The Actuarial Review

Volume 27, No.3
August 2000

Published by the
Casualty Actuarial Society

From the President

CAS Election Process

by Alice H. Gannon

"Do you think that candidates in CAS Board elections should be asked to provide a position statement on key issues?"

This was question #49 in the last CAS membership survey and 677 of the 961 members responding to the survey answered "yes."

A single question on a survey does not necessarily provide adequate evidence of the need for a specific change. However, the results from this question, along with other information (such as a downward trend in percent of Fellows voting to 46 percent in 1999), was viewed by the CAS's Executive Council (EC) as evidence that some changes to CAS election processes should be considered. As a result, the Task Force on the CAS Election Process was formed, chaired by **John Purple**, to review CAS election procedures and make recommendations to the Board. The task force studied CAS election processes for both the Board and officer positions, and while they addressed the specific issue referred to in the survey question, their analysis went well beyond that single issue.

→ page 15

EC Implementing Recommendations of Education Task Force

CAS to Hire Education Consultant

The Executive Council is now working with the admissions committees to begin implementing some of the recommendations of the Task Force on the Review of Education and Examination Process and Procedures, including the hiring of an education consultant. The decision to hire an outside education consultant is a significant result of discussions of the task force report. This professional would assist with the following:

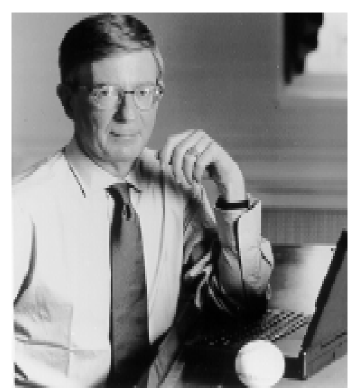
- Development of educationally sound learning objectives and a blueprint based on the learning objectives for each examination,
- Training of Examination Committee members to write good "thinking" questions, and
- Construction of objective measures of examination length and difficulty.

The transition to the 2000 examination structure brought the educational process to the forefront of CAS activities in the last three years. Members and candidates debated the benefits and possible weaknesses of the new examination configuration announced in June 1997, as well as the detailed changes that were announced over the subsequent two years. CAS leadership took the opportunity to engage in a dialogue with members and candidates about the specifics of the new program and the larger concept of how the CAS educates actuaries for the future. Hearing repeated concerns and misunderstandings about

→ page 3

Will to Speak at 2000 CAS Annual Meeting

by John J. Lewandowski



George Will

George Will, one of America's leading political observers, is the featured speaker at the 2000 CAS Annual Meeting, which will be held November 12-15 at the JW Marriott in Washington, D.C. Will is seen weekly on ABC's *This Week* and read nationally in *Newsweek* and in his syndicated newspaper columns.

Four general sessions are planned for the Annual Meeting. The first general session, "Product Distribution in a Changing Business Environment," will explore how insurance companies and insurance brokers are

→ page 18

Inside This Issue:

In My Opinion

"NEED to Know" vs. "NICE to Know"

by Paul E. Lacko

Newspaper and magazine articles tell us that we are living in the Information Age, that knowledge is the key to success, that we must keep up or fall to the wayside. And we can't know everything about everything, because there's too much of everything to know. Instead, we first exert considerable effort to distinguish the things we NEED to know from the things that would be NICE to know. Then we devote most of our professional time and energy to the things we NEED to know.

Despite the broad variety of responsibilities and tasks we encounter along our individual career paths, we all have to pass a set of exams that are intended to provide us with a lot of knowledge about the things that property/casualty actuaries all NEED to know. The exam syllabus changes over time, of course, because the things we NEED to know change over time. We no longer NEED to know some things that we once NEEDED to know; those things still might be NICE to know, but those things are dropped from the syllabus. Some things we now NEED to know are added to the syllabus that maybe didn't even *exist* a few years back.

> "Today, I look at the syllabus and think, 'I'm sure glad I don't have to pass the exams *now*. They're *hard*!'"

In our traditional property/casualty practice areas, the knowledge base continues to expand over time. For example, **Pