The Actuarial Review

THE NEWSLETTER OF THE CASUALTY ACTUARIAL SOCIETY • VOLUME 32, NUMBER 4 • NOVEMBER 2005

Myers Wins President-Elect; Braithwaite to Become CAS President

CAS members elected Thomas G. Myers as CAS President-Elect for 2006. Paul Braithwaite will succeed Stephen P. D'Arcy as CAS president, who in turn will become chairperson of the 2006 CAS Board of Directors. Braithwaite will take on his new position at the close of the 2005 Annual Meeting in Baltimore. 17

The CAS as an Instrument for Peace and Prosperity

The Casualty Actuarial Society can be an instrument for peace and prosperity; that's **world** peace and prosperity. Although this may seem to be a bold statement, and perhaps irrelevant to actuarial work, it is a realistic view that directly reflects our role in the actuarial profession. The World Bank has recently identified casualty (or general) insurance as a critical element for the development of emerging economies. This organization places casualty insurance, specifically automobile insurance, before life insurance and pension systems as a priority for a developing country to establish in order to provide the foundation for economic growth. 7

Why VEE May Have an Adverse Effect on the Fellowship Credential

Proponents argued that academic coursework was a better way to learn many actuarial subjects than self-study followed by a professional exam. I agree it is a better way to *learn* these topics. However, as implemented, VEE is a sadly deficient way to *validate* that a particular candidate is qualified to practice as an actuary. 9

Notes from Cairo

Casualty actuaries in Cairo received a boost late in February 2005 when Gary Patrik, who was touring Egypt with his wife, Janaki, served the CAS cause with two public addresses. 13

The CAS Office is Moving!

Effective December 5, 2005 the CAS Office will have relocated to its new address at 4350 N. Fairfax Drive, Suite 250, Arlington, VA 22203. The phone and fax numbers remain the same: (703) 276-3100 phone; (703) 276-3108 fax. The post office/lock box address, which is used for mailing checks to CAS, also remains the same: CAS, PO Box 425, Merrifield, VA 22116-0425.

Illustration: Dan Magnolia

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

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

2006 Seminar on Ratemaking to be Held in Salt Lake City, Utah

By John Winkleman, Chairperson, Ratemaking Seminar Committee

Photo: Salt Lake Convention & Visitors Bureau

The Salt Lake City skyline.

For the first time, the CAS will hold the Ratemaking Seminar in Salt Lake City, Utah. The Marriott Salt Lake City Downtown will host the 2006 CAS Seminar on Ratemaking on March 13 and 14. A general session with top insurance executives discussing "Managing a Company in a Soft Market," will be one of the featured events at the seminar. In addition, over 40 concurrent sessions are planned, providing a wide array of educational opportunities for actuaries and other insurance professionals. Both new topics and popular sessions from prior years (revamped based on your feedback) will be offered in various tracks, including introductory, data and technology, workers compensation, commercial lines, personal lines, reinsurance, risk and capital management, and specialty topics. Papers from the Data Management, Quality, and Technology Call Paper program will also be presented and discussed.

Located in the heart of downtown amidst a myriad of attractions to enjoy, the Marriot Salt Lake City is convenient for pre- or post-seminar ski outings. Plan now to attend. The members of the Ratemaking Committee hope to see you there! Look for the brochure and registration information in the mail and online in the near future.

Keep Our Records Current!

Update Your Address for the 2006 *Yearbook*

Mail in the address update card in your 2005 *Yearbook* or log on to the CAS Web Site at www.casact.org/members/private/changeform.cfm to update your records electronically.

All changes must be received by December 1 in order to be reflected in the 2006 *Yearbook*.

PAUL E. LACKO

Evolving Techniques and Capabilities: Part 2

Looking ahead, what kinds of models might become commonplace in the next 25 years? One area to explore is interactive computer technology, i.e., what we know today as computer games on CD-ROM. I haven't played interactive computer games myself, being somewhat of an iconoclast. My son, on the other hand, loves his Gameboy and his Gamecube, and it's only a matter of time until he discovers the treasure trove of interactive games on the Internet. One game he likes now is a simulation game in which he tries to build a marine-based theme park. (To my eye, the game is an incredibly complex advertisement for a particular sea-based theme park!) The player's overall goals are to maximize net income and customer satisfaction. The computer screen shows the current layout of the park—attractions, attendees, park staff, walkways, and parking areas. Attractions can be moved around and walkways can be installed or removed to adjust traffic flow. The game keeps track of revenues and expenses.

Customers come to the park and pay admission (and other) fees. Ongoing expenses include staff salaries and the cost of maintenance and repairs. As (and if) capital increases, funds become available to construct new facilities and attractions. These can bring in more attendees, which generates more revenues.

Now substitute "insurance company" for "theme park." Substitute "policyholders" for "attendees." Add various department modules (underwriting, claims marketing, and so on) and whatever bells and whistles would make the game more realistic. Players would include a CEO, the department heads, and an Appointed Actuary (choose in-house or outside consultant). The software would keep track of premiums and losses, as well as revenues and expenses. In order to write more business, underwriters would have to be hired and "trained." As the number of claims increased, additional claims adjusters would need to be hired and "trained." (Training takes time and is not always 100% successful. While new staff are trained, current staff must strain to meet production schedules. So the game would incorporate time lags with probability distributions.) The game would generate data for the different players to analyze and allow them to make decisions about strategy and tactics. It could even prepare statutory and GAAP financial statements!

This sort of "model" casts a whole new light on the notion of management training. Actuaries would learn to be CEOs in their spare time!

A related modeling area to explore might be called time-dependent models or rule-based models. Stephen Wolfram, who designed the Mathematica software, discusses his research along these lines in his book *A New Kind of Science*, published by Wolfram Media Inc. in 2002. This book summarizes Wolfram's findings after 20 years' work studying the behavior of relatively simple cellular automata models (and other models that he shows are closely related to cellular automata models.)

Financial models today are notoriously poor at predicting turning points… what should we do instead?

I don't mean to write a book review, but I will point out that this book, while quite readable, is not summer reading at the beach. In addition to almost 850 pages of text, Wolfram includes almost 250 pages of chapter notes and comments that are printed in the smallest font I've ever seen in a published text. The author displays an overwhelming knowledge about virtually all areas of science and mathematics.

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The Edge in ERM

Dear Editor:

I read Stephen's D'Arcy's column ("From the President: The CAS as an ERM Role Model," *AR* August 2005) and want to share my perspective as an outsider (not currently an actuary). It seems to me that actuaries already do ERM in their work, especially in reinsurance. I don't see why you have to re-invent anything. In fact, your colleague Donald F. Mango in the other article ("Opinion: Risk Management Research Imperatives," *AR* August 2005) even says (rightly so) that casualty insurance is a form of operational risk. Companies manage this risk by either retaining it (and earning premium), by rejecting business or by reinsuring for a premium—something like that (I am not an actuary!). Well I hope you see what I am saying, but I think you people already have the edge in ERM—by leaps and bounds.

Ramzi AbuJamra

Stephen D'Arcy responds:

Ramzi,

Thanks for your comments. I agree with you that casualty actuaries already work in the area of ERM. Under some definitions of operational risk, especially that proposed by the accounting profession (under COSO), insurable event risks are considered to be a part of operational risk. Under other definitions, event risks are termed hazard risk and operational risk refers to processes, such as the supply chain or computer systems.

True ERM involves integrating all types of risks by considering the correlations among different risks and developing an overarching strategy for dealing with the most critical risks an organization faces. Although casualty actuaries have a good start in this area, and perhaps are ahead of many other specialties that focus only on a single type of risk, we could still need to do a better job on integrating the different types of risk. That is what I am trying to encourage actuaries to do.

Although casualty actuaries have a good start in [ERM], and perhaps are ahead of many other specialties that focus only on a single type of risk, we could still need to do a better job on integrating the different types of risk.

—Stephen D'Arcy

Mutual Recognition—Another Perspective

Dear Editor:

I read John Rollins letter with disappointment ("From the Readers," *AR* August 2005). I fully sympathize with John's comments and the misunderstanding that mutual recognition causes. The fault for this must lie with the extremely poor explanation the CAS leadership made in 2003 when the constitutional changes were made. From my perspective, CAS tried to sell it as a means of allowing CAS to expand throughout the world and to make the CAS qualification the preeminent designation and the one of choice. This is far from a realistic proposition—the reality is that an actuarial student, studying say in the U.K., wishing to gain an actuarial qualification would be a fool to do anything but the local, i.e., U.K., professional exams.

As an FIA, I qualified in the U.K. and subsequently spent three happy years working in the U.S. I know a number of CAS Fellows who have enjoyed the reverse journey. All of these have been before mutual recognition and the lack of FCAS/FIA was no bar to any of us being employable.

In addition, in the U.K., we have successfully operated mutual recognition for a number of years within Europe and with parts of the Commonwealth. The number of FIAs who have gained their qualification through mutual recognition is small and only occurs when people move geographically.

In my opinion, the sole reason for mutual recognition is to allow professionals to move easily between countries and to ensure that nonsensical roadblocks are not put up in their way. From an actuarial viewpoint, the principle reason for allowing mutual recognition is to allow actuaries to undertake roles that have some sort of "signing" responsibility. In the U.K. for P&C business, this is currently limited to

Speak Up!

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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Casualty Actuarial Society
4350 North Fairfax Drive, Suite 250, Arlington, Virginia 22203 USA

Or e-mail us at AR@casact.org

Sandilya Recognized as Member of Irish Actuarial Society

CAS Fellow Manalur Sandilya is the first person to obtain membership of the Society of Actuaries in Ireland (SAI) under the mutual recognition protocol. Sandilya is a corporate actuary with Max Re Europe Ltd. in Dublin. Among his many CAS activities, Sandilya currently serves as the CAS Syllabus chairperson.

In early 2005, the SAI Council ruled that CAS Fellows are eligible for Fellow membership of the SAI, subject to their having at least three years' recent appropriate practical experience, including at least one year's experience in the Republic of Ireland.

