ever get this large. Indeed, we have had only about 5,000 claims

In My Opinion page 4

Dear Editor:

Tom Myers' column in the February 2007 *Actuarial Review* ("From the President: Is The U.S. Actuarial Profession at Risk?") contains two significant misconceptions. We have encountered very similar statements elsewhere (for example, in a presentation at the SOA Annual Meeting last year), and it seems possible that they are based on the same source document.

The first point is that Equitable Life did not go bankrupt, and, in fact, it has continued to meet its required solvency margin at all times according to its regulatory returns. It is still trading and meeting contractual obligations in full as they fall due. However, it did become financially weak and had to cease accepting new business at the end of 2000.

The second misconception relates to the role of the Financial Reporting Council (FRC). The FRC has indeed been charged with oversight of the actuarial profession, but its involvement is less intrusive than the article suggests. The new Board for Actuarial Standards, an operating board of the FRC, has now taken over responsibility for producing technical standards for members of the Institute and Faculty working in the UK. The Professional Oversight Board, another operating board, oversees our activities in the area of ethical standards, education and CPD development, and disciplinary arrangements, as your article suggests. However, its role is to make recommendations in these areas, which the profession is not obliged to accept. Apart from the area of technical standard setting, therefore, the U.K. actuarial

profession remains self-governing, and the loss of autonomy has been quite limited.

It is perhaps also worth making the point that, while the timing of the Morris Review of the U.K. actuarial profession was undoubtedly linked to the problems at Equitable Life, similar reviews have been conducted for the other major professions in the U.K., with similar consequences. The actuarial profession has not been singled out for special treatment.

None of this diminishes in any way the value of the CRUSAP review—it is clearly better for any profession to put its own house in order than to risk having changes imposed on it—so the second half of the article remains entirely valid. However, we thought it important to write to correct the errors in the first half, to prevent them from becoming part of actuarial folklore.

With best wishes,

—Stewart Ritchie, *President, Faculty of Actuaries*

—Nick Dumbreck, *President, Institute of Actuaries*

Dear Editor:

Regarding the recent "Humor Me" column by Mike Ersevimi (*AR*, February 2007), no self-respecting actuary would ever have to balance his/her checkbook at all, let alone using Excel.

And most of them know their grocery bill before they reach the checkout.

—Ed Shoop, *FCAS* 

In My Opinion From page 3

reported for the latest thirty accident years. Only a minuscule amount of self-insurance claim data is reported to WC statistical advisory organizations, so XWC "bureau data" is effectively nonexistent.

We have not been able to develop stochastic models that fit our experience well enough to dispense with the deterministic models. I suppose I could pick the best of a bad lot and assume, for example, that severity follows a Weibull distribution (or whatever) and frequency follows a Negative Binomial distribution (or whatever). But will this help me analyze the risk characteristics of our book of business? No. It might be fun, and I might crank out a lot of cool charts and statistics, but is it relevant to the business? Not necessarily. I'll simply be playing with a convenient model.

The underwriters want guidance on terms and pricing, the accountants want reserve estimates, and senior management wants a current valuation of our long-term profitability. I'll keep using our deterministic models.

I'll also continue to work stochastic models. If I find a good one, I will use it. 

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, Brainstorms, It's a Puzzlement, etc. Send your comments and suggestions to:

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Principles and Standards



It's a bird! It's a plane! It's a principle! It's a standard! If you've ever been confused about the relative roles of principles and standards in providing guidance on your work, you're certainly not alone.

According to *Webster's Dictionary*, a principle is "a comprehensive and fundamental law, doctrine or assumption" or "a rule or code of conduct." A standard is "something established by authority, custom, or general consent as a model or example." These dictionary definitions don't help much to resolve the confusion about principles and standards as they apply to actuarial practice.

In 1988-89, the CAS Board adopted three statements of principles (on loss and loss adjustment expense reserves, ratemaking, and valuations) to provide guidance to members. These statements were adopted before there were any standards of practice, at least in the U.S. In the nearly 20 years since then, many of the countries in which our members practice have developed standards of practice to provide guidance within each jurisdiction. The International Actuarial Association (IAA) has also begun to develop standards of practice that may serve as a model in many countries.

In an environment that judges professional performance based on standards of practice, is there any role for actuarial principles? If so, do the existing statements of principles serve an appropriate role? The existing statements, written more than 20 years ago in a pre-standards world, appear to overlap and sometimes conflict with subsequently adopted standards of practice.


As the CAS leadership began to discuss this issue, there was a great deal of uncertainty about the appropriate role of principles in a "standards-based" world. In January 2007, the CAS formed a task force, headed by Rich Fein, to review the current situation and make recommendations about whether there's an appropriate or necessary role for principles today, and to review the existing statements of principles in light of the recommended role for principles, if any. Following a discussion of their preliminary

findings with the board in March 2007, the task force is expected to make final recommendations on these issues to the board in June 2007. At that point, the board will decide what to do with the existing CAS statements of principles. In addition, the CAS has been working with the SOA to develop a broad set of general actuarial principles and these should also be reviewed in light of the task force recommendations.

At some point, we may also want to look at the question of whether we need to fill any gaps in the country-by-country patchwork of standards. As a learned body, the CAS leaves the establishment of standards of practice to the national actuarial organizations within each jurisdiction in which our members

In an environment that judges professional performance based on standards of practice, is there any role for actuarial principles?

practice. However, there are jurisdictions where there currently is no national organization (e.g., Bermuda) or where the national organization doesn't have the resources to develop a robust set of standards. Does the CAS have a role to play in these instances? Should we encourage the IAA take the lead in addressing this situation? Can we provide resources to help developing national organizations to better fulfill their role (as we do with many of the established national organizations)? Can we help to form national organizations where they currently don't exist? The CAS leadership has begun to discuss these issues, particularly with respect to standards for continuing education.

In the end, our goal should be to make sure that we're providing appropriate, but not confusing or conflicting, guidance to our members to help them to act professionally. Look for more information on this issue in coming months. 

Are We Fixated On The Past Or Looking To The Future?—Part 1

“It’s déjà vu all over again!”—Yogi Berra

IncREDible But Not Required. Incomplete But Never Realized. We’ve all heard terms like these used to refer to IBNR liabilities. Now actuaries are using the same kind of unfortunate language to refer to models rather than methods—and distributions as opposed to ranges.

Consider Paul Lacko’s editorial (“Methods or Models?” November 2006), published partly in response to attending my session (“Reserve Variability: Moving from Methods to Models”) at the 2006 Casualty Loss Reserves Seminar last September. Mr. Lacko’s key concerns seem to be that the new models, with their percentiles and distributions rather than single point estimates and ranges, are too complicated to use and to explain. They encompass too many parameters and require so much time that they aren’t even practical in the real world of ubiquitous we-want-it-yesterday deadlines. Plus they make for messy financial statements, nobody is using them, and nobody wants them. Besides, you don’t get to apply any of the actuarial judgment that your years of education, training, and experience entitle you to use.

Mr. Lacko’s lament is actually quite useful, because he also raises two larger problems that we, as a profession, need to address. How do we use models? And how do we communicate the value-added component of emerging reserving models? While it might seem that actuaries have the most to gain from these models—more cool toys, Greek letters, and esoteric research—it is nonactuaries who will benefit most. That’s because these models are trying to achieve something that is of interest to CEOs, rating agencies, and regulators: a better understanding of the nature of risk. Indeed, it is the actuaries who have the most to lose if other risk analysts step in to provide a better understanding of risk.

A Cultural Evolution

The shift toward using distributions is not so much a technical problem, as Mr. Lacko suggests, as it is a cultural problem. This

is going to be a lengthy subject of conversation for our profession—one that will take years to play out. After all, the roots of our current methods (which only produce point estimates) date back to the early part of the last century when actuaries began talking about how to calculate IBNR. The new models (which produce a distribution of possible outcomes) only became feasible in the Computer Age and we have just begun to see their full potential.

Ironically, Mr. Lacko’s most compelling argument in favor of the old reserving workhorses is compliance with accounting standards. Certainly development methods, Bornhuetter-Ferguson

...these models are trying to achieve something that is of interest to CEOs, rating agencies, and regulators—a better understanding of the nature of risk. Indeed, it is the actuaries who have the most to lose if other risk analysts step in to provide a better understanding of risk.

projections, and the rest of the tried-and-true methods that provide us with point estimates and ranges are useful and will remain so. Obviously we have to choose a number for accounting purposes and I do not want to diminish the reasons for picking a number in any way, shape, or form. But I say it’s ironic because it’s the regulators and rating agencies that are driving the move toward the use of the new actuarial tools. And there is a reason for that: modeling tools add value. It’s one thing to know that an insurer faces risk. It’s quite another to quantify that risk.

Granted, actuaries already understand risk—but we may be able to garner a deeper grasp of issues that shape the distribution (e.g., inflation, skewness of process variance, exposures, etc.) as we gain insights from undertaking the model analysis. More impor-

Board Reaffirms Long-Term Vision for CAS

Tucson, Az.—In order to more clearly articulate the vision for the Casualty Actuarial Society at its 100th Anniversary, the CAS Board of Directors approved refreshed wording for the CAS Centennial Goal during its meeting held here March 15-16, 2007.

The Centennial Goal, which is intended to serve as a clear, compelling, and energizing focal point for the efforts of the CAS through 2014, now reads:

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

While the refreshed language does not reflect a change in direction for the CAS, it does clarify that direction and reflects the evolution of the environment in which the CAS operates.


The refinement to the wording also reflects concerns that had been raised by CAS members through the 2006 membership survey on the Goal conducted by the Strategic Planning Committee [See box below for more information on this newly renamed committee]. Members were concerned that the words in the Goal

did not reflect an appropriate intent, and the language has been clarified accordingly.

The first sentence of the Goal is intended to express the desire for the CAS to be a leader in the worldwide general insurance actuarial community while partnering with others to expand the actuarial resources and breadth of opportunities within the worldwide general insurance industry.