In addition to the experience requirement, in keeping with SAI's standard requirements for recognition, CAS Fellows applying for SAI Fellow membership will be required to:

- attest that they wish to pursue actively the profession of actuary in Ireland or to advise on Irish business;
- successfully complete the courses and professional development requirements prescribed by the SAI from time to time; and
- disclose to the SAI any public disciplinary sanctions that have been imposed against them by any actuarial organization of which they are a member.

For more information on the SAI, visit www.actuaries.ie/.

opining on Lloyd's syndicates. Equally, in the U.S. there are a wide number of roles that do not require such a signing ability. Mutual recognition also enables actuaries to join the local actuarial community on an equal footing and keep up to date with local issues.

In practice, the biggest obstacle to free movement of actuaries is the immigration system of the relevant nation. From personal experience, getting a work permit to the U.S. even when moving with one's own employer is a nightmare. (Note: The views expressed above are mine alone and do not reflect the views of my employer.)
David Innes, FIA

Ethics Discussion Lacked Context Consideration

Dear Editor:

The discussion in the "Ethical Issues" column ("To Revise or Not to Revise," *AR* August 2005) unfortunately was silent on a major issue—under what rules were the CFO and company operating with respect to financial reporting? As such, the discussion was lacking a major component to the issue.

The situation described in the August article is what accounting rules call a "material subsequent event." (For U.S. statutory accounting, this is discussed in SSAP 9.) U.S. statutory accounting rules categorize material subsequent events as either Type I or Type II. Type I events "provide additional evidence with respect to conditions that existed at the date of the balance sheet," and are reflected in the booked estimate. Type II events "provide evidence with respect to conditions that did not exist at the balance sheet date but arose subsequent to that date," and are disclosed but not reflected in the booked estimate.

By ignoring the context of the assignment, the ethics discussion was deficient.

—Ralph Blanchard

In the August 2005 case study, the debate should have been whether the favorable development between January and February on year-end claims reflected conditions that existed on December 31. If the closed claim values are considered to have reflected what the claims were really worth on December 31, then the CFO should adjust the booked reserves downward and the actuary should adjust her estimate downward. If the closed values reflected new information and new conditions, e.g., they reflected a favorable roll of the dice that was better than what a December 31 unbiased estimate would normally expect, then the favorable development should be disclosed but not booked in the year-end financials.

By ignoring the context of the assignment, the ethics discussion was deficient. Actuaries working on an assignment should probably be aware of such context when performing their work.
Ralph Blanchard, FCAS

Actuaries in Mexico Organize Biennial Congress

The Asociacion Mexicana de Actuarios (AMA) conducted its biennial scientific Congress September 21-24 in Veracruz, on Mexico's southern Gulf Coast. The program provided tracks for life, pension, health, and property/casualty actuaries.

Topics of particular interest to property/casualty actuaries included enterprise risk management, loss reserving, predictive modeling, credibility, and reinsurance. Other general sessions provided updates on international accounting and actuarial standards, and a challenging discussion of ethics.

The Congress provided a substantive opportunity for Mexican actuaries to accumulate credits towards the new continuing education requirements adopted by the Mexican actuarial profession, under which actuaries rendering statements of actuarial opinion must complete a number of hours of continuing education, including hours of organized activities (such as seminars) per year. The organized activities must include a testing process to validate that the actuary absorbed key learnings from the seminars.

Speakers at the Congress included several CAS members and Affiliates—Alejandra Nolibos and Eduardo Esteva, who both spoke on loss reserving, and Bob Conger, who spoke on predictive modeling. The program included various other speakers from the international and Mexican insurance communities. Esteva chaired the meeting's scientific program.

The mission of the AMA is to promote, spread, and participate in the development of the actuarial profession to the national level and assure its public recognition and significance through high ethical values and technical knowledge.

In My Opinion

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Wolfram's basic model consists of an infinite grid of squares that are colored black or white. Each row can be thought of as representing a discrete moment of time, and all squares below the first row are white. Each row represents a discrete point in time. The first row, t=0, has squares that are arbitrarily colored white or black. The color of each square in the second row depends on the colors of the squares in the first row that are near it, according to a predetermined rule. For example, one simple rule is "a square at time = t +1 is colored black if at least two of the three squares touching it are black, otherwise the square is white." Now apply the same rule to color the squares in the third row based on the colors of the squares in the second row, and repeat ad infinitum. Finally, step back, look at the overall patterns that have emerged on the grid, and try to characterize the patterns you see.

The author created grids for a huge collection of rules, and the book includes pictures of them. Some grids are not especially interesting—the grid turns all black or all white after a few iterations, for example. Other grids show interesting structures of triangle (and other) shapes that never exactly repeat themselves. You can't predict exactly what will appear on the grid in subsequent iterations, but you can make probabilistic statements about how often certain shapes will pop up. Still other grids appear to be completely unpredictable, even chaotic—the only valid prediction you can make about the patterns yet to emerge is that you probably haven't seen them in previous iterations.

If cellular automata models seem too simple to be useful, consider that the author manages to explain relativity theory with a cellular automata model. He also extends his basic model by using a higher-dimensional grid, permitting more colors, and setting rules that have random elements in them.

What fascinates me in his work is that, probabilistic elements aside, so many of the rules generate patterns that are almost completely unpredictable, yet every model is completely deterministic. Wolfram shows that equations and curves—even axiomatic underpinnings—do not apply to these models. The only way to analyze one is to actually run it on a computer and see what happens.

Now consider modeling the behavior of a collection of individual financial decision-makers who act based on information they gather about the past and the present. Even though they may act in a manner that is completely deterministic—behaving as cellular automatons, if you will—strange and completely unpredictable things manage to happen in the economy.

This sounds to me like a promising line of inquiry. Financial models today are notoriously poor at predicting turning points. By going outside the "theorem-proof style" of mathematics we learned in school, Wolfram may be pointing a way towards understanding whether we can answer these questions; and if so, how; and if not, what should we do instead?

I wish I could come back in a hundred years and find out. I'll bet the computer games will be really cool.

The CAS as an Instrument for Peace and Prosperity

The Casualty Actuarial Society can be an instrument for peace and prosperity; that's **world** peace and prosperity. Although this may seem to be a bold statement, and perhaps irrelevant to actuarial work, it is a realistic view that directly reflects our role in the actuarial profession.

The World Bank has recently identified casualty (or general) insurance as a critical element for the development of emerging economies. This organization places casualty insurance, specifically automobile insurance, before life insurance and pension systems as a priority for a developing country to establish in order to provide the foundation for economic growth. This is only the latest recognition of the importance of casualty insurance to economic development. The roots of insurance can be traced back to Babylonia, over four thousand years ago, when traders developed markets to insure the goods on their caravans against loss on the hazardous trade routes. Without this form of property insurance, traders would have been reluctant, or financially unable, to engage in the trade that led to this nascent western civilization. Recognized as the oldest branch of insurance, marine insurance was developed in ancient Greece and enabled trade to occur and civilization to flourish. Again, forms of casualty insurance were the essential ingredients to economic development. The lack of life insurance on the captain, or a pension system for the sailors, did not stop ships from sailing. But without insurance on the ships and cargo, trade stopped.

Without casualty insurance, economic development of all types comes to a standstill. Remember the halt in new construction following the attack on the World Trade Center, and the importance of developing a market for coverage of the newly recognized terrorism risk in order to get projects moving? Would a merchant open a store without coverage for the goods for sale? Would a bank loan money to a business to buy a building if the borrower could not purchase insurance on that property? Casualty insurance is essential to economic markets.

However, it is not enough simply to recognize the need for a casualty insurance market. Someone has to create this market. The world is a complex place with a variety of risks, some of which can be insured and some of which cannot. Insurance policies that clearly define the coverage must be written, underwriting standards that avoid adverse selection and encourage risk management must be established, rates that reflect the relative risk must be developed, and a regulatory system that oversees the process to assure that promises will be kept must be instituted. Actuaries, the risk mathematicians, need to be involved in this process, pricing policies, setting reserves,

The lack of life insurance on the captain, or a pension system for the sailors, did not stop ships from sailing. But without insurance on the ships and cargo, trade stopped.

reviewing the financial condition of insurers, assisting in the regulatory process, in order for this system to work effectively. Although there are a large number of actuaries capable of performing this work throughout the world, there is no greater concentration of this talent than in the CAS. The CAS is in the best position to assist countries to develop the actuarial talents they need to establish a market in casualty insurance. There are more casualty (general) actuaries in the CAS than in any other actuarial organization, and the CAS is the only actuarial organization that focuses on casualty insurance, as all the other actuarial organizations also need to (or want to) address life, health, and pension issues as well. Thus, in my mind, the CAS can be and should be an instrument for world prosperity by taking the steps to help emerging

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Learning to Talk the Talk—Sign up for Free Communications Workshops

By Taresa LaRock, CAS Communications Coordinator

It's time to show the insurance industry that actuaries are not only top experts in risk, but can be great communicators as well!

What is the first step to becoming a great communicator? Learning the tricks of the trade! From composing e-mail to crafting messages to fundamental skills that will give you an edge, if you want to climb the corporate ladder at your company, communication skills are essential.

The Committee on General Business Skills Education is pleased to offer a two free workshops titled "Communication Skills for Actuaries." The workshops will be held on two Sundays to minimize time out of the office. Both the East and West Coast locations will offer the workshop from 1:00 p.m. – 5:00 p.m.:

1.) Sunday, November 27 at the Sheraton Crystal City Hotel in Arlington, Virginia

2.) Sunday, December 4 at the Millennium Biltmore Hotel in Los Angeles, California

Sign up now to take advantage of the free registration and you will benefit by learning communication skills from a leading expert in the field.

From the President

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nations establish viable casualty insurance markets. If we or some other knowledgeable organization does not help, these countries will be forced to learn on their own, and learning by experience can be expensive in financial markets, where failure can set back development for years. With the world's economies so closely connected, their failures will be felt internationally. It is in our own best interest to help effective insurance markets develop, and it is the right thing for emerging countries to do themselves.

So much for prosperity, but what about peace? Don't academics ever do first things first? Well, sometimes we do, but not always, which might be why we are academics. I could have reversed the order of the objects in the title, but "prosperity and peace" doesn't sound quite right. Anyway, on to our contribution to world peace.

One of the many (many!) meetings I had the opportunity to attend this year was the Presidents' Forum, which was held in Rome in June. This was the first time that the presidents of all the actuarial organizations in the world were invited to attend a common meeting. About 30 organizations were represented, and, as we went around the room to identify ourselves, every other organization described themselves as the actuarial organization of a particular country or continent—South Africa, Lebanon, India, New Zealand. Even the SOA defined themselves as "primarily from North America" (the name of their journal is even the *North American Actuarial Journal*). Each of these organizations represents the actuarial profession in their country and includes life, pension, and, in most cases, casualty actuaries. Thus, when each organization spoke about an issue, they focused on how it would affect the profession in their country. Statements such as, "The problems described in the Morris Report could never occur in our country," "There are only 30 actuaries in our country," and "Liability is not a significant concern in our country," permeated the meeting. When issues were raised, each representative automatically considered how it would affect the actuarial profession in his or her country. This sounded like a United Nations of actuaries and, as we have unfortunately seen, this structure is not necessarily conducive to world peace.

The CAS is not a national organization. Our Statement of Purpose does not restrict us to a specific geographical region. Although most of our members live and work in the United States and Canada, a growing number of our members are from countries outside North America. We can provide valuable services to all casualty (or general) actuaries wherever they work, and welcome any qualified casualty actuary (as defined in our recent constitutional amendment on mutual recognition) to become a member of the CAS. As our state system of regulation amply demonstrates, diversity can be a benefit, as experimentation can lead us to develop more effective actuarial methods. Important actuarial research is being done throughout the world, and we are endeavoring to learn from the best practices that have been established in other countries.

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RANDALL D. HOLMBERG

Why VEE May Have an Adverse Effect on the Fellowship Credential

Many current CAS members may not have paid close attention when Validation by Educational Experience (VEE) was introduced as a means of certifying that candidates had mastered certain actuarial topics. Proponents argued that academic coursework was a better way to learn many actuarial subjects than self-study followed by a professional exam. I agree it is a better way to *learn* these topics. However, as implemented, VEE is a sadly deficient way to *validate* that a particular candidate is qualified to practice as an actuary.

The value of the FCAS credential is threatened by VEE as currently formulated. Any practicing actuary who wants his or her credential to continue to represent understanding of a fairly rigorous curriculum needs to pay attention. Under VEE, candidates can receive credit for mastery of certain topics without in fact having any real understanding of them. If VEE grows to encompass more of the syllabus, we will have a proliferation of Fellows who do not possess adequate actuarial expertise. That will affect all practicing actuaries adversely.

I am not quibbling with the VEE credit for CFA exams or similar certifying exams. The issue is with academic coursework and other educational offerings for which a candidate can receive credit. Under VEE, an actuarial candidate can obtain credit for certain topics (currently finance, economics, and applied statistics) by completing a certified course with an acceptably high grade. The actuarial societies maintain a list of the courses they have certified for each topic. The CAS and SOA are trying to have it both ways with VEE. They do not directly take responsibility for teaching candidates or for testing their mastery of the material, but they set a specific list of material that must be covered for a course to qualify for credit, and then vet courses against this list.

The list of approved courses runs over 200 pages as of this writing, and covers institutions across the U.S., Canada, and the U.K. As a practical matter, the actuarial societies can have no meaningful oversight on such a broad collection of courses. The syllabus for each class is compared to the CAS/SOA requirements, and a class that covers all the topics is approved. That appears to be the end of the process. Whether a class is effectively taught, or instead is just a place and time where a group of people may congregate to chat, is unknown. Whether the exams for the course rigorously test the material the CAS demands on the syllabus is unknown. And whether there are any effective measures taken to discourage cheating is unknown.

Even at the most respected universities there are classes that students know to take in order to get an easy A. In most cases reading the course syllabus does not identify these classes. If the CAS/SOA list of approved VEE courses does not yet include classes of this sort, it certainly will eventually. That is because it is an impossible task for the actuarial societies to truly assure that the classes teach and test the material they claim in their course description when the list of classes they must verify is 200 pages long.

...as implemented, VEE is a sadly deficient way to *validate* that a particular candidate is qualified to practice as an actuary.

Casualty actuaries who worry about adverse selection and jurisdiction shopping in tort law surely do not have to be convinced that human nature is to game any system. There will be institutions that will establish easy courses that teach very little but appear to satisfy the actuarial societies' requirements, because they will be able to attract students and charge tuition for these courses. There will be students who will take these courses because

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Reaching Consensus on Risk

By David L. Ruhm, Chairperson, CAS Working Party on Elicitation and Elucidation of Risk Preferences

Editor's note: A similar article is being published concurrently in the November 2005 issue of the newsletter of the Risk Management Section of the SOA and CAS.

"Risk preferences" is a topic that is pertinent to enterprise risk management (ERM). In managing risks across an enterprise, risk managers have to make many risk evaluation decisions that are necessarily based on some degree of judgment. Often their decisions involve tradeoffs between risks and their mitigation costs. To quantify the seriousness of potential adverse events, judgments have to be made as to what constitutes an actionable event, what metrics to use, and so on. Risk preferences—decisions about which risks and costs are more or less preferable—drive such judgments, whether they are explicitly expressed as part of the system or implicit in the decisions.

Risk is one of those concepts that everyone has an idea about and no two ideas agree, which causes considerable confusion in conversations.

Recently, the Casualty Actuarial Society's Working Party on Elicitation and Elucidation of Risk Preferences submitted its final report to the CAS, which was published in the Fall 2005 edition of the *CAS Forum*. The report explains the relevance of risk preference elicitation in the context of ERM and provides the actuarial community with an introduction to some pertinent concepts and techniques. A summary of the report's main ideas follows.

Interest in risk management has grown dramatically in recent years for several reasons, including Sarbanes-Oxley and high-profile insolvencies. Interest has also developed because we now have a better understanding of the risks that businesses face and have better technology to help us model these risks. For example, an asset-liability manager might now do extensive simulations that would not have been feasible ten years ago.

Eliciting management's risk preferences and making them explicit can serve several worthwhile purposes. First, the company can be operated from a coherent risk management policy instead of isolated, unorganized, and potentially conflicting individual judgments about which risks to avoid and at what costs. Furthermore, risk management strategy is an important element of long-term strategic planning. Documentation of risk management strategy may become more formalized as a requirement in the future. Finally, making acceptable tradeoffs explicit is the first step to ensuring they are consistent, transparent, and ultimately implemented in daily decision-making at all levels.

While risk management has meant different things in different environments, a first step for the risk manager is to determine senior management's risk preferences. Although this is a first step, it is not a trivial task. A great deal of work may be required for senior management to reach consensus on the company's risk tolerance.

The working party left aside any direct treatment of where management's risk preferences come from or what should drive them, as well as all aspects of the management-investor relationship. Instead the focus was on developing a rational framework that managers can use to link corporate risk preferences and decision-making.

The main steps in developing this rational framework involve:

- Defining "risk" unambiguously
- Determining the risk measures to be used
- Assessing the context of the company and managers
- Ascertaining risk preferences

Risk is one of those concepts that everyone has an idea about and no two ideas agree, which causes considerable confusion in conversations. As a general starting point, corporate risk can be defined as what makes the executive committee uncomfortable.

One potential stumbling block in risk analysis is to begin risk evaluation without first establishing specific definitions and measures for the various types of risk. The failure to first define "risk" and how to measure it can lead to confusion and circular debate about the risk objective. Although it may sound overly simplified, a good initial question for a management team to consider is, "What is risk?"

Identifying corporate goals and considering what can endanger these goals makes it possible to identify specific pertinent risks. Some common examples are impairment of surplus, excessive variability of earnings, loss of underwriting discipline, or fraud.

The nature of the business will play a large role in answering the question of what is risk. For example, it is common among P&C insurance actuaries to think of risk in terms of the potential ultimate loss from a block of business. The metric is often net income in some form (such as GAAP net income or return on equity) and the timeframe is usually "ultimate," which can range from a year to several decades, depending on the line of business. While most P&C actuaries are probably aware of other risks (such as balance sheet risk) and the significance of annual timeframes, discussions about risk often implicitly assume that risk is defined entirely in terms of ultimate income.

By contrast, many non-P&C actuaries recognize balance sheet exposure as a main risk, and one that occurs before ultimate payout. Ultimate profitability remains a central goal, but there is also recognition of the need to remain solvent and to maintain strong writing capacity over the long lifetimes of the products. This perspective arises from the nature of non-P&C businesses, specifically: longer product timeframes, high renewal rates that require large amounts of capacity to be available, and statutory reserve requirements above expected value that utilize capital.

Desirable measures of risk should be objective, transparent, and appropriate. An objective measure allows agreement on planning. A transparent risk measure means that it is a measure that is tractable, and can be allocated to the components that are driving the risk. An appropriate risk measure is one that matches both the business realities and the culture of the firm. It is important for the risk measures to fit well with the corporate culture so that they will gain the necessary acceptance. The good news is that this fit can reduce the number and kind of considerations of risk. The bad news is the same; culture can create blindness toward real business risks or over-concern with risks that do not have significant impact on goals. In general, it is more important to have a risk measure that is approximately correct, but fully accepted, than a perfect risk measure that is not trusted by the key decision-makers.

Risk preferences describe which tradeoffs management is willing to make, or which combinations of risks are more acceptable than others. For example, in the case of ceded reinsurance, management may be willing to accept lower net profitability or even a higher probability of a losing year in exchange for limiting the very worst cases. Risk measures can be used to quantify risk preferences, so that management's risk preferences can be stated in risk management policies and implemented more objectively.

...it is more important to have a risk measure that is approximately correct, but fully accepted, than a perfect risk measure that is not trusted by the key decision-makers.