The second sentence is intended to express the vision that CAS members will advance their expertise in pricing, reserving, and modeling, and leverage their skills in risk analysis to expand into broader areas. We will retain and strengthen our current skills in pricing, reserving, and modeling while positioning CAS members to take leading roles in enterprise risk management.

As for next steps, the Strategic Planning Committee has been tasked with reviewing the CAS's Significant, Attainable, and Measurable (SAM) goals. These goals are specific objectives meant to help measure progress towards the Centennial Goal. The SAM goals will guide CAS actions through 2014.

The CAS has benefited tremendously from member input in determining what we want the CAS to be in the future. Your continued participation and comments are welcome and can be directed to Regina Berens, Chairperson, Strategic Planning Committee, at Regina_Berens@swissre.com. 

A Committee's New Name and New Charge

The Strategic Planning Committee was formerly known as the Long Range Planning Committee. During the March 2007 Board meeting, the Board approved the committee's name change and new charge, which is to:

- Recommend strategy to the Board to enable the CAS to better realize its mission as stated in the Constitution and achieve strategic objectives endorsed by the Board.
- Develop related goals that support the strategic objectives and, at the same time, identify strategic risks and opportunities facing the CAS and coordinate with the CAS ERM Committee on the management of these risks and opportunities.
- Liaise with the Executive Council with respect to the interaction of strategy with tactics pursued by the various CAS Committees and Task Forces.
- Maintain liaison relationships with planning groups in other actuarial organizations, both domestically and internationally.

The members of the Strategic Planning Committee are Regina M. Berens, Chairperson; Nolan E. Asch; Kevin Michael Bingham; LeRoy A. Boison Jr.; Christopher S. Carlson; Ann M. Conway; Andrew J. Doll; Larry A. Haefner; Curtis E. Huntington FSA; David F. Mohrman; Roosevelt C. Mosley; Richard D. Pagnozzi; Dale S. Porfilio; Kenneth Quintilian; Michael L. Toothman; and Robert F. Wolf.

tantly, models give us the ability to describe risk more completely to other people—executives, regulators, rating agencies, and board members who don’t crunch the numbers themselves.

Moreover, these people know that whatever number is chosen

Nowhere does it say “Thou Shalt Provide Distributions on X Date.”

to book for the reserve is simply an estimate. When (if ever) was the last time a booked reserve actually turned out to be the exact number? Why do we have a detailed Schedule P tracking changes in the estimates over time? Why is “loss development” regularly referred to in discussing earnings and how to interpret them?

Only when the analysis produces distributions can we begin to answer the types of questions that insurance regulators, the Securities and Exchange Commission, rating agencies—even board members—are beginning to ask. How good could it get? How bad could it get? What’s the chance it could be that bad? We can’t answer these important questions based on the methods that produce point estimates and ranges without using broadly based rules of thumb. Nor can we answer the far more fundamental questions at the heart of the insurance industry: What’s the risk involved in these particular lines of business? And how much capital do you need to support that risk?

Make no mistake. Nowhere does it say “Thou Shalt Provide Distributions on X Date.” But regulators are beginning to tell us they want more than just a blessing from the actuary. Even the SEC, which is focused on the information disclosed in 10Ks, is asking companies to define their risk in more quantitative terms. As for the rating agencies, they have already been engaged in dynamic risk modeling (DRM)—they are telling insurers that if they feel their rating is somehow inappropriate and they want the rating agency to have better insight into a company’s risks and what it’s doing, distributions are a key component of risk assessment. While the actuaries focused on statements of opinion may not be ready to use distributions, actuaries engaged in discussions of risk with regulators and rating agencies almost certainly are.

Here’s the bottom line: there should be two goals. The first goal should be to derive the best estimate of the unpaid claims. The second, and equally important, goal should be to improve risk management by providing a clearer understanding of the risk.

To put it another way: let’s not confuse the fundamental questions about risk management with issues about complying with

accounting standards. Accounting is not the goal. Accounting is a reflection of the goal.


So why don’t we, as a profession, seem to understand this? We are caught up in a communications snafu related to the language we use. For example, we define ranges precisely in our Standards of Practice to mean, essentially, “a series of point estimates.” But in the next breath, we say that we could also (or alternatively) use a distribution—and, oh by the way, we are going to call that a range too so that we are not confused by terminology!

Even though we say the word “distribution,” we see “point estimates.” Because we tend to say things like, “Here is the distribution of point estimates I get from these different methods.” And then there are questions about percentiles and how your “high” and “low” estimates relate to probabilities even though we only have point estimates. Think you’re confused at this point? How do

**Let’s not confuse the
fundamental questions
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Accounting is not the goal.
Accounting is a reflection of the
goal.**

you think nonactuaries are interpreting this terminology?

Let’s be clear: ranges and distributions are different animals altogether. In other words, as soon as we start having conversations about percentiles and distributions, the analysis must change. We cannot discuss percentiles and distributions when we have a range of point estimates. It’s just impossible. Unfortunately when we do a point estimate analysis using the old familiar methods, we have no information about what the distribution looks like. None. Thus, the “models versus methods” terminology isn’t really the point; the point is the type of analysis they can provide. While Mr. Lacko notes that different methods can give us a range, we must remember that the idea behind ranges only extends to how much room there is in terms of what we think the “average” outcome might be—not the distribution of possible outcomes as suggested by Mr. Lacko. I put average in quotes because, given only the point estimates, you don’t know if you are calculating the average or not.

Editor’s Note: For more on this topic, see Part 2 of this article beginning on page 19. 

Educating Data Managers

Insurance Data Collection and Reporting, Eighth edition, Rose Castro, Editor. Insurance Data Management Association: Jersey City, New Jersey. \$25 (IDMA Members); \$50 (Non-Members)

Reviewed by Shiwen Jiang, Member, CAS Data Management Educational Materials Working Party

Editor's Note: All of the working party's book reviews are collected and compared in our article "Survey of Data Management and Data Quality Texts" published in the Winter 2007 Forum.


Edited by Rose Castro, this book is one of the textbooks recommended by the Insurance Data Management Association (IDMA) to educate data managers. As a textbook, it is well written and quite easy to follow. There are 10 chapters in total.

The first three chapters introduce underwriting and actuarial ratemaking, highlighting the necessity of high-quality insurance data. As the author rightly points out in the first chapter, both line underwriters and staff underwriters need data to perform their daily jobs. Moreover, actuaries rely heavily on data to analyze loss reserves and conduct rate-level experience reviews. Chapter 2 discusses general ratemaking procedures widely used by property/casualty actuaries. These procedures include pure premium method, loss ratio method, and distribution of an overall indication to territories/classes. Workers compensation ratemaking, a different animal as usual, is elaborated in the third chapter. NCCI has three types of systems to perform ratemaking functions: the administered pricing system, the advisory rate system and the loss cost system.

Chapters 4 to 9 focus on various types of statistical agents such as ISO, NAI, and NCCI. Chapter 4 gives a general back-

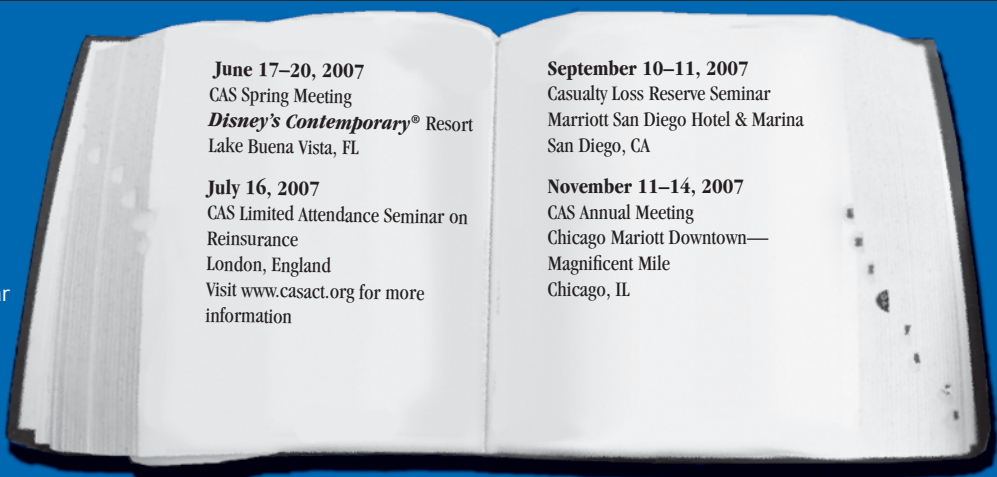
ground of insurance regulation and statistical reporting. Two important court decisions (*Paul v. Virginia* and *South-Eastern Underwriters Association*) and two laws (McCarran-Ferguson Act and All-Industry Rating Bills) are cited. These help readers understand the historical context in which insurance regulation has evolved. Chapter 4 also gives a high-level review of statistical agents. Chapter 5 summarizes various statistical agent reports and three basic report designs (annual statistical compilations, fast-track monitoring system, and accelerated reports). Chapter 6's detailed description of ISO highlights ISO's statistical plans and touches upon the process that they go through after receiving data. Chapters 7 and 8 describe the NAI and NCCI statistical plans in detail. Chapter 9 identifies organizations specializing in data collection that do not fall into the above categories, mostly involuntary pools.

Chapter 10 focuses on state insurance departments including the history of insurance regulation regarding insurance data and state data needs.

Overall, this book provides excellent study material for data managers to get a good understanding of insurance data collection/reporting. Actuaries have learned most of the contents of this book through CAS exams. For them, this book not only gives a good review but also helps to piece together a big picture of data management. 

CAS Professional Education Calendar

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



New Code of Ethics for Candidates Approved

By Kevin M. Dyke, Vice Chairperson, Committee on Professionalism Education

Upon becoming a member of the CAS, all Associates and Fellows agree to abide by a Code of Professional Conduct. A similar standard has not yet been applied to candidates. If you supervise candidates, you should know that this will soon change. The new CAS Code of Professional Ethics for Candidates has been approved by the CAS Board of Directors and becomes effective January 1, 2008.

The purpose of the new code is to require actuarial candidates to adhere to the high standards of conduct, practice, and qualifications of the actuarial profession, thereby supporting the

actuarial profession in fulfilling its responsibility to the public. It is important that employers and managers of candidates become familiar with this new code. The Code of Professional Ethics for Candidates includes seven rules:

Rule 1: An Actuarial Candidate shall act honestly, with integrity and competence, to uphold the reputation of the actuarial profession.

Rule 2: An Actuarial Candidate shall not engage in any professional conduct involving dishonesty, fraud, deceit, or misrepresentation, or commit any act that reflects adversely on the actuarial profession.


Rule 3: An Actuarial Candidate shall perform Actuarial Services with courtesy and professional respect and shall cooperate with others in the Principal's interest.

Rule 4: An Actuarial Candidate shall adhere to the CAS Policy on Examination Discipline.

Rule 5: Actuarial Candidates are not authorized to use membership designations of the CAS until they are admitted to membership by the CAS Executive Council.

Rule 6: An Actuarial Candidate shall not disclose to another party any confidential information unless authorized to do so by the Principal or required to do so by law, statute, or regulation. Confidential information includes information of a proprietary nature and information that is legally restricted from circulation.

Rule 7: An Actuarial Candidate shall respond promptly, truthfully, and fully to any request for information by, and cooperate fully with, appropriate counseling and disciplinary body of the CAS in connection with any disciplinary, counseling or other proceeding of such body relating to the Candidate Code. The Actuarial Candidate's responsibility to respond shall be subject to applicable restrictions listed in Rule 6 and those imposed by law, statute, or regulation.

Beginning with the spring 2008 exam sitting, candidates who register for CAS Exams 3 and 5-9 will be required to sign a statement on the application that they agree to abide by the terms and conditions of the Code. The Complete Code is available in the "Admissions/Exams" section of the CAS Web Site. 

CAS International Calendar

June 19-22, 2007

37th International ASTIN Colloquium

Lake Buena Vista, Florida, U.S.A.

Disney's Contemporary® Resort

www.actuaries.org/ASTIN2007/

July 16, 2007

Limited Attendance Seminar on Reinsurance

London, England

www.casact.org/calendar

August 20-24, 2007

Market-Valuation Methods in Life and Pension Insurance—20th Int'l Summer School of The Swiss Association of Actuaries

University of Lausanne, Lausanne, Switzerland

www.saa-iss.ch

September 23-26, 2007

Institute of Actuaries of Australia

2007 Biennial Convention

Christchurch Convention Centre

Christchurch, New Zealand

<http://www.actuaries.asn.au/Events/Conventions>

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

Dinners with My Father

A few weeks back an actuary, who shall be nameless to protect the innocent, asked me a question about where I got training to be an expert witness. I responded that my only training other than that which comes with actual testimony, was dinners with my father.

One of the best things about growing up in the fifties was family dinners. For some it will be hard to imagine a family seated around the table with no electronic distractions (except on Sunday evening when The Jack Benny Program was on the radio) sharing freshly prepared “wholesome” (i.e., caloric) food and conversation. And while my mother’s cooking was good, it is the conversation that I remember most.

There was a distinct hierarchy in the American family in the fifties. In our home, as was typical, the apex was my father, who might not always actually know best, but who was afforded respect as though he did. Only slightly below Dad was Mom, and the only thing that kept her from being the alpha member was her good sense. Every organization needs an acknowledged leader. When there is a battle for the top position, the organization suffers. My younger sister and I would probably disagree about who came next, but the distance between number two and number three made such arguments meaningless.

At the dinner table, though, we were all equals. As in an old New England town meeting, everyone had a right to say just about anything they wished. No topic was forbidden and, if politely and respectfully expressed, no opinion was too outlandish for discussion. But we were quite aware that, lurking in the weeds, my father waited to pounce. No sooner had an opinion escaped our lips than this Grand High Inquisitor of the dinner table was demanding facts and sources to defend it. And any slip of logic


was quickly identified and patiently explained.

It was not until I became a parent myself that I came to understand just how much time and effort was invested in the discussion of topics that must have bored my parents to tears. But, like teaching a child to play chess, the investment pays off when you find you have built a worthy adversary.

My father taught me many things: baseball (and the anguish of being a Cub fan); a love of books; music from Sinatra to Shostakovich; how to drive a car and a golf ball. But nothing he taught me has been more important than the power of a finely crafted, logical argument.

No matter how some may try to ignore it, logic is eternal and pervasive. It permeates not only the world of mathematics, but philosophy and business and actuarial science. We dismiss it at our peril. There is no room in our profession for statements beginning: “It may not seem logical, but . . .” If the contract says flood isn’t covered, flood isn’t covered. If the rate doesn’t provide for all of the costs of the risk transfer, political realities do not make it actuarially sound.

If everyone agrees the reserve is below their best estimate, the existence of a range does not make the reserve reasonable. Even “fuzzy logic” is logical!

I tried to be as good with my children as my father was with us. In many ways it is harder today. Somehow the children seem to have replaced the fathers at the top of the hierarchy. Children’s lives are over-scheduled and the homework load is almost as heavy as the backpacks. The digital environment exposes our children to many things of which we are unaware, and the kids rarely have the patience to explain their world to us. But, if you can fit it in between the gymnastic lessons and the PTA meetings, take the time for something really important—have a nice dinner. And listen. 

**No sooner had an opinion
escaped our lips than this
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of the dinner table
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and sources to
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Graphical Tests of Stochastic Models

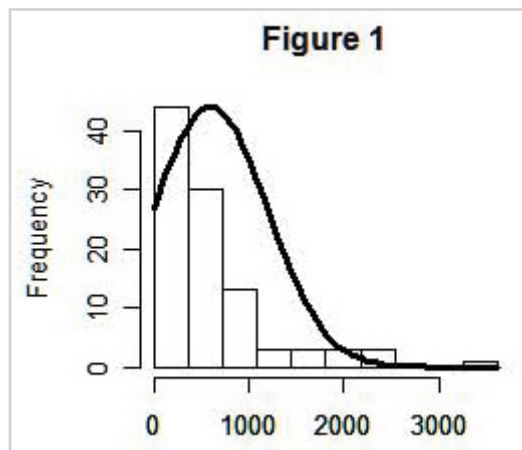
By Glenn Meyers

Paul Lacko's essay "Methods or Models" in last November's *Actuarial Review* generated a lot of discussion, both on and off the pages of the February edition of *The Actuarial Review*. My response was to give a simulation illustrating that knowing the stochastic model made it possible to get better estimates of the mean than the "easier to explain" method of calculating the average. The objective of the simulation was to estimate the mean of a lognormal distribution with 100 observations.

Paul responded to my letter, offline, with the question: "How can you tell if the data have a lognormal distribution with only 100 points?" This article is my response.

I will illustrate how to do this by first selecting a random sample of 100 numbers from a lognormal distribution with $\mu = 6$ and $\alpha = 1$. The true mean and standard deviation of this distribution is 665 and 872 respectively.

Let's suppose we enter our analysis making the assumption



that our sample is normally distributed. How would we test this assumption? Figure 1 shows a histogram of this sample along with the density function of the fitted normal distribution. Although the difference between the histogram and the density function is striking, the plots by themselves do not tell us if the difference is statistically significant. So let's press on.

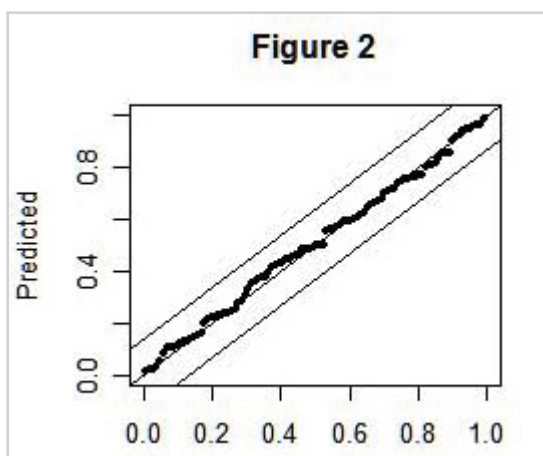
Given a sample of size n , along with a candidate model for the distribution, we can calculate the predicted percentile for each observation in the sample. If the model is the correct model, these percentiles should be uniformly distributed. A graphical way to

test if these percentiles are uniformly distributed is with a p-p plot. To construct this plot you first sort the computed percentiles in increasing order and then plot the sorted numbers against the numbers,

$$\frac{1}{n+1}, \frac{2}{n+1}, \dots, \frac{n}{n+1}.$$

If the candidate distribution is correct, this plot should lie close to the diagonal line running from (0,0) to (1,1). Figure 2 is a p-p plot for our sample when the candidate distribution is the original lognormal distribution with $\mu = 6$ and $\alpha = 1$.

We can use the Kolmogorov-Smirnov (KS) test to put a more precise meaning to "close." This test first calculates the statistic, D , which is the largest absolute difference between the empirical and the calculated percentiles. We reject the hypothesis that our sample has the candidate distribution if D is greater than the test's critical value. The critical value at the 95% level for a sample of size n is $1.36/\sqrt{n}$. A nice graphic analogue to the KS test is examining whether the p-p plot goes outside a band

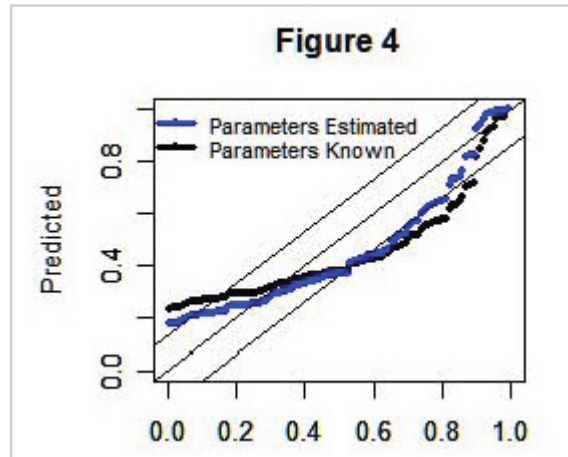
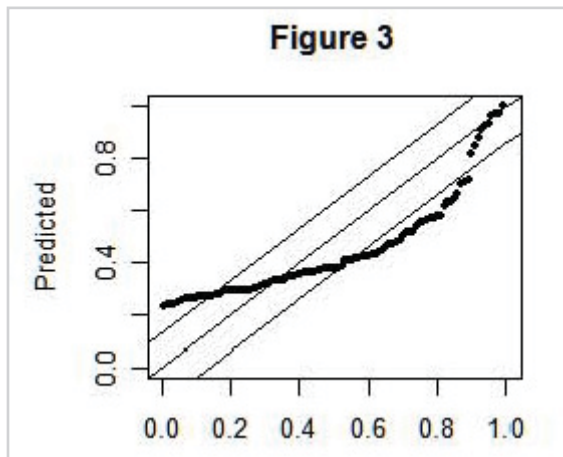


$1.36/\sqrt{n}$ above and below the diagonal line at some point. We can see in Figure 2 that the p-p plot lies well within that band.