Interviews should be done with individuals separately, and then reconciled in a group. The interviewer needs to keep in mind the pitfalls of interview methods and of the particular corporate culture. Nigel Taylor's excellent paper ("Making Actuaries Less Human: Lessons from Behavioural Finance," Staple Inn Actuarial Society, 2000) mentions a number of sources of bias in interviews, especially around the framing of questions. These biases come up in all phases of risk analysis. Some of the important effects are:

- Decisions are often made by adjusting from an existing position (anchoring)
- People are risk averse when facing gains but become risk seeking when facing losses (prospect theory)

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Latest Research

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- The frequency with which something is monitored can affect the decision (myopic loss aversion)
- People have a tendency to ignore underlying probability distributions
- Almost everybody is overconfident

There are a number of established techniques for surveying and interpreting the results. Several are discussed in the report, including the Delphi technique, quality functional deployment, and conjoint analysis.

Some of the main behavioral finance results pertinent to eliciting and elucidating risk preferences are discussed in the report. Kahneman and Tversky have published many papers chronicling the surprising results consistently obtained from relatively simple behavioral experiments involving risk and judgment. In one experiment subjects were given a description of a man and told that he was drawn from a group of 70 percent engineers and 30 percent lawyers. The description used generic phrases such as "high ability" and "well liked;" this description was specifically designed to give no information regarding the man's occupation.

Subjects generally estimated the probability of "engineer" to be 50 percent, even though the correct probability with no additional information is the a priori probability, 70 percent. Subjects also estimated the probability at 50 percent when told that the man was drawn from a group of 30 percent engineers and 70 percent lawyers. The a priori probabilities, which were the most important information, were disregarded in the presence of rich, descriptive details even when those details were statistically neutral.

In the risk management context, this is a human reasoning flaw in the perception of risk. People have trouble incorporating a priori probabilities, which can be the most important factor, with qualitative information in estimating probabilities. This could affect management surveys in which the a priori probability of an adverse event is an important aspect of risk exposure. Other examples of risk misperceptions are discussed in detail.

In conclusion, the report intends to raise awareness of the benefits of formally eliciting risk preferences for a company. This effort can lead to a consensus framework for evaluating potential strategies. The report contains introductions to techniques and references to help interested readers pursue this subject further.

Humor Me

By Michael Ersevim, Humor Editor (and newly minted ACAS!)

Top 10 Things You Can Do With Your New ACAS Designation

10.) Make other people guess what "ACAS" stands for.

9.) Finally earn enough money during the time you're going for coffee at Starbucks to actually pay for the drink you just ordered.

8.) Serve as "Humor Editor" for *The Actuarial Review*.

7.) Get a vanity license plate with "ACAS" between your initials. For example, a John (or Jane) Smith might order a plate that says "JACASS."

6.) Make your dream of perpetual study a reality by next applying to medical school.

5.) Enlarge your puny diploma to 400% on the copier in order to "compete" with those who have their oh-so-impressive-looking CPCU diplomas hanging near you.

4.) Flash your CAS membership card to a policeman and speeding tickets are now a thing of the past.

3.) When an 8th degree black belt challenges you to a fight, you can say, "Whoa—back off there, buddy. I must warn you that I have my ACAS designation!"

2.) Enjoy 15% off at participating Radio Shacks.

1.) Stop being taken advantage of by Fellows who work with you by getting them only ONE coffee a day instead of TWO.

Notes from Cairo

By Eugene McGovern, CAS Ambassador to Egypt

Casualty actuaries in Cairo received a boost late in February 2005 when Gary Patrik, who was touring Egypt with his wife, Janaki, served the CAS cause with two public addresses.

On February 22, Gary spoke to a gathering at the Egyptian Insurance Federation. There were about eighty in the audience, including the chairman of one of Egypt's largest government-owned companies and many of his staff. Also present were a large contingent from Cairo University's actuarial science program.

Photo courtesy of Gary Patrik.

Trumpet in hand, Gary Patrik takes a break in front of the Sphinx and Pyramids at Giza as Janaki Patrik (foreground, left) looks on.

Fawzy Amer, FSA, founder of the Egyptian Society of Actuaries, introduced Gary to the audience, many of whom had no actuarial experience. Gary's nontechnical presentation described the actuarial student education process in the U.S. (university, on-the-job, and examinations), the number of exams, subject matter (math, statistics, economics, finance, accounting, and the like), the amount of study time for each exam (300 to 400 hours), and the number of years to Fellowship.

Gary talked about the kinds of work general insurance actuaries perform, the technical problems they encounter, whom they interact with, and their influence. Gary discussed various aspects of the actuarial landscape, such as whether actuaries have a role in the investment business, why actuarial answers change over time or from actuary to actuary, and how exact actuarial answers are.

Gary said that one of the most important actuarial functions is to provide management with advice and good technical information. This information is an interpretation of data organized so that management understands what you are saying, not voluminous undigested data. The audience also discussed the merits of privatizing the Egyptian insurance business [currently all insurers in Egypt are government-owned].

The next day Gary spoke at a seminar at the American University in Cairo (AUC). His lecture, titled "A Simple Application of Actuarial Credibility Theory," dealt with the influence that a year's worth of loss experience provides about the parameters of the Gamma distribution from which a driver's Poisson parameter is drawn. AUC had announced plans to begin offering courses in actuarial science, and so a number of students attended Gary's lecture. Dinner at a local restaurant followed, with a good discussion on a wide range of subjects.

Photo courtesy of Gary Patrik.

The author poses with Gary Patrik (center) and Fawzy Amer (right), president of the Egyptian Society of Actuaries.

I hope other CAS members, wherever they travel, will do as Gary did and spend a few hours with local actuaries. In the developing world, that can mean a lot—to the locals, to the CAS member, and to the CAS—and, it's fun. It is a pleasure to meet dedicated, hard-working, curious actuarial students who will greatly influence their country's future.

From the President

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Unlike all other actuarial organizations, which are constrained to national or continental boundaries and forced to talk across those boundaries, the CAS is not so constrained. We could be an organization of the world, with all members, regardless of where they live or work, having an equal voice in the organization, voting to determine policy and able to serve as leaders in the organization. [We already have board members from Canada (Dave Oakden) and Great Britain (Allan Kaufman) in addition to the United States, and an incoming vice president from Canada (Jim Christie).] Imagine the possibilities as our international membership expands! A casualty actuary living in China, or Chad, or Saudi Arabia who takes CAS exams to become a Fellow could learn firsthand about a democratic system of governance based on his or her membership in the CAS. This would truly lead the CAS to becoming an instrument for peace. (It also shows how important our system of governance is.)

Wait a minute, some readers are saying. We already have some international actuarial organizations. What about the International Actuarial Association? Couldn't that be an instrument for peace and prosperity? Well, the IAA is an association of organizations. The CAS is a member of the IAA, as are other actuarial organizations, and appoints representatives to IAA Council (which in turn elects officers and executive committee) and the many IAA committees. However, appointees represent the organizations that appointed them, and not themselves. This type of organization is not as conducive to thinking globally as one organization in which all members are equal participants. Also, the IAA is, as all national actuarial organizations are, dominated by life and pension actuaries. Casualty (or general) actuaries are a small minority and their interests and issues are frequently overlooked by leadership or given a lower priority than the ones that affect a greater proportion of its members. One such leader, when asked to identify nontraditional actuaries, responded, "We have many actuaries who are not working in life and pensions." I ask, does this mean that all casualty actuaries are nontraditional? How can that be, when casualty insurance preceded life insurance by centuries? More likely, this statement simply overlooks casualty actuaries.

Okay, but what about ASTIN? They are international in scope and focus solely on casualty (or as they term it, non-life) insurance. I have been privileged to attend the last two ASTIN meetings and have thoroughly enjoyed both meetings. However, ASTIN focuses on research, and does an excellent job at that. Many people attending the ASTIN meetings are academics who teach and research all areas of actuarial science, not just casualty. This is an excellent forum for exchanging new ideas in our field, but ASTIN is not set up to advise countries about setting up systems of regulation (although many ASTIN member do just that), or helping developing actuarial organizations create exams on casualty insurance. The recent announcement that the *ASTIN Bulletin*, which already includes papers from the Actuarial Approach for Financial Risks (AFIR), will also begin to publish papers from the new health and pension sections indicates that casualty will no longer be the focus of this journal.

...the CAS can be and should be an instrument for world prosperity by taking the steps to help emerging nations establish viable casualty insurance markets.

The CAS is a unique actuarial organization in several respects. We are the only organization that focuses on casualty insurance and we are the only organization that is not limited in scope geographically. Some people claim that we need to fit in, to become more like other actuarial organizations, to blend into the actuarial crowd so to speak. Some advocate that we should merge with other actuarial organizations beyond casualty insurance. Others opine that we should restrict our focus to North America. In my view, either of these changes would be a mistake. Instead of being self-conscious about our differences, we should embrace our distinctions and use them to our advantage. We should dedicate ourselves to helping advance the casualty insurance profession throughout the world, working with any other organization that is similarly inclined, be it an actuarial organization or other risk professional association, but working alone if need be. We should make it possible for anyone skilled enough in the mathematics of risk to pass our exams, or equivalent exams, regardless of where they live and work, and to become a full member of the CAS. We should do this since it will enhance the CAS; in the process, it will also advance peace and prosperity.

Dreamer? Perhaps, but a worthy dream don't you think?

Keeping Her Fingers Crossed

New CAS Associate Pursues Dual Fellowship

By Taresa LaRock, Communications Coordinator

Anita Sathe is probably not the only actuary with dreams of becoming a Fellow in both the CAS and SOA by the tender age 26. However, unlike most, she is well on her way to accomplishing just that.

Sathe, 25, began taking exams when she was 21. Thus far, she has passed nine exams (and passed every one on her first try), gaining Associate designations in both the CAS and SOA.

And she isn't finished yet. This fall, she goes for her tenth exam and after that for every other exam until she finally becomes a Fellow in both societies. "I decided to try to pass every exam on my first sitting, and so far I have been successful. Hopefully, I am keeping my fingers crossed, I will be all done by the time I am 26."

You may be asking yourself if this goal is necessary, or attainable, or just plain crazy. Sathe thinks it is simply normal and expected for her.

"I have been raised very differently than most other people," said Sathe. "My parents told me I should always believe in my dreams, aspire for something that will have an impact, and chart a course for others to follow in the years to come."