Let's try a normal distribution as our candidate distribution.

Figure 3 is p-p plot with our sample and a normal distribution calculated with the true mean of 665 and a standard deviation of 872. Here we see that the p-p plot goes outside the critical band. There are no observations below the 20th percentile of the predicted normal distribution. Thus the lognormal distribution is a better candidate than the normal distribution for this sample.

A rigorous application of the KS test requires that the data being tested are independent of the distribution. In other words, it is not strictly correct to calculate the sample mean and standard deviation




predicted percentile of an observation depended on the size and the historical payout pattern of the insurer. Using a p-p plot with the KS bands I was able to test a loss reserve model by cal-

tion of your data to determine the candidate normal distribution. This practice makes it artificially harder to reject the hypothesis that our distribution is the correct one. This is sometimes referred to as overfitting. Figure 4 shows the same p-p plot as Figure 3, along with the corresponding overfit p-p plot. But I must admit, I often (informally) look at the KS bands for overfit plots.

Now the focus of Paul's original article was loss reserving. Recently I have been working on loss reserve models where the

calculating the predicted percentiles of the outcomes for over 100 insurers. Each insurer was unique, but if the model is good, the predicted percentiles of the outcomes should be uniformly distributed.

Editor's Note: The R code that produced Figures 1-4 is available on the CAS Web Site along with the Web version of this article. 

Become a University Liaison


The current demand for entry-level actuaries is quite high. However, despite the increase in publicity about the actuarial profession in recent years, the profession is not as well known as other alternatives for mathematically inclined college graduates. You can help these students learn more about being an actuary, specifically a casualty actuary, by working with math and actuarial science departments as a University Liaison.

Jim Rowland, the liaison to Kansas University, Central Missouri State University, and Pittsburg State University says, "The main reason I became a University Liaison was because there are many campuses that do not have... formal actuarial science degree programs yet have many students who, given the opportunity, have the skills required to excel in this field. Being a University Liaison helps open doors for students who otherwise may not even know that this career option exists."

You can see the many CAS members and schools already involved in the program on the CAS Web Site, but more volunteers are needed! Do not be discouraged if a school you are interested in working with already has a liaison as it is not unusual for a university to have more than one. If your alma mater or local college does not have a liaison, the CAS office can help you figure out the best way to make contact with the school and begin your

role as a liaison. The CAS staff can supply you with a PowerPoint presentation, tips, and free recruiting material (posters, videos, and brochures), which can be requested at www.beanactuary.org/counselors/speakit.

As a University Liaison, CAS members often offer to make presentations to students, be available via email for questions about the career, conduct informational interviews, help establish an actuarial club, and a number of other things to assist promising students learn more about the field. Liaisons are also encouraged to talk with their academic contacts to explore other possible duties that could advance the actuarial profession and the school curriculum.

It is in the best interest of the CAS to increase its presence on college campuses nationwide, and the University Liaison program, with the help of CAS volunteers, can help promote the casualty actuarial profession. If you are interested in working with a particular school, or if you have an existing relationship with a school but are not already part of the program, please contact Caitlin Jennings, Communications Coordinator, at the CAS Office (703-276-3100 or cjennings@casact.org). You can also learn more about the program at www.casact.org/academic/index.cfm?fa=ulprog. 

Variance Premiere Issue is Coming Soon!

Companion Web Site Also to be Launched this Spring

After months of preparation, the new CAS peer-reviewed journal has finally gone to press. The first issue of *Variance* will be mailed soon to all CAS members, subscribers and academic correspondents. The new journal will disseminate work of interest to casualty actuaries and other risk professionals worldwide. Its peer-reviewed articles will focus on original practical and theoretical research in non-life actuarial science and related areas in the science of risk.

A hard-working and devoted team of volunteers and CAS office staff has made this first issue possible. The Publications Implementation Task Force, headed by Joanne Spalla, oversaw the implementation of the journal, including its branding and design. The name, *Variance*, developed with the help of a branding consultant, was formally announced at the Business Session of the 2006 Annual Meeting in San Francisco. The *Variance* editorial team, headed by Editor in Chief Curtis Gary Dean, has evaluated more than 45 manuscripts that have been submitted for consideration during the past year. Dean is assisted by three Associate Editors: Dale Edlefson (Copyediting), Gary Venter (Development), and Richard Fein (Peer Review). And the *Variance* Editorial Board, which reviews and edits papers, is made up of a large group of CAS members and nonmembers around the world.

Variance will be published semiannually to put practical and relevant research in the hands of practitioners more quickly than ever before. "We expect that [*Variance*] will accomplish what the *Proceedings* did, plus more," commented Dean. "The average

time from submission of a paper until its distribution in print will be shorter because *Variance* will be published more frequently and our editorial team is committed to reducing the time that it takes a paper to be reviewed and edited," Dean said.


Variance Advancing the Science of Risk

"We are actively soliciting papers from authors who may not have traditionally published in CAS publications. This should bring a wider range of ideas into the journal and, hopefully, more non-CAS members will become regular readers and contributors," said Dean. In addition to papers on applied casualty actuarial research, *Variance* will feature theoretical research at the frontier of casualty actuarial science. Significant survey articles or similar types of papers will also be considered for publication.

The *Variance* Web Site, www.VarianceJournal.org, which will be launched this spring, provides all the details about the journal, including guidelines for submitting papers and nonmember subscription information. Audio recordings of paper presentations will be among new features to be added in coming months.

CAS members will automatically receive the journal as a member benefit, as will Academic Correspondents and Subscribers. Non-CAS members who wish to receive a complimentary copy of the first issue are welcome to request a copy via the *Variance*

Web Site. The *Proceedings of the Casualty Actuarial Society*, published annually, will no longer contain peer-reviewed CAS research papers. The new, soft-cover *Proceedings* will include the content of the former *Yearbook* (excluding the Membership Directory).

These changes to the CAS publication structure are based on the Report of the Task Force on Publications, whose recommendations were accepted by the CAS Board of Directors in May 2005. 

Coming in Spring 2007— www.VarianceJournal.org

Visit the Variance Web Site, www.VarianceJournal.org, for:

- Guidelines for submitting papers
- Nonmember subscription information
- Audio recordings of Variance paper presentations

Watch for the launch of the print journal and journal Web site this spring.

Brazilian Insurance Market Sets New Capital Requirements

By David Sommer, CAS Ambassador to Brazil

As part of a year-end flurry of activity, the Brazilian insurance regulatory body, SUSEP, via the National Board of Private Insurers (CNSP), released several new regulations to revise reserving guidelines and establish new capital requirements for the insurance (excluding pensions) industry.

Resolution 155 establishes the minimum capital required to operate. This capital is composed of base capital, which is a fixed amount per region in which the insurer operates, and additional capital, which is variable and meant to reflect the risks inherent in the insurance business. The regulation states that additional capital requirements will be promulgated for credit, market, legal, underwriting, and operational risks. The additional capital for underwriting risk has been defined in Resolution 158, the fourth of the regulations published on December 29 regarding capital.

Background

Brazil is on the verge of becoming a major world economy, and with inflation under control (approximately 3 percent for 2006) investment-grade status will quickly follow. As a result, there has been consistent pressure from the international community for Brazil to make necessary reforms in its insurance market, such as the opening of the reinsurance market, which was signed into law in January 2007. The Brazilian primary insurance market, with over US\$18 billion in premium, has been open since the mid-1990s and there are currently over 20 multinational players, five of which are in the top 10 companies and 13 of which are in the top 20.

As part of this focus on improving insurance regulation, SUSEP

has proposed or implemented a series of measures with the goal of increased self-regulation and a stronger risk management culture. Solvency II is a clear inspiration for their initiatives, and the actuary's role in Brazil will likely have a new level of visibility within the insurance company environment. This is a significant advance over the current regulatory regime and quite different from other markets in the region.

Minimum Capital Requirements

Current capital requirements have been fairly simple—basically the greater of 1/3 of average net incurred losses over the last three years or 1/5 of net written premium. The new regulation has four main points: 1) the definition of minimum capital and of the levels of base capital required by region, 2) defined action for varying levels of capital insufficiency (shown in Table 1), 3) transition rules, and 4) the effective date of January 1, 2008, or one year after publication, with calculations to be made on a monthly basis.

The regulation states that additional capital requirements will be promulgated for credit, market, legal, underwriting, and operational risks. Until all five risks have additional capital regulations in place, the transition rules apply with the adjusted policyholder surplus compared to the greater of the current solvency margin calculation and the new minimum capital required. Further, there is a period of three years in which an insurer must raise the additional capital for that particular risk. In other words, if a company is found to be R\$100 million¹ deficient in January 2008, it will have to cover R\$30 million within one year, another R\$30 million the following year, and the remaining R\$40 million

¹ R\$, or Reais, is the Brazilian currency

Brazil is on the verge of becoming a major world economy, and with inflation under control...investment-grade status will quickly follow. As a result, there has been consistent pressure from the international community for Brazil to make necessary reforms in its insurance market....

$$CA^{IS} = \sqrt{\sum_{i=1}^{36} \sum_{j=1}^{36} (f_i^{prem} \times prem_i^m) \times (f_j^{prem} \times prem_j^m) \times \rho_{i,j}^{prem} + \sum_{k=1}^{12} \sum_{l=1}^{12} (f_k^{prov} \times sin_k^m) \times (f_l^{prov} \times sin_l^m) \times \rho_{k,l}^{prov}}$$

by the end of the third year. What is unclear is how any deficiency calculated in January 2009 (or any time after January 2008) will be coordinated with the capital infusions defined by this transition rule. Similar concerns exist regarding coordination between additional capital requirements from different risks.

Additional Capital Due to Underwriting Risk

Resolution 158 defines the additional capital required for insurers based on their underwriting risk. The key points of this regulation are: 1) portfolios exempt from the legislation; 2) the formula (and parameters) to be used in calculating a company's additional capital; and 3) the definition of an "internal model," which allows companies with such a model to use lower parameters to calculate their additional capital.

The additional capital formula (Figure 1) is not complex mathematically, although it looks fairly daunting. There are 12 classes of business that apply to net written premiums (prem) and net case-incurred losses (prov or sin), and three regions that apply only to premiums. Each of these segments has factors, as well as a correlation factor, between them.

What is inconvenient about Figure 1 is that due to its nonlinearity and the presence of correlation factors, the marginal impact on capital due to an increase in premium in a given segment is not easy to determine solely from the factors in the tables, as it also depends on a company's volume in each of the segments. However, one is able to estimate the benefit of portfolio diversification, and by using publicly available 2006 premium and loss data, the estimated reduction in additional capital from having 11 monoline companies in the industry to the actual distribution is only approximately 7.5%.

Pension companies are not subject to this regulation. Further, industry pools and life insurance savings products with minimal risk embedded in the policy relative to the savings component (most nonterm life insurance products in the Brazilian market) are excluded from the additional capital calculation. (In other words, these requirements apply to companies that operate in P&C, group life, and personal accident.) However, as an insurer's surplus is not segregated by product, this exemption creates the impression that capital is not required to support these products.

As part of their program to encourage companies to have a more risk-oriented view towards their business, SUSEP is permitting companies with an "internal model" to use reduced factors in calculating their additional capital, resulting in a discount of approximately 15 percent (although this discount is really only realized for companies operating in the property, motor, credit, and group life lines). This model must be a dynamic financial capital adequacy model with at least one macroeconomic variable. Further, although not explicit in the regulations, it is the regulator's intention that the model must be used as part of the company's decision-making processes. Again, it is important to reiterate that the results of a company's model will not be used to determine its capital level, but only to determine which table of industry factors it can use in calculating its additional capital based on the regulator's formula.

Required Actions

As mentioned before, various actions will be required depending on an insurance company's level of capital deficiency. These are described in the Table 1.

Simulations of the market using December 2006 data show

that more than 20 of the 110 companies in the market will be subject to regulatory supervision and a similar number will need to present solvency recovery plans.

Impacts on Brazil's Insurance Market

Consolidating Brazil's entire portfolio into one company results in a calculated additional capital of R\$12.17 billion to support R\$28.16 billion of net written premium subject to the capital

Table 1

Adjusted Policyholder Surplus/Minimum Required Capital	Required Actions
70% - 99%	Solvency Correction Plan (defined in Resolution 156)
50% - 69%	Solvency Recovery Plan (defined in Resolution 157), Revised Business Plan, and Actuarial Projections
30% - 49%	Regulatory Supervision
<30%	Cessation of Operations

Table 2

Line of Business	% of Net Written Premium	% of Minimum Capital	Implied Leverage Ratio
Property	12.8%	16.3%	1.60
Auto (including Auto Liability)	46.9%	40.1%	2.40
Marine	4.7%	6.1%	1.58
Group Life/Personal Accident	30.1%	36.9%	1.67
Other	5.5%	0.5%	20.70

regulation. (This consolidation is a reduction of 6% from the R\$12.97 billion calculated for the industry “as is.”) Considering that for the market, additional capital is approximately 89% of overall required minimum capital, this implies an overall leverage ratio of about 2.05, which is significantly more stringent than the ratio of 5-to-1 required today.

The distribution of net premium written for 2006 and of the estimated corresponding required capital by line is summarized in Table 2.

As this demonstrates, lines of business that are typically seen as lower risk have more stringent capital requirements, which has led to some concern in the market.

Sensitivity analysis shows that there are some diversification opportunities that allow greater leverage for life insurers. However, these opportunities are typically in more obscure lines of business (liability, hull, bonds, credit, etc.) that require specific expertise. Geographic diversification allows for some slight improvement in leverage, but not a great deal, and these benefits disappear quickly as the portfolio balance shifts. The most obvious form of capital relief, especially given current events, is greater reliance upon reinsurance. However, it seems somewhat counterintuitive

that insurance companies should enter into large-scale quota share treaties with re-insurers on mature, frequency-driven portfolios.

Consequences

It is likely that these increased capital requirements will lead to further con-

solidation in the Brazilian insurance market. The regulators have even stated that they hope that this will be a result of these changes. However, given the increased level of capital necessary and the specter of further additional capital requirements in the future due to the other risks (credit, asset, operational, legal), the reduced return on equity resulting from these acquisitions may make them unattractive. For the few companies that are truly overcapitalized, this could be a significant opportunity.

With a population closing in on 200 million, a strengthening economy, a growing awareness of the need for insurance and a greater offering of low-price, high-penetration products, the Brazilian market has significant potential for those companies that can operate in an efficient, disciplined manner. And with the new capital regulations, the weaker players will need to exit the market, perhaps opening space for more strongly capitalized entrants.

David Sommer, FCAS, is managing partner, EMB Consultores America Latina. He can be contacted at david.sommer@embamericalatina.com.br. AR

Robert Morris University to Host 2007 Actuarial Research Conference

Academics and practitioners are gathering at the 42nd Actuarial Research Conference (ARC) from August 9-11, 2007. The conference is an opportunity for academics and practitioners to meet and discuss actuarial problems and their solutions. It is also a forum for discussing general actuarial education issues.

ARC is jointly hosted by Robert Morris University in Moon Township, PA (near Pittsburgh), and Highmark, Inc. The CAS and other actuarial organizations in North America are cosponsoring the conference. For more information, visit the ARC Web Site at http://www.rmu.edu/OnTheMove/findoutmore.about_rmu?iattr=redirect&ipage=67955, or contact Sheree Baker, Society of Actuaries Project Specialist, at sbaker@soa.org or (847) 706-3565.

Sniffing Out Inadequate Reserves

Some people say that old dogs can't be taught new tricks. But don't tell that to Larry Morton. A professor of veterinary medicine, Morton has trained unwanted dogs to detect everything from drugs and bombs to off-flavor catfish and agricultural pests. Morton says that, with proper training, just about any dog can learn to detect a unique scent—even the foul smell of inadequate reserves.

"Some dogs are more conditioned to training than others. But that's differences between individuals [not breeds]," he said. Morton usually works with dogs rescued from the pound.

William Jenkins, director of the Sensory Research, says canines' sense of smell is generally 10,000 to 100,000 times superior to that of humans. Jenkins plans to train dogs later this year to detect unfunded liabilities in failing insurance companies.

Detection of Stair Stepping

Stair-stepping represents the latest frontier in dog-detection research. Anecdotal evidence suggests it may be possible for dogs to sniff out certain inadequate IBNR reserves, even on a case-by-case basis. But the science still lags, according to Morton. "We hope we can. We think we can. But we don't know that we can." Later this year Jenkins hopes to show that canines may be the best friend of an actuary since the loss triangle.

He intends to use a special technique as he studies the ability of dogs to detect stair-stepping in yellow blanks.

The training program uses a chemical stimulus, n-amyl acetate, which smells like a 10% deficiency.

Working with the banana-like scent, which the dogs already recognize, will allow the researchers to prove their dogs are well-trained. Put simply, the researchers will steadily lower the concentration of the banana-smelling chemical in test samples.

They then slowly introduce yellow blanks with and without reserve inadequacies into the training regimen.

"If the dog goes from getting it right about half the time to doing it much better than that, or even showing perfect performance—let's say it takes two months to learn—what that would show is the dog is learning to categorize the financial statements into two classes: adequate versus audit-worthy," Jenkins said.

At that point, the researchers would phase out n-amyl acetate altogether and only test dogs on old Reliance financial statement samples.

Since the financial statements will have already been screened by actuaries, successfully trained dogs should only be as good as their actuarially trained human counterparts.

The final step in the dogs' training will require several years of rigorous analysis: canines must be tested on unscreened statutory statements. Researchers would record the dogs' analysis and track CFOs and chief actuaries to determine if the dogs are able to diagnose inadequacies any earlier than conventional IRIS tests or RBC requirements currently allow.

Jenkins cautions that the work is preliminary. He adds that it will be at least another five years before dogs, or any canine-inspired technology, greet chief actuaries who are visiting their insurance department office to explain failing IRIS tests.

Stay tuned. . . . **AR**



Photo credit: John Skowinski

When not chasing squirrels, Toby, an eight-year-old Jack Russell terrier, is trained as part of the experimental actuarial canine unit.

Actuaries Sing Country and Western Music

By Arthur J. Schwartz

If the halls of the Grand Ole Opry were filled with actuaries crooning their latest tunes, how might their songs be titled?

- "Get Off The Stove Dear Grandma, You're Too Old To Estimate The Range"*
- "Please Don't Hit Papa With A Hammer, He's Only Got One Year Of Expected Life Left Anyway"
- "She Thought I Was A Fellow, Till I Showed Her My Exams"
- "That Big Bad Actuary, Is Now The Meanest Underwriter In Town" (sung to the tune of "Bad, Bad Leroy Brown")
- "My Baby Ran Off With A Numbers Guy And All I Got Was A Zero"
- "Let Me Study Your Mortality Table, On The Kitchen Table Tonight"

*Based on an actual country-western song titled "Get Off The Stove Grandma, You're Too Old To Ride The Range." Lyrics available if interested.