Actuarial science didn't exactly present itself as a likely profession to the young woman raised in India. "When I started finding out more about this profession, I realized that it had tremendous potential in a country like India. I still had slight trepidation about entering the actuarial profession because I did not have the math and statistics background needed for passing the exams."

Her trepidation diminished, however with an encouraging e-mail from a family friend, Mr. Shashikant Bhave, a life actuary in St. Louis, Missouri. "He told me that the actuarial profession was one of the few professions in the world where the demand still far exceeded the supply and how I could do wonderful things as an actuary," said Sathe. "I decided to take the challenge head on and learn everything I needed to, in order to become a good actuary."

Sathe began her undergraduate education at the University of Mumbai in India. Her experience with exams and education were distinct and different in India, where she took Courses 1 through 3. "Taking exams in India was a challenge given that all the study materials and calculators had to be ordered from the U.S. This was both expensive and time consuming," she said.

Course 1 was especially difficult for Sathe because she did not have the recommended level of training in math and statistics. She decided to take Exams 1 and 2 together since she was more familiar with some of the material on Exam 2 and thought she could leverage that with all the math training she was getting. Her aunt, who is a summa cum laude graduate in math, taught all the math and statistics she needed to know. "It was one year of an intensive but extremely enjoyable learning phase

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My Advice to Candidates

By Anita Sathe

For those who are embarking on exams, the actuarial profession is a relatively lucrative one—even for someone at an early stage of the exams. It is hard to discipline yourself to work a full day, keep up with the studying, and lead a relatively Spartan life even though the income you are earning allows you to have a relatively lavish lifestyle. I am no different from others in my age group, so it hasn't been easy for me. Here are some tips that have worked for me.

Be Smart and Consistent

I have learned that the secret is to study intelligently and regularly. By intelligent studying, I mean utilizing all the available study guides and seminars available for these exams. Studying regularly is making sure that you start the exam preparation way in advance so that you allow yourself the time to drift and be unfocused, while ensuring that you do some studying each day.

Get a Buddy

A good study buddy goes a long way. I have had a great study buddy in Amit Agarwal (another new ACAS) while taking my P&C exams. We took four CAS exams together (Exams 4 and 5 in the same sitting!) and passed each of them the first time—not because we were the most dedicated or smartest people around, but because the pain was more easily endured when it was shared!

Anita Sathe
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of my life," said Sathe.

With Exams 1 and 2 out of the way, and setting her sights on Exam 3, Sathe decided she needed a change. She decided to come to the U.S. for graduate studies in actuarial science at the University of Connecticut. Her experiences at UConn were extremely enriching. "Besides having an excellent actuarial science faculty, which enabled me to pass additional SOA exams," she said, "I was fortunate to be exposed to a variety of real-life actuarial projects through my involvement with the Deloitte-UConn Actuarial Center. Dr. Jay Vadiveloo, who heads up the Center has been one of my biggest sources of inspiration and support throughout my career and was one of the main reasons I chose to work with Deloitte after I graduated from UConn."

"When I started finding out more about this profession, I realized that it had tremendous potential in a country like India."

Post-graduation, Sathe has continued her professional career at Deloitte working in the company's P&C consulting practice. She works at Deloitte with the understanding that she can continue her work on Center-related projects with Dr. Vadiveloo. Sathe found the P&C work very interesting and, upon the advice of one of her P&C senior managers, Kevin Bingham, decided to pursue the CAS exams to leverage her work experience. Since she had already completed most of the exams for Associateship with the SOA and was fairly young in her professional life, she decided to pursue the joint accreditation.

Balancing consulting and studying for exams is one of the most difficult parts of her job at Deloitte. "Working in a consulting environment and trying to catch up with exams is a challenge," she said. "Deloitte has been very supportive of my efforts to complete the dual credentials." Dr. Vadiveloo, who also works for Deloitte's life practice, and Sathe's P&C manager, Kim Mitchell, have been instrumental in exposing Sathe to both areas and making sure she is getting a good blend of both sides. "My managers and partners at Deloitte fondly call me confused and crazy, but everyone is rooting for me to complete what I have set out for."

As for her life after exams, Sathe plans on doing something that requires an in-depth understanding of the insurance industry as a whole, not just parts of it. "Dual credentials will be the first step in making it happen."

Editor's Note: For the latest information on travel time, visit the CAS Web Site at www.casact.org/admissions/reports/travel2004.pdf.

Chance Encounters

By Jeff Adams and Dan Magnolia

"So Mom tells me you're going to Chicago to take actuarial exams. How long is the travel time?"

"Oh... about eight and a half years."

Myers Wins President-Elect; Braithwaite to Become CAS President

ARLINGTON, VA.—CAS members elected Thomas G. Myers as CAS President-Elect for 2006. Paul Braithwaite will succeed Stephen P. D'Arcy as CAS president, who in turn will become chairperson of the 2006 CAS Board of Directors. Braithwaite will take on his new position at the close of the 2005 Annual Meeting in Baltimore.

Balloting for the CAS election closed on September 1, 2005, and tellers verified the election results. A total of 1,116 Fellows voted in this year's election, or 40% of the Fellows. This compares to 44% of the Fellows voting in the 2004 election, and 51% of the Fellows voting in the 2003 election.

A 1986 Fellow, Myers has been actively involved with the Society's admission policies for several years, serving on and leading many CAS admissions committees and task forces. His activities culminated with a spot on the CAS Executive Council as vice president-admissions in 2002. He currently is a member of the CAS Centennial Goal Implementation Task Force, the Examination Committee, and the Task Force on FCAS Education. Myers is vice president of product management for High Point Safety and Insurance Management in Red Bank, New Jersey.

Members also elected Irene K. Bass, Glenn Meyers, Donald F. Mango, and Roosevelt C. Mosley Jr. to the Board of Directors. They succeed Gary R. Josephson, David J. Oakden, Patricia A. Teufel, and Oakley E. Van Slyke, whose terms on the board have been completed.

At their meeting in September, the board elected James K. Christie as vice president-admissions and Roger M. Hayne as vice president-research & development. Christie and Hayne succeed Thomas G. Myers and Donald F. Mango, respectively. Myers and Mango have both completed three-year terms on the Executive Council.

The board also elected John J. Kollar for vice president-risk integration, a new position on the CAS Executive Council that was approved earlier this year. The risk integration VP will coordinate all CAS activities relating to risk integration, paying particular attention to the integration of hazard risk with financial, strategic, and operational risk.

Paul Braithwaite
President

Thomas G. Myers
President-Elect

The board re-elected all incumbent vice presidents, including Deborah M. Rosenberg, administration; Amy S. Bouska, international; Beth E. Fitzgerald, professional education; and Joanne S. Spalla, marketing and communications.

Members of the 2005 Nominating Committee are chairperson Gail M. Ross, Ann M. Conway, Janet L. Fagan, Mary Frances Miller, Dale S. Porfilio, Chester John Szczepanski, and Michael L. Toothman.

Election Results

According to the election procedures approved by the CAS Board, all vote counts are released to the membership. These follow:

President-Elect

Thomas G. Myers	959

Director

Irene K. Bass	694
Glenn Meyers	654
Donald F. Mango	618
Roosevelt C. Mosley Jr.	467
Brian Z. Brown	461
Arlie J. Proctor	336
Kenneth Quintilian	330
Clive L. Keatinge	296

25 Years Ago in *The Actuarial Review*

A Still Raging Controversy

By Walter C. Wright

This letter from 25 years ago needs no introduction.

Controversy at Rest?

To *The Actuarial Review*:

Each year as exam results come out, battle is joined between student and Fellow regarding level of difficulty of exams given in "the old days" (generally defined as the period commencing with the first offering of examinations and terminating just prior to the student's first attempt) versus current exams.

In order to put this controversy to rest for all time I have performed one of my lengthy and esoteric analyses, the result of which I hereby recite:

1. All Fellows were assigned one and only one class based upon their year of Fellowship.
   a) Gaffers (prior to 1960)
   b) Fogeys (1960-1973)
   c) Champions (Fellowship in 1974)
   d) Tyros (1975 and subsequent)
2. Research was done on each group based upon the 1980 Year Book.

a) Of a total of 314 Gaffers admitted to Fellowship, fewer than 25% are still employed. In the light of a shortage of qualified actuaries, these results bespeak an actuarial education which must have left a great deal to be desired.

d) There are 165 Tyros. How tough could the standards have been?

b) Of 89 Fogeys currently employed by insurance companies, 55 (62%) hold the rank of VP or higher, and 8 (9%) are Presidents of their companies. A simple look at the present state of the industry is sufficient to discount this group as obviously underqualified.

c) Of the 17 Champions* over 94% are employed and fewer than 25% hold the title of VP or above. This, along with the fact that this is, by far, the smallest class of the four, should prove, once and for all, that the toughest exams were those culminating in a 1974 Fellowship.

*Stephen Philbrick (Tyro) informs me that 17 is the only random number, thus adding additional weight to the unbiased nature of my research.

—*Charles L. McClenahan, FCAS '74*

CORP-Accepted Papers Posted on Web

The CAS Committee on Review of Papers has released its quarterly update of recently accepted papers. The CAS Editorial Committee will be editing these papers for inclusion in the *Proceedings of the Casualty Actuarial Society*. As of October 1, 2005, CORP has accepted the following papers:

1. "When Can Accident Years Be Regarded as Development Years?" by Glen Barnett, Ben Zehnwirth, and Eugene Dubossarsky
2. "The Application of Fundamental Valuation Principles to Property/Casualty Insurance Companies" by Derek Jones, Wayne Blackburn, Joy Schwartzman, and Dov Siegman
3. "A Nonparametric Method of Estimating Loss Reserves for New Business" by Colin M. Ramsay
4. "Estimating the Workers Compensation Tail" by Richard E. Sherman and Gordon Diss
5. Discussion of "The 'Modified Bornhuetter-Ferguson' Approach to IBNR Allocation" by Glenn Walker
6. "Incorporation of Fixed Expenses" by Geoffrey Todd Werner

KENDRA FELISKY

True GRIT: U.K. Task Force Reviews "How Actuaries Do Things"

My other half (better half? Certainly the larger "half!") likes to use the word *synchronicity* to explain those weird coincidences that you come across in life. Synchronicity is actually a word created by the Swiss psychologist Carl Jung to describe the alignment of "universal forces" with the life experiences of individuals. Jung believed that many experiences perceived as coincidences were not merely due to chance, but instead reflected the creation of an event or circumstance by the "co-inciding" or alignment of such forces. Jung spoke of synchronicity as being an "acausal connecting principle" (i.e., a pattern of connection that is not explained by causality).

To me this word describes the simultaneous reviews in the U.S. and the U.K. of "how actuaries do things." The CAS produced the Task Force on Actuarial Credibility. The General Insurance Board of the Institute and Faculty of Actuaries commissioned a task force in the early part of 2004 to consider a number of issues arising in relation to general insurance reserving. This was partly driven by the Morris Review of the actuarial profession and also by the perception that recent reserve deficiencies were due to inadequate actuarial methodologies or inadequate actuaries or both. Is it a coincidence that these issues were being considered at the same time on both sides of the pond?

I won't ponder this coincidence further but instead concentrate on the results of the U.K.'s task force. The task force quickly trashed their initial name, GIRT, and became GRIT (General insurance Reserving Issues Taskforce). GRIT then set up various workstreams investigating such areas as uncertainty and improving methodology. GRIT also consulted with stakeholders, brainstormed issues, and communicated with the membership. In July a draft consultation paper was presented, which is available on the Institute and Faculty's Web site (www.actuaries.org.uk). Feedback on this paper is being sought, particularly through a series of workshops at GIRO in October with a view to a final paper being presented in Spring 2006.

GRIT's overall conclusions and recommendations are summarized under the following headings:

- What Can We Learn from the Past
- Communicating Reality in an Unambiguous Way
- Understanding the Business Better
- More Consistency in the Application of Existing Methods
- Identifying Where our Reserving Methods Need to be Enhanced
- Behavioural Issues and Third Party Influences
- Implementation

Jung believed that many experiences perceived as coincidences were not merely due to chance, but instead reflected the creation of an event or circumstance by the "co-inciding" or alignment of such forces.

What Can We Learn from the Past—The results of the membership-wide survey suggests that most of the members believe that the reserving performance of actuaries has been at least adequate, which differs from the views of our stakeholders and the press. There was differing views as to the causes of reserve deteriorations with some believing deteriorations are due to external factors and others believing they are due to systematic flaws in the actuarial methodology. Statistical analysis of the relationship between profitability and reserve strengthening suggests that there is indeed a link, with companies strengthening reserves in profitable times and vice versa.

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Actuaries Abroad

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However, it is impossible to determine whether the movements in reserves are due to changes in actuarial best estimates as companies can and do book amounts different from the actuarial best estimates.

Communicating Reality in an Unambiguous Way—Actuaries should understand and accept that the purpose of an actuarial reserve assessment includes constructing a framework for evaluating reserves that enables non-actuaires to form their own views on both the key assumptions and the level of reserves. GRIT has commissioned a GIRO working party to investigate the methods currently available to quantify reserve uncertainty. Actuarial reports need to disclose more information on the key drivers of uncertainty to help communicate to non-actuaries both the uncertainty itself and why it exists. In addition, the need to improve communication was highlighted.

Understanding the Business Better—GRIT believes that considerable improvements can be readily made to the reserve estimation process through actuaries improving their understanding of the business. Some suggestions are made as to how to improve the homogeneity of reserving classes, which should enhance consistency of the historical development factors. GRIT also stresses the importance of understanding changes to terms and conditions.

More Consistency in the Application of Existing Methods—GRIT believes there is room for improvement and a need for greater consistnecy in the way actuaries apply common reserving methods. For example, there should be less mechanical application of chain ladder methods and more use of judgment in the selection of development factors. Actuarial training should be enchanced and extended to include more on practical issues.

Identifying Where Our Reserving Methods Need to be Enhanced—GRIT recommends that the focus for enhancement and research be on such areas as improving data quality, understanding the business better, and allowing for the underwriting cycle instead of more sophisticated mathematical and statistical methodology. In particular, the underwriting cycle is associated with features and instabilities that actuaries may not have focused on sufficiently, specifically, the lengthening of the claim development profile in the soft market and the failure of rate indices to capture the degree of rate softening.

Behavioral Issues and Third Party Influences—Actuaries need to be more aware of the falliblity in human behavior of anchoring, prospect theory, framing, and overconfidence. Where signficant judgments have to be made, the actuary should usually look for evidence beyond discussion with underwriters, particularly where reserves may be reducing in an soft market.

Implementation—GRIT's recommendations will lead to more work being done by actuaries when carrying out reserving, which will have resource implications. There should be a continued focus on reserving, which is crucially important to general insurance actuaries.

While GRIT has produced a long list of things that actuaries should do differently, they are careful to point out that despite everything, GRIT consistently heard stakeholders say that actuaries play an extremely important role in general insurance. Two memorable comments were:

- "Actuaries are indispensable"
- "If actuaries did not exist, we would have to invent them."

The GRIT paper is quite long, but it is eminently readable and very user friendly with many thought-provoking ideas. I strongly urge all actuaries to read it whether you are "synchronized" or not!

Opinion

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it is easier than taking a rigorous course or passing a demanding exam. The path of least resistance is attractive to many, especially if there is money at the end of that path. Our professional societies must assure that actuarial credentials are only granted to those who have demonstrated an adequate level of proficiency in those fields of knowledge that have been deemed essential for actuaries. VEE as currently structured does not do that. It invites attempts to receive credit with the least amount of effort and learning possible. Given the sheer volume of the approved course offerings, the actuarial societies have no realistic chance of assuring that those receiving VEE credit actually know something about the topic they are receiving credit for.

Some current VEE options have publicly claimed that 95 percent of students receive credit from the CAS and SOA. This should raise doubts as to whether these courses are sufficiently rigorous. These are challenging subjects, and no meaningful course in them should give 95 percent of students a B- grade or better.

Practicing members of the CAS need to inform themselves on VEE and make their voices heard among those who are running our admissions system. It will be harmful to all of us if the FCAS credential loses the respect that we and our predecessors have worked to accumulate over the past ninety-plus years.

None of Your Business?

Editor's Note: This article is part of a series written by members of the CAS Committee on Professionalism Education (COPE) and the Actuarial Board of Counseling and Discipline (ABCD). The opinions expressed by readers and authors are for discussion purposes only and should not be used to prejudge the disposition of any actual case or modify published professional standards as they may apply in real-life situations.

Peter N. Netwirkle works for AL Insurance, a small company that writes personal auto coverage in the state of Honesty. He is working on a sophisticated neural network model to be used in target marketing. Peter's source data includes policy details, policyholder information, and claim statistics. Peter has carefully reviewed each potential variable and attempted to identify those factors with the most predictive value. Other elements are ignored by the model.

Peter takes a break from the project to attend the CAS's Predictive Modeling Seminar in Chicago. Over lunch, Bob Bigmouth, FCAS, MAAA, who works for a competitor of AL, tells him about an interesting discovery that he made while working on a model to detect fraud. Bob found that if he grouped policyholders who both lived in apartments and bought high-limit policies that the incidence of fraud was very high—much higher than when each variable was considered separately. The surprising part was that he also found a correlation among these same variables (when considered together) and the overall claim rate. Although policy limits were included in his source data, Peter's model did not consider them.

Should Peter go back to his office and add policy limit as variable in his model?

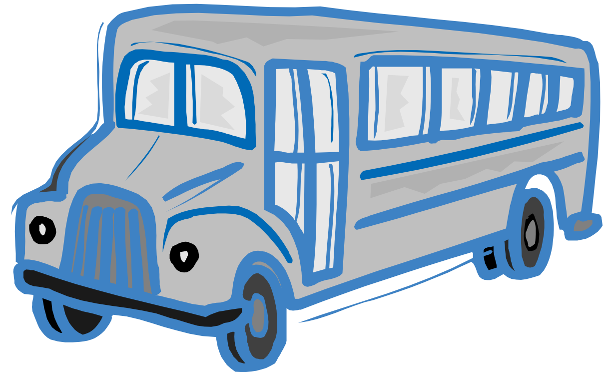
No

Bob inadvertently provided information that is proprietary to his company. The knowledge that Bob shared is intellectual property of his company and he should not have discussed it with Peter. Peter's model will be used to gain competitive advantage against Bob's company. If Peter applied this information in the development of his model, he would be in breach of Precept 1 of the CAS's Code of Professional Conduct, which states that an actuary shall act honestly and with integrity. As such, Peter is diminishing the reputation of the actuarial profession.

Yes

Why not? While Bob may have violated Precept 9 of the CAS Code of Professional Conduct, nothing in the Code prohibits Peter from using this information. This is great information and Bob freely offered it. Peter isn't using any data or other detailed information from Bob's company. In fact, he will still need to figure out how to incorporate the variable into his model. Also, the correlation Bob discovered seems unusual and there is no guarantee Peter's analysis will produce a similar result. It's certainly worth checking, though, and thanks to Bob, Peter can now try to make his model more accurate.

Update on the Actuarial Foundation



The Yellow School Bus is on its Way—Actuarial Mentors are Welcome to Board!

he new school year began this fall and The Actuarial Foundation's **Advancing Student Achievement (ASA)** program is looking for actuarial volunteer mentors for new and established programs in Atlanta; Cleveland Heights, Ohio; Houston; Newark, New Jersey; Sun Prairie, Wisconsin; Philadelphia; Pittsburgh; St. Louis; and Kansas City, Missouri.

If you can spare a relatively small amount of time to assist in a math-mentoring school program, please visit The Actuarial Foundation's Web Site at www.actuarialfoundation.org/youth/call_for_mentors.htm or contact Debbie Scanlon, Project Administrator at the Actuarial Foundation by e-mailing asa@actfnd.org or calling (847) 706-3600. We hope you will consider mentoring a student today and make a difference in their future.

2005 Individual Grants Competition Recipients

The Actuarial Foundation is pleased to announce the following winners of the 2005 Individual Grant Competition and their projects.