Are We Fixated On The Past Or Looking To The Future?—Part 2

Editor's Note: This is a continuation of the article in the Opinion section.

The Debate Continues

We have seemingly struck on a key point of discussion for the industry, judging by the many responses to Mr. Lacko's original article that ran in the February issue of *The Actuarial Review*. In Glenn Meyer's response, which also ran in the February issue, he uses a very simple example to illustrate how a lognormal model can be used to more effectively capture the "true" distribution of possible outcomes for a data set that exhibits the statistical properties of a lognormal distribution. Unfortunately, his comparison to a "distribution-free method" doesn't go far enough, and could lead the reader to assume that using the averages captured from a large number of simulations is a useful solution for turning a "method" into a "model." The example falls short on two fronts.

First, with only a few simulations the methods (averages) are far likelier to underestimate the mean of the distribution compared to the lognormal model estimates. Using only a few simulations is analogous to using methods to estimate a range, but the key point here is that a typical method can quite easily be biased to the low side for skewed distributions, especially when the underlying assumptions are blindly applied without being tested.

Second, as we move to a large number of simulations of the method, the "so-called" distribution of the averages is still just a range of the possible average values based on the method(s) being used. Just because a large number of answers can give you a histogram that looks like a distribution of possible outcomes, it is still just a "distribution" of the averages for the method(s) being used. As such, any similarities between this sophisticated range and a distribution of possible outcomes are usually purely coincidental.

Culturally, we're talking about a different way of thinking about how actuaries approach their work. Does this mean we won't be able to meet tight deadlines? Of course not. For the most part,

the newer models are just as fast and in some ways faster than the workhorse methods we are all familiar with. In the short run, we face a cultural learning curve that will slow us down, but in the long run (and the short run for those already up the learning curve) speed is not an issue.

Are there truly an insurmountable number of new parameters to learn? Not really. In a standard analysis, it has become customary to talk about the selected link ratios as an assumption and, by association, some people may think of the link ratios as a single parameter. In fact, each link ratio is a separate parameter,

and you estimate the same number of parameters for many of the models as Dave Clark so eloquently noted ("From the Readers," *AR* February 2007). While I would agree with Mr. Clark that a method is really a simplified model, I disagree when he goes on to imply that calling a method a model is okay, as this makes his point about "communicating more effectively" more difficult to achieve.

It is only when statistical features of the data not anticipated in the standard methods enter the picture that we sometimes end up with more parameters—but we could also end up with fewer. In fairness, the new models require us to learn about new statistical tools. But these tools only help us judge the quality of the parameters, they don't necessarily add new parameters.

I agree with Mr. Lacko when he points out that to the extent you try to estimate significantly more parameters, you're probably creating a bad model due to overparameterizing. But this statement is about making sure the parameters you are estimating have predictive power, not throwing the baby out with the bathwater. More importantly, understanding model parameters can go a long way toward keeping a model from becoming a black box.

While I usually find myself agreeing with Stan Khury, I think his letter in the February issue misrepresents models. Mr. Khury implies that the purpose or "presumption" of modeling is to "look hard" to find "enough parameters" so that we can com-

Were the actuaries involved in developing early IBNR methods and reserve opinion language viewed as rebels and heretics in their day?

pletely capture the logic in the development of losses. Such an approach can easily result in an overparameterized model that describes every little nuance in the historical data, yet has very little predictive power when it comes to estimating the future. In my view, the “presumption” for modeling should be to find the best model configuration that captures the statistical features found in the data with the least number of parameters. In the words of Albert Einstein: “Everything should be made as simple as possible, but not simpler than it is.” It is the noise in the data that we are trying to understand, not a model with enough parameters to eliminate all of the noise.

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Does the need for actuarial judgment dissolve when we start to use models? Absolutely not. In the stochastic distribution/modeling world we need just as much (if not more) judgment to understand and interpret the quality of different models. Compare this to when we judge the quality of one method to another in the deterministic/point estimate world. The difference is that instead of our judgment being focused on the one point estimate, our judgment will be required for interpreting all aspects of the distribution and its uses. In this regard, I tend to agree with Ed Schoop when he describes the comfort level associated with a “plentitude of scrutiny” associated with point estimates. However, we must exercise care not to imply that any form of malpractice occurs just because methods are used instead of models. After all, even though modeling has great potential for truly gaining additional confidence and insight, they still produce estimates of the future, not complete clairvoyance.

In the end, the number of parameters and the complexity of the new models are not the issues so much as the fact there is a


learning curve involved—for everybody. But once we’ve completed a few reports based on distributions rather than point estimates, it shouldn’t take any longer to produce an opinion. It may take less time. And the wealth of value-added information would far outweigh the extra time even if it does take a little longer.

The More Things Change...

Remember, as a profession, we’ve been through learning curves before. Take IBNR and reserve opinions. Looking at the history of Annual Statements, IBNR was not required for a large part of the early history and casualty actuarial reserve opinions are a relatively recent development. In both cases, early pioneers had to break new ground significantly ahead of any official change and the transition required explaining our methods to others since the comfortable world where others are accustomed to our methods did not yet exist. Were the actuaries involved in developing early IBNR methods and reserve opinion language viewed as rebels and heretics in their day?

The move toward using distributions is a cultural shift that extends to the entire industry. This new type of analysis changes the relationship between the actuary and the insurance company because distributions allow us to analyze, quantify, and describe the core issues that define the foundation of the business of insurance, and as a result enhance our ability to maintain solvency in an increasingly difficult environment. As we provide a broader range of decision-makers with a better understanding of the risks they face, the actuary’s role will change. We are not communicating with accountants alone. There is a whole world of top executives, board members, rating agencies, regulators, and others eager to understand more about the risks they face.

Getting back to the problems raised by Mr. Lacko, the solution is not simple but it is straightforward. First, actuaries will need to use models in order to learn how to use models. Waiting for the use of models to be forced upon us will only delay the learning pains or worse, relegate actuaries, like the Edsel or the Dodo bird, to the world of Trivial Pursuit aficionados. Second, as we use models in our analysis, learning to explain our models and their results in clear, plain English will become part of the process. Again, there is no substitute for experience, but recent research in this area will give many a leg up.

The world is continuing to change. Risks exist whether actuaries choose to measure them or not. A hundred years from now, will actuaries be relics of a bygone era? Or will we be viewed as visionaries who charted a bold new course? 

Bible Codes

Are there hidden messages encoded in the Bible? The normal response might be extreme skepticism or immediate dismissal. Such was the reaction of one of our Fellows, Richard Sherman, in 1998 when he read Michael Drosnin's book, *The Bible Code*, which was a *New York Times* bestseller published by Random House. Nevertheless, he was intrigued by the possibility that some kind of code might exist. He also felt challenged to derive the formulae needed to determine the probability that such "codes" could just be a chance thing. After doing that, Rick concluded the "codes" Drosnin presented were probably a coincidence, as they were very short and statistically insignificant. He set up a Web site to help discredit the whole thing.

Still intrigued, Rick decided to find out if some of the short codes were part of longer codes. He needed a Hebrew expert, of course. Nathan Jacobi, Ph.D., a recently retired Israeli physicist and college professor, was recommended. He had been educated in Israel from 1945 to 1969 in both Biblical studies and contemporary Hebrew. To Rick's great surprise, some of the earliest examples they checked yielded lengthy codes in good Hebrew that were quite on topic. The odds that such long codes could just happen were extremely small. They had conducted a series of investigations and each one indicated a density of highly improbable codes. They have been conducting joint research since 2000. Probing further, they realized that they really wouldn't know whether there was something substantive unless they started with the kinds of very short, statistically insignificant codes that Drosnin had presented, and checked to see if they were part of longer codes that could be significant. They conducted a series of investigations and each one indicated a density of highly improbable codes. They changed the Web site to www.biblecodedigest.com and began regular publication of an online digest of their findings. For the last three years the site has been receiving one to two million hits a month. Rick ended up writing a book, *Bible Code Bombshell* (June 2005), that is now in its second printing (about 7,000 copies sold). Rick devotes 10 to 20 hours a week for research and writing articles for *Bible Code Digest*. He selects a topic (e.g., news about terrorist attacks) and

searches for single words in Hebrew that would relate to that topic. Once these short equidistant letter sequences (ELs) are found, a Hebrew expert checks to see if the short ELS is part of a longer ELS in good Hebrew. Then he applies mathematical formulae to the statistics about these codes to estimate the probability of their chance occurrence. He also simulates what kind of results would be expected from a nonencoded text. Further explanation can be found at www.biblecodedigest.com/page.php/186.

Rick concluded the "codes" Drosnin presented were probably a coincidence, as they were very short and statistically insignificant. He set up a Web site to help discredit the whole thing.

The formula Rick sets forth is found on www.biblecodedigest.com/page.php/190. The extension discovery rate (d) to an existing ELS is 16% to 20% in a widely accepted nonencoded Hebrew control text (a Hebrew translation of *War and Peace*). A realistic benchmark for the total number of final ELSs, in a cluster consisting of k extensions, expected to emerge from a search around n initial ELSs, is

$$n (k + 1) d^k (1 - d)^2.$$

None of the cluster examples in other published books significantly exceed this benchmark. Many of the codes discovered to date appear to be prophetic fragments, lacking sufficient context to have them serve as the basis for a prediction. Even those where the language is more specific are subject to a wide range of interpretation. Once an event has occurred, however, some of the vagaries of a code may become clearer. For example, three months after 9/11, Jacobi found the code, "You will shock the guilty Saddam, and the month of Iyar will be restful." The code seemed mysterious until the invasion of Iraq was completed. Bush declared "victory" on the first day of the Hebrew month of Iyar (May 3) in 2003, and


ASTIN Colloquium Papers Available Online

Over 40 papers, authored by both practitioners and academics, will be presented at the 37th ASTIN Colloquium. The Colloquium will be held June 19-22, 2007, at Disney's Contemporary Resort in Lake Buena Vista, Florida in conjunction with the Casualty Actuarial Society Spring Meeting.