Vytaras Brazauskas, University of Wisconsin, "Robust and Efficient Methods for Credibility"—will develop an ensemble of improved data-analysis procedures that offer various trade-offs between robustness and efficiency. The impact of such procedures on credibility premium calculations will be thoroughly investigated and quantified.

Sebastian Jaimungal, University of Toronto, "Pricing and Hedging Equity Linked Insurance Products Under Jumps, Stochastic Volatility, Interest Rates and Mortality"—to investigate the pricing and hedging of Equity Linked Insurance (ELI) products, such as Equity Indexed Pure Endowments and Equity Indexed Annuities (EIAs), under a stochastic interest rate environment in which the risky asset is exposed to stochastic volatility, and jumps and mortality are modeled via a stochastic hazard rate process.

Bruce Jones, University of Western Ontario, "Pricing Cycles and Ruin Probability"—will develop and explore a risk model that considers the impact of pricing cycles on insurers' ruin probabilities and will use the model to study strategies for coping with cyclic business environments.

Kristen Moore, University of Michigan, "Optimal Surrender Strategies and Product Design for Equity-Indexed Annuities"—will examine optimal surrender strategies and product design for equity-indexed annuities. Using stochastic optimal control, they will study policyholder behavior and then examine contract features such as participation rates, death benefits, minimum guarantees, and fees that yield a product that is desirable for the investor and profitable for the insurer.

Anthony Webb, Boston College, and Irena Dushi, "The Optimal Allocation of Aggregate Mortality Risk"—to study the aggregate mortality risk faced by annuity insurers and the risk that the average mortality of the population from which the insurer draws its annuity pool proves to be lower than expected. Insurers anticipate continued reductions in mortality, but they cannot be certain of the pace of such reductions.

The AERF Committee of The Actuarial Foundation and the Committee on Knowledge Extension Research of the Society of Actuaries support the advancement of knowledge in actuarial science with the Individual Grants Competitions. For more information on the grant competition, visit www.actuarialfoundation.org/research_edu/prize_award.htm#indvidual.

Gifts To The Actuarial Foundation

Make your tax-deductible contribution today to The Actuarial Foundation through the convenience of online donations at www.actuarialfoundation.org/donor/donor.htm. Be confident that your gift is an investment in both the public interest and the actuarial profession for today and in "preparing for tomorrow's possibilities."

Spiritual Guide

We all need a sense of fulfillment. Although some may get this from their professional career alone, it is common to feel a need for outside accomplishment as well. That is largely what these columns are about.

One of our Fellows has sought this by becoming a deacon in the Episcopal Church. Within that church deacons comprise a separate order of ordained ministry, distinct from priests and bishops. As such, deacons are members of the clergy, are commonly addressed as "Reverend," and are subject to other responsibilities and rights of ordained ministry. They function under the direction of the bishop and are expected to serve the poor and the weak, bringing the needs of the world to the church. The bishop deploys many deacons to specific parishes in which they function liturgically and otherwise. Deacons are nonstipendiary clergy and many have occupations outside the church.

Deacons have specific liturgical roles in worship, as determined by the church's rubrics. These roles model the diaconal ministry of service. In addition, deacons preach occasionally and serve as teachers and mentors for lay ministers. They serve primarily as bridge builders between the church and the world. Many deacons are active in societal issues such as affordable housing, care for the elderly, handicap accessibility, welfare, and needs of the poor.

After receiving his FCAS designation in May 1982, Steven Judd redirected the time previously devoted to study for actuarial exams to other interests. In particular, he served in various capacities in the church, including serving on the vestry and as parish treasurer. Through this active involvement as a layperson he gained the interest and motivation to pursue ordination to the diaconate. He began the discernment process in July 1987.

In January 1994 he was ordained by the laying on of hands by his bishop and by the making of vows in a public worship service. The ordination followed an extensive discernment and formation process (in his home state Minnesota, typically three or more years), which consists of academic studies, practical experience in pastoral care under a mentor, and many interviews, discussions, and oral examinations. Written exams cover topics such as scripture, theology, church history, liturgics, ethics, and pastoral care. His experience training consisted of visiting patients with a chaplain at the Mayo Hospitals in Rochester over the course of a year. Numerous oral exams and other meetings gave everyone assurance that all requirements of the church had been met. Upon ordination, he was assigned to St. Peter's Church in Kasson, Minnesota. In April 1999, he was assigned to St. Paul's in Owatonna, Minnesota, where he continues to serve.

After receiving his FCAS designation in May 1982, Steven Judd redirected the time previously devoted to study for actuarial exams to… pursue ordination to the diaconate.

Currently, Steven leads a monthly worship service at a local care center and visits the elderly and sick in his parish. He pays particular attention to those members of the parish who face challenging personal or health situations.

Several months ago a retired friend from work asked him to serve at his wedding. Steven then asked a priest who is a friend of his to serve as officiant so that all legal requirements would be met. As the deacon in the wedding, Steven was privileged to lead the couple through the marriage vows, preach, and assist in the Eucharist. He always regards it as an honor to serve in special occasions such as weddings, baptisms, and funerals.

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D.W. Simpson Makes CAS Trust Donation

The Trustees for the CAS Trust (CAST) are pleased to announce that D.W. Simpson & Company has donated $10,000 to the Trust in September 2005. This brings the total contribution of the D.W. Simpson & Company to the Trust to $100,000 over the past several years. The CAST was established in 1979 as a nonprofit 501(c)(3) organization to afford members and others an income tax deduction for contributions of funds to be used for scientific, literary, research, or educational purposes. The CAS is appreciative of D.W. Simpson & Company and its employees for this milestone contribution toward advancing actuarial science.

CAS Professionalism Course Comes to Asia

By Carrie Rice, CAS Meeting Coordinator

The CAS is pleased to announce the first-ever Course on Professionalism hosted in Asia! There is an abundance of candidates living and working in the Pacific Rim, and many of the candidates need only the course to become a CAS member. To ease the burden of these candidates trying to fulfill their admission requirements, the CAS is bringing the Course on Professionalism to them.

The Course will be held at The Park Lane Hotel in Hong Kong on November 21-22, 2005. The objective of the Asia Course is the same as North American courses: to inform candidates of their professional responsibilities including the Code of Professional Conduct and Standards of Practice.

We have had a terrific response from our CAS Asia-based members to assist as volunteers for the course and are looking forward to this new venture!

Nonactuarial Pursuits

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The most meaningful and difficult ministry he has experienced was the illness and death of his department's reserve actuary, Cindy Schauer, ACAS, MAAA. He had been very involved in hiring Cindy and had worked closely with her through her 15 years of employment. Her loss was profound, especially for her family, including three young children—but also for those at work. Cindy's family asked him to arrange and lead the service and preach at her funeral and to be present with them as they grieved their loss of her.

Steven believes there are many forms of ministry and many ministers, not just the ordained clergy. "Ministry occurs whenever someone helps another think about or experience the presence of that which creates, heals, and makes life more like the way it is meant to be—holy—more abundant."

Steven Judd is senior vice president and director of actuarial services at Federated Mutual Insurance Company.

CAS Professional Education Calendar

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

November 4-20, 2005
CAS Online Course: Financial Risk Management: Securitization
CAS Web Site

November 13-16, 2005
Annual Meeting
Renaissance Harborplace Hotel, Baltimore, MD

March 13-14, 2006
Seminar on Ratemaking
Marriott Salt Lake City Downtown, Salt Lake City, UT

March 23-24, 2006
Leadership Meeting
Philadelphia, PA, TBD

April 23-26, 2006
ERM Symposium
Sheraton Chicago Hotel & Towers, Chicago, IL

May 7-10, 2006
CAS Spring Meeting
Wyndham El Conquistador Resort, Puerto Rico

June 1-2, 2006
Seminar on Reinsurance
Hilton New York, New York, NY

* Limited Attendance.

Allocating Capital: Another Tactic

A Review of Michael Kalkbrener's "An Axiomatic Approach to Capital Allocation"

Note from Stephen Philbrick: Capital allocation, or the allocation of the cost of capital, is a subject of great interest to me, as past columns will attest. I thank Glenn for allowing me to use his review as this issue's column. The entire concept is important, but Glenn Meyers illustrates one particular item I'll emphasize—when a particular allocation rule violates axioms, one shouldn't automatically discard the rule. Use it as a framework to seriously examine and understand the implications of the axioms. In some cases, it will suggest a refinement to the axioms, rather than a change to the rule.

Allocating capital has always been a controversial topic among actuaries. As an example, see Gary Venter's article in the February 2002 *Actuarial Review* titled "Allocating Surplus—Not." After years of debate I think that a common (if not prevailing) view of capital allocation is that it is a useful tool to manage an insurer's portfolio of risks. The general idea behind capital allocation is that those lines that contribute the most risk to an insurer's portfolio get allocated the most capital. One of the reasons for the controversy is that most actuaries do not feel comfortable with the mathematical properties of some of the proposed formulas that take risk into account. A common problem is that the sum of the allocated capitals does not equal the total capital. A second related problem is that the allocated capital may depend on the order in which it enters the insurer's portfolio.

Enter Michael Kalkbrener. His paper "An Axiomatic Approach to Capital Allocation," which appears in July 2005 issue of *Mathematical Finance*, proposes a set of axioms that I think most actuaries would consider reasonable and then shows that ***these axioms determine a unique capital allocation formula***! Let's look at the axioms.

Let X and Y denote two insurance portfolios.

Let $\Lambda(X, Y)$ denote the part of the capital of Y that is allocated to X.

Let ρ be a positively homogeneous and subadditive measure of risk. (See my August 2002 *Actuarial Review* article on "Coherent Measures of Risk" for definitions.) We also require that $\Lambda(X, X) = \rho(X)$.

The three axioms are called (1) linear, (2) diversifying, and (3) continuous. The linear axiom guarantees that the allocated capital "adds up." The "diversifying" axiom guarantees that a segment of business allocated by capital is no larger than its standalone capital. The "continuous" axiom guarantees that small changes in a segment's portfolio will not make large changes in its allocated capital.

Kalkbrener shows that for every positively homogeneous and subadditive risk measure, ρ, there is a unique linear, diversifying, and continuous capital allocation Λ. He also shows that Λ can be calculated by the directional derivative:

$$\Lambda(X,Y) = \lim_{\varepsilon \to 0} \frac{\rho(Y+\varepsilon X)-\rho(Y)}{\varepsilon}$$

Here is how this formula works on a simple example. Let $Y = X_1+X_2$ be random variables generated on a finite set of scenarios generated by a simulation. Let the capital be determined by $\rho(Y) = max(Y)$. To allocate capital to each X_i we first find the scenario (x_1, x_2) where Y takes on its maximum. (To keep the math simple in this example, I am considering only the case where (x_1, x_2) is unique.) Thus, $\rho(Y) = x_1+x_2$. Then for sufficiently small ε, $max(X_1+X_2+\varepsilon X_i) = x_1+x_2+\varepsilon x_i$ and thus:

$$\Lambda(X_i,Y) = \frac{(x_1+x_2+\varepsilon x_i)-(x_1+x_2)}{\varepsilon} = x_i\,.$$

Kalkbrener gives a general version of this example using coherent measures of risk, of which the *max*(.) measure is a special case.

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Brainstorms

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In this example, the capital allocated to X_i is equal to its contribution to the maximum loss scenario. Those who have been following this issue will recognize this as the same principle that David Ruhm and Don Mango use in a number of their papers that describe what is coming to be called the RMK algorithm.

If we use the risk measure $\rho(X) = E(X) + T \bullet Std(X)$, Kalkbrener shows that his allocation formula gives the covariance allocation formula described in separate papers by Dan Gogol, Don Mango, and Gary Venter.

Let's now consider an alternative approach to capital allocation, which I will call economic allocation. Suppose you are an insurer with a given portfolio of business. Suppose further that you determine your capital using a subadditive measure of risk and you measure your profitability in terms of the return on your investment. Economics 101 advises you to improve your profitability by increasing your exposure in lines that give you the highest marginal return on your investment and reduce your exposure in the lines that give you the lowest marginal return. Over time this strategy results in an insurer having equal marginal returns on its investment for all lines of insurance. If you choose to express this strategy in the language of capital allocation, you will allocate capital in proportion to the marginal capital for each line of insurance.

Unfortunately it turns out that economic allocation is not equivalent to axiomatic allocation. I have been able to construct an example where the two approaches yield different answers.

Which axioms are violated by economic allocation? The answer is found by applying the steps of Kalkbrener's derivation to an economic allocation formula. It turns out that the diversifying axiom is violated. It is possible for a standalone portfolio of risks to increase its allocated capital when considered as a part of a larger portfolio of risks.

My personal preference is for the economic formula. I think capital allocation should be driven by economic objectives, not mathematical properties. But having participated in these debates over the years I recognize the power that the axiomatic approach holds over many of my actuarial colleagues. Based on the examples I have constructed to date, I suspect that the differences between the two formulas would not excite my more "practical-minded" colleagues. In spite of my personal preferences, I consider this paper to be one of the finest I have read on this subject and I hope that many CAS members will read it.

Final note: The Web version of this AR *Brainstorm's column is expanded to include an exact statement of the axioms and more details on the examples that I refer to. There is also an accompanying spreadsheet.*

CAS International Calendar

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

May 28 - June 2, 2006
International Congress of Actuaries
Paris, France

June 20-23, 2007
ASTIN Colloquium
Lake Buena Vista, Florida, U.S.
Disney's Contemporary Resort

Actuarial Foundation to Help School Victims of Hurricanes Katrina & Rita

The Actuarial Foundation is asking for donations to provide math teachers the relief they need to rebuild their classrooms and provide their students with math tools they are unable to personally replace.

For example, one school is specifically asking assistance to replace lost calculators. The cost of a TI-83 Plus graphing calculator is $90-$100. Other requests to rebuild math classrooms will vary greatly. All donations are tax-deductible.

For more information, visit www.actuarialfoundation.org/donor/mathclassrooms.htm. To make an online donation, visit www.actuarialfoundation.org/donor/donor.htm and check your donation to "Rebuild Math Classrooms."

On behalf of the students, math teachers, and school administrators working to rebuild their academic communities, the Actuarial Foundation thanks you.

Risk Index Under Development

The Risk Index Task Force (RITF) is planning to launch a new project to bring greater public visibility to actuaries and the risk management field. Working in conjunction with the Risk Management Section (a joint section of the SOA and the Casualty Actuarial Society), the RITF is looking for help to make this project a success.

The key idea is to develop a risk index, or a set of risk indices, that could ultimately become a standard reference point for any business leader who is making important business decisions. Most actuaries have heard of the CPI and various stock price indices. RITF's goal is to develop the "Actuarial Risk Index."

The first step in the project is to conduct research on what kinds of risk indices already exist and on what methodologies are being used to develop such indices. The RITF has developed a short illustrative list of some indices that are readily available. The task force is trying to build a comprehensive list of potentially useful indices and is asking for assistance in expanding the list. Some examples of indices and research that have been identified to this point are:

- The "Corporate Risk Barometer" from the Economic Intelligence Unit: http://store.eiu.com/index.asp?layout=pr_story&press_id=140001814&ref=pr_list
- The "Catastrophic Risk Exposure Index" from the International Institute for Applied Systems Analysis: www.iiasa.ac.at/Research/CAT/paris.pdf
- Risk Index Exposures of the S&P 500 from BARRA: www.barra.com/Research/RiskIndexExposures.aspx

The Task Force is also looking for help with developing a methodology for building an index. The index could be based on existing indices or other information.

RITF welcomes any ideas that may contribute to this project. Please send all your comments and suggestions to Kimberly Wargin (kwargin@soa.org) at the SOA office. Risk Management Section Council member Doug Brooks chairs the RITF and CAS member Todd Bault serves on the task force.

Dickson Elected to Risk Management Section Council

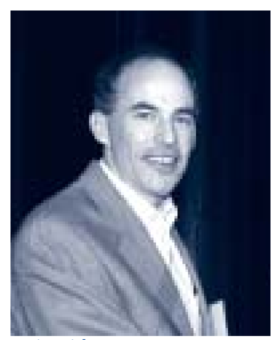
Kevin Dickson, a Fellow of the Casualty Actuarial Society, was elected to the Council of the Risk Management Section, a joint section of the CAS and SOA. Dickson will begin his three-year term at the close of the SOA Annual Meeting on November 16, 2005.

The mission of the Risk Management Section is to advance the actuarial profession by assisting members of the Section with the education, research, networking, and other specialized needs that arise in the risk management area of actuarial practice. The Section Council is responsible for carrying out this mission by directing and managing the activities of the Sections.

The Section's primary objectives for the current year are:

1. Expand ERM educational opportunities for Section and SOA members, especially in areas where we have not traditionally had training, such as operational risk and credit risk.
2. Continue to foster risk management research.
3. Support the initiatives in promoting the actuarial profession as risk managers.

"I'm very excited about the opportunity the Joint Section represents for both CAS and SOA members. We've always shared a common skill set and now we share a common mission as well," said Dickson. "I strongly encourage casualty actuaries to explore the many ways to become involved in the Section. You don't need to be an expert risk manager—just jump right in."



Kevin Dickson

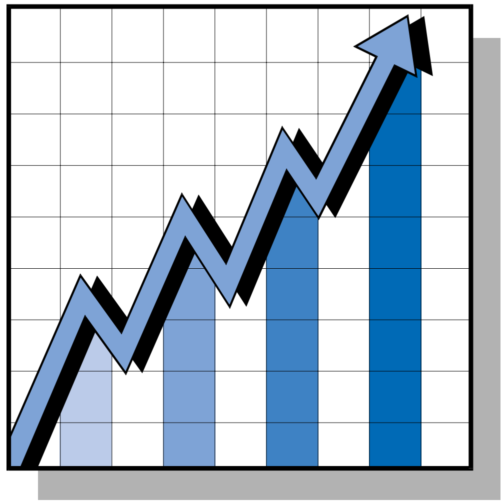
Members of the CAS and SOA are eligible to join the Section. For only $20 annual dues, membership benefits include:

- *Risk Management*, the Section newsletter focusing on topical articles and the latest on risk management activities;
- Invitations to Section social/networking events;
- Mailings/e-mail communications announcing upcoming research, projects, continuing education events, and other activities.

Member status provides voting privilege and eligibility for election to the Section council. An application form is available on the CAS Web Site at www.casact.org/coneduc/rms/.

JOHN P. ROBERTSON

Capital Allocation



You manage an investment portfolio. Your investors have demanded a 95 percent probability that your investment strategy will grow the $17 million fund to $100 million. You have identified 11 companies, each of which has an 85 percent probability that each $1 invested will grow to $10, and a 15 percent probability that the investment will become worthless. Any funds not invested retain their original value.

Can you devise a strategy that meets your investors' requirement? Send your solution to ar@casact.org.

Highest Probability?

Tom Struppeck had suggested a puzzlement using a standard 52-card deck of cards. You flip cards until an ace appears. What is the probability that the next card is the ace of spades? (Deuce of clubs?).

Alan Jones's solution exhibited a puzzle solver's approach. His solution reads, in full, "Probability is 1/52 for both parts of the problem. Start with four cards, calculate; go to five cards, etc." Slightly more rigorously, consider shuffling the 51 cards other than the target card (ace of spades or deuce of clubs). There are 52 equally likely spots for the target card, exactly one of which is immediately following the first ace among the 51.

David Atkinson, Taylor Barker, Edward Baum, Roger Bovard, Geoff Bridges, Frank Chang, Jon Evans, Shiwen Jiang, Charles McClenahan, Chris McKenna, Christopher Mosbo, Misha Novakovic, David Oakden, Anthony Salido, Steven Sousa, Jean-François Tremblay, David Uhland, Russ Wenitsky, Dave Westerberg, and Zhonghua Zhang sent solutions.

In Memoriam

Richard L. Johe (FCAS 1954)
August 14, 2005

Edward Merrill Smith (FCAS 1958)
September 11, 2005

Leo M. Stankus (FCAS 1962)
September 30, 2004

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