The papers are now available for download from the ASTIN Colloquium Web Site at www.actuaries.org/ASTIN/Colloquia/Orlando/Papers_EN.html. Paper topics cover risk management, reserving, and pricing. Pricing issues include applications of credibility, bonus-malus systems, and risk margins, such as those from jump diffusion processes. Several new directions for stochastic modeling of loss reserves are explored. About half the papers concern risk management, subcategories of which include:

- issues involved in strategic and operational risk;
- applications of risk modeling, such as insolvency risk, reinsurance, capital needs and allocation, market analysis, and strategic planning of subsidiaries; and
- model-building topics like choice of risk measures, modeling of dependencies, and efficient calculation.

Authors from North America, Australia, and Europe are well represented, but authors from Asia and other locations such as Beijing, Shanghai, Taiwan, Indonesia, Israel, and Iran are also prominent in this year's list of authors.

Plan to attend the Colloquium, not only to hear these papers presented, but to also take advantage of everything else the Colloquium has to offer. All of the details on the Colloquium can be found online at www.actuaries.org/ASTIN2007. 

Nonactuarial Pursuits From page 21

that month was relatively restful compared to the heightening violence of the insurgents since then.

Since 2004 Rick has also been working with Moshe Shak, a Montreal engineer and a well-known Bible code researcher who


...three months after 9/11, Jacobi found the code, "You will shock the guilty Saddam, and the month of Iyar will be restful." ... Bush declared "victory" on the first day of the Hebrew month of Iyar (May 3) in 2003, and that month was relatively restful compared to the heightening violence of the insurgents since then.

is highly proficient in Hebrew. I asked Rick whether his associates, being Jewish, were uncomfortable with the research. Dr. Jacobi, an agnostic, had no problem. When asked about his beliefs, his response was similar to a remark attributed to George Carlin,

"Regarding religion, I am neither an atheist nor an agnostic. I am an acrostic, because the whole thing is a puzzle to me."

Moshe Shak, however, is an orthodox Jew. While the latter has avoided discussion of any codes about Christ, Dr. Jacobi was quite intrigued from the beginning. In fact, he told Rick he wouldn't work with him unless he was willing to focus a significant part of their research on codes about Jesus. He told this to Rick because he had been fascinated about Jesus since his youth in Israel and felt that Bible codes might provide a new way to gain insights into the Jewish teachings of Jesus.

Actuaries should be capable of evaluating Rick's statistical conclusions. He is quite used to the entire gamut of possible reactions. He has been interviewed on radio and TV

numerous times by every kind of host, from the openly intrigued to the vigorously hostile. Rick is president of Richard E. Sherman & Associates, Inc. He is best known as coauthor of the Berquist-Sherman paper. 

A Magical Spring Meeting Is In Store this June!

By Annette J. Goodreau, Chairperson, CAS Program Planning Committee

Enjoy grand accommodations in a world where the magic never ends. The 2007 CAS Spring Meeting, June 17-20, is being held in conjunction with the 37th International ASTIN Colloquium, June 19-22, at Disney's Contemporary Resort. This lakeside resort is a unique architectural masterpiece, renowned for the convenience of the monorail running through the middle of the building. Joint CAS and ASTIN registration is available, so take advantage of the CAS educational opportunities at the beginning of the week and stay to hear a variety of interesting ASTIN papers in the second half of the week.

Actuaries are great at sifting through statistics to find the key metrics that best tell the story of where the data has been and where we might expect it to go; however, if that story is not effectively communicated to the intended audience, then the job is incomplete. As illustrated by mosaics, murals, and picture books, many individuals prefer to have a visual representation of a story. Consequently, it is essential that actuaries know how to create meaningful and effective graphs. With this important task in mind, ASTIN and the CAS are proud to announce Naomi B. Robbins as the keynote speaker in Orlando on June 20, 2007. Dr. Robbins is a consultant, seminar leader, and author who specializes in the graphical display of data. In Orlando, she will be discussing "Visual Presentation of Quantitative Information." Dr. Robbins received a Ph.D. in mathematical statistics from Columbia University, an M.A. from Cornell University, and an A.B. from Bryn Mawr College. She had a long career at Bell Laboratories before forming NBR, her consulting practice.

Three general sessions will cover important current topics for actuaries. There will be a general session titled "Homeowners Insurance in Florida—How Big is the Availability Problem? Is There a Fair Solution?" Because of hurricane activity, availability and affordability of homeowners insurance in the state of Florida has been an ongoing topic of discussion. Recently various insurance companies have restricted coverage or increased rates or both, and, in some cases, these increases have been extreme. How do these changes affect the marketplace on both a short- and long-term basis? Are we any closer to solving the homeowners insurance availability and affordability concerns? Is this really an issue?

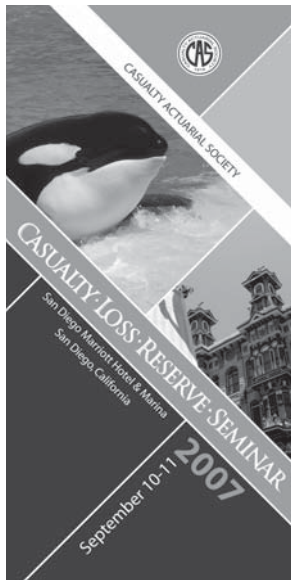
Another general session is "Solvency II Round Table." Solvency II is a European Union project that is similar to the NAIC's



risk-based capital calculation and aims at creating a risk-related solvency model. However, unlike the RBC formula, Solvency II will allow for use of internal enterprise risk management tools to quantify risks. Its mandatory application is expected in 2009 or 2010. Will the players be ready? How will insurers react? How does this compare to current regulations in the U.S.? Will U.S. regulations change? Rounding out the general sessions is "Traditional Actuarial Roles—Putting it All Together in an Enterprise Risk Management Framework." ERM envisions a holistic treatment of risk, both positive and negative, across an enterprise. Pricing and reserving are the traditional actuarial functions. How do those pricing and reserving "silos" relate to an insurer's enterprise-wide ERM process? How is ratemaking an ERM function? What aspects of reserving coincide with ERM? What about return analyses and planning? Come to the Spring Meeting and find out what experts think concerning all these questions and many more.

The planned concurrent sessions will delve into various topics including catastrophe issues, capital models, captives, the Chinese insurance market, claims administration, equity analysis, the Florida property market, intellectual property, actuarial malpractice, mergers and acquisitions, peer reviews, predictive modeling, effective presentations, state of the reinsurance market, the "R" statistical computing language, reserve variability, seasoned ac-

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CLRS Set For San Diego

The 2007 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. The popular seminar will be held at the Marriott San Diego Hotel & Marina in San Diego on September 10-11. CLRS sessions acquaint attendees with both basic and advanced topics in finance and financial risk management, including their applications to the pricing and analysis of property/casualty insurance.

Additionally, the CLRS is an exceptional 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 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 and concerns on actuarial communication and critiques of the reserving process, and to participate in a number of interactive sessions.

CLRS 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. A special focus this year will be on sessions emphasizing the estimation of reserve ranges.

Don't miss this opportunity to participate in these sessions and enjoy San Diego! More information on sessions and registration will be posted on the CAS Web Site soon. 

Limited Attendance Seminar on Actuarial Professionalism Aims to Refresh Skills


Free Seminar Offered Prior to Spring Meeting

Refresh your professionalism knowledge and skills with other experienced actuaries as you review the Code of Conduct and ASOPs as well as practice your knowledge in real situations with ethical challenges. The CAS is conducting this free Limited Attendance Seminar on Actuarial Professionalism just prior to the CAS Spring Meeting on June 17, 2007 at the Disney Contemporary Resort. This seminar is limited to the first 50 registrants. Visit the CAS Web Site for information.

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tuaries section, standards of practice, workers compensation, and the 2006 ARIA prize paper. Other concurrent sessions will feature authors of papers published in the inaugural issue of *Variance*. A General Business Skills workshop on technical writing will be offered during the concurrent sessions as will a limited attendance seminar (see box above for more information). The Spring Meeting will also feature a separate track of ERM sessions. The sessions will focus on theory of ERM, capital modeling, a basic ERM program, internal hedges and domino effects, the value of

ERM, and case studies.

In addition to two scheduled receptions, attendees are invited to an International Party on Tuesday night. It promises to be a multicultural journey filled with the exotic sights, sounds, and distinctive tastes of intriguing locales and a magical atmosphere to socialize with actuarial peers. For accompanying guests, the Contemporary has convenient access to four theme parks, water parks, golf, mini-golf, shopping, and water-sports. At Disney, fantasy becomes real and reality becomes fantastic! 

A Tale of Tails: The COTOR Challenge Round 4

By Louise Francis, Christopher Monsour, and Allan Voltz

For the past three years the Committee on the Theory of Risk (COTOR) has been performing an experiment in extreme value theory that has been dubbed “The COTOR Challenge.” Each challenge required contestants to estimate an expected loss and its confidence intervals for an excess of loss layer. In each case the “true” mean was drawn from a heavy-tailed distribution and was known to those who designed the challenge. Objectives of the challenges were to:

- provide realistic results for the distribution of estimates provided by experts working independently with the same (heavy-tailed) data;
- raise the awareness of the profession of the challenges posed by heavy-tailed data; and
- provide practical solutions for practicing actuaries needing to compute estimates based on heavy-tailed data.

A large body of theory and practice in finance and insurance is based on the assumption that the data used for pricing and risk assessment follows the normal or lognormal distribution. The central limit theorem—so crucial to the rationale for insurance—posits that as one adds more items to a sample, the distribution of its mean converges to the normal distribution. However, the occurrence of several large financial debacles in the 1990s (such as the collapse of long-term capital) where normal distribution assumptions were used to design, price, and purchase complicated financial products illustrated how dangerous such assumptions can be. In his paper “Extreme Events Part 2: Financial Catastrophes” (found on www.actuary.org), David Saunders commented that he subtitled the paper “The Overthrow of Modern Financial Theory” because “it is precisely in the condition of extreme events that the theories cease to work and management techniques that are based on such theory fail.” Saunders also likens extreme value theory to “quantum and relativistic mechanics when compared to Newtonian Finance Theory.”

In early rounds of the challenge, responders were supplied with a random sample from a severity distribution. The distribution was assumed to have all relevant information relating to trend and development already incorporated perfectly. In more recent rounds, realistic, real-world complications were added. Thus an unknown trend was incorporated into the sample in 2005 and an unknown

trend, as well as a change in the mix of claims was incorporated in 2006. These complications motivated the use of novel approaches by those submitting responses to the challenge.

The sample for the Round 4 challenge consisted of the following:

- five hundred claims per year for five years drawn at random by Stuart Klugman;
- the distribution specified either as mixture of two distributions or a single heavy-tailed distribution;
- the distribution’s scale parameters affected by inflation, which is constant;
- a discontinuity in year four to change distribution; and
- change in weight assigned to two distributions, or some or all parameters of single distribution have changed.

The challenge was to estimate expected losses for year six, layer 500,000 xs 500,000 as well as 95% confidence and prediction intervals assuming distribution from year five is unchanged (except for inflation).

The “true” distribution was a mixture of gamma distribution and an inverse gamma. Initial parameters were alpha 3, theta 1000, and mean 3000 for gamma, and alpha 2.5, theta 7500, and mean 5000 inverse gamma. The mixture of the two distribution changes in year four from a 70%/30% mix of the two distributions to a 30%/60% mix. The inflation rate is 6%.

In prior years, two general approaches were used in the estimation of losses: 1) fit a ground-up severity distribution to all claims in the sample; and 2) fit a distribution only to claims exceeding a threshold. This year’s winners, Frank Schmid and Chris Laws, used the second approach. (It should be noted that Schmid was recently the winner of an international prize in economics, the Hicks-Tinbergen medal). Schmid and Laws used the generalized Pareto distribution to model the tails of the severity distribution. The generalized Pareto, applied to exceedances over a threshold, is used for similar applications in much of the extreme value literature. Various procedures are used to select the threshold, and Schmid and Laws describe a graphical based procedure in their paper. Schmid and Laws used exploratory analysis tools, especially qq plots and mean residual life plots, to justify their use

25 Years Ago in *The Actuarial Review*

A Request Worth Repeating: Contribute to the CAS Trust

By Walter Wright


This May 1982 article by Walter Fitzgibbon encourages readers to contribute to the CAS Trust.

Effective January 1, 1979, the Casualty Actuarial Society established the Casualty Actuarial Society Trust (CAST), which was determined by the IRS to be exempt from federal income tax under Section 501(c)(3) of the Internal Revenue Code...

CAS intended the Trust primarily to be available to receive donations and bequests, while providing tax deductions to the contributors. The Trust also manages the library function of the Society. Donations to the Trust may be in the form of cash or actuarial literature, from actuaries and other person connected with or interested in the actuarial sciences...

Three years ago CAS established the Trust with a donation of \$1.00. Since then the CAST has received one other cash donation and one set of old volumes of the *Proceedings*...

Any monies received by CAST can be used to further scientific, literary, or educational purposes. It would be appropriate for CAST, for example, to sponsor research, commission studies or surveys, or award prizes for various achievements in the actuarial field.

Fortunately, the CAS Trust is now doing much better! It receives a modest flow of donations each year, and at December 31, 2006, had a balance of \$249,108. Recent programs funded by the Trust include the CAS Trust Scholarship Program, the Ronald E. Ferguson Reinsurance Prize, and the Ronald Bornbuetter Loss Reserve Prize. There are many other prize and award programs under consideration that the Trust could be funding, if it had more money. We hope all readers will consider making their own tax deductible donations, and we invite you to submit ideas for programs that could be funded through the Trust. 


COTOR Challenge Round 4 from page 25

of the generalized Pareto. They used a Markov-switching regime to incorporate a change in distributions in year four, although under the Bayesian approach used, allowance was made for the possibility of no change.

Round 4 of the challenge also saw its first student winner. Satadru Sengupta, a doctoral student in statistics at George Washington University in Washington, DC, used a mixed distribution approach to fit a ground-up distribution to the data.

Papers submitted by the contestants as well as overheads from the COTOR Challenge at the November 2006 Annual Meeting can be found at the COTOR Section of the CAS's Web Site.

To appeal to those who may have found the Challenge timeline burdensome in the past, Round 5 of the COTOR Challenge is planned to be available in late spring—rather earlier than usual. Round 5 will focus on predictions and ranges for the number of excess claims (rather than the dollar amount over a threshold).

The top solutions submitted will again be presented at the CAS Annual Meeting. Highly technical solutions are welcome, but so are practical, easily explained solutions. Consider toying around with solutions to Round 5 as you relax on the beach this summer. Then, present the solution that works to your admiring peers at the CAS Annual Meeting in Chicago this November! 

Confessions of a Seasoned Actuary

By Mary Jo Kannon, Member, Committee on General Business Skills Education

Okay. Perhaps I'm not a "seasoned" actuary, but after 17 years of experience in the actuarial profession, I consider myself at least "lightly salted." However, on my last performance appraisal, I was surprised to find out that I needed to polish my verbal communication skills. After all, I chaired the CAS Committee on General Business Skills Education the past three years. How could I need help with my business skills?

I proceeded through a multistage process of self-awareness:

Stage 1.: Denial.

There is nothing wrong with my communication skills. People just ask questions that don't make sense.

Stage 2: Reality Check.

I wonder if it's obvious to people when I don't know how to answer a question and I am scrambling for a careful response.

Stage 3: Acceptance.

If I think about it honestly, this isn't the first time I've been told this. I thought casual conjecture was part of my charm.


Stage 4: Doing something about it.

I can get better at communicating clearly when "put on the spot." I just need to find an educational venue that will work for me. I will make this my number one professional development

priority for 2007.

It is a safe bet that no matter how many times we have "been around the block" or "seen it all," there are specific weaknesses in our personal business skills portfolio. However, it seems that many actuaries are reluctant to tackle professional development weaknesses with the same tenacity they apply to solving multivariable formulas. Why is it simpler for many of us to balance class code distinctions, judicial environment, and market forces in a rate indication than to coordinate facial expressions, voice inflection, and word content when asked to explain said indication?

We should not allow the communication of our work product, rather than the work product itself, to minimize our professional conclusions or essential role in an organization. We are all expected to work hard to bring our best "to the table" every day at work and "our best" must incorporate our delivery, as much as our deliverable.

Think about it. Do you have a business skill you can improve? If you can't think of one, welcome the honest feedback of an associate. Once you've settled on a target, tackle it. Read a book, find a mentor, take a workshop, but don't be satisfied until you (and others) see results. 

Tips for Lotus Notes Users

Are you a Lotus Notes user who has had trouble viewing the new HTML-formatted CAS membership weekly e-mail? Try adjusting two settings as follows to get the proper format for the incoming e-mail.

First Setting

1. Click on bottom bar; the next to last box on right (says Office or Internet)
2. Click on Edit Current
3. Click on Mail tab
4. Format for Messages addressed to Internet addresses should be set to MIME Format

Second Setting

1. Go to general company name and address book
2. Find CAS Office (office@casact.org) and double click on "name."
3. Format preference for incoming mail should say "Keep in senders format."

If you need further help, contact your company Notes Administrator, or feel free to contact Caitlin Jennings at the CAS Office at cjennings@casact.org. 

Can the Prisoners Win Their Release?

Damon Raben suggested the following puzzle-ment. A prison warden offers the following to a group of 23 prisoners. Every so often, on no fixed schedule, a guard will take one prisoner into a room that has two standard toggle light switches, either of which has exactly two possible positions: an “on” position (up) and an “off” position (down). By looking at either switch, the prisoner can tell whether it is in the “on” position or the “off” position. The switches are side by side on the same wall, so one can be referred to as the “left” switch and one the “right” switch. The prisoner has to change the position of exactly one switch within one minute of entering the room, and then will be escorted back to her cell. Only the prisoners will change the positions of the light switches; the guards and warden will not. Each prisoner will be taken into the room any arbitrarily large number of times (or until the process ends). The warden does not tell the prisoners what position the switches will be in before the first prisoner is taken into the room.

If a prisoner reports to the warden that each prisoner has been in the room at least once, and that is correct, all of the prisoners

will be set free. If that is not correct, all of the prisoners will be executed.

The prisoners are given one day during which they can freely communicate among themselves. After that one day, there will be absolutely no communication between any of the prisoners (apart from any communication implicit in possibly changing positions of the light switches).

Is there a strategy that will lead to their eventual release?

Alan Putney Double-Croctic

The quotation is from Russell Bingham’s 2000 *Proceedings* paper, “Risk and Return: Underwriting, Investment, and Leverage,” and is: “Rate of return and risk in return represent the dimensions of expectation and uncertainty, respectively. The tradeoffs between them are real and faced by individuals and businesses frequently. The decision to invest involves a choice among alternatives having anticipated variation in both return and risk.”

David Uhland noted that the solution suggests the reference is to “Risk and Reward,” which differs slightly from the title of the paper. John Herder noted that we used the spelling “baptise,” where the more common modern spelling is “baptize” (but he thought “rizk” looked funny).

We also received solutions from Marty Adler, Rachel Berkowitz, Ann Conway, Todd Dashoff, Claudia Forde, Richard Kollmar, Debbie Rosenberg, Melissa Vaughn, and Dave Westerberg.

Chess Problem Follow-up

Rich Yule should have been listed as solving Tom Struppeck’s chess problems in the November 2006 issue. We also might have mentioned that the “theme” of the two problems was the promotion of a pawn to a knight. **AR**

In Memoriam

John E. Green (FCAS 1998)
February 1, 2007

Charles Lannon Niles (FCAS 1958)
December 16, 2006

John A. Resony (FCAS 1949)
March 26, 2007



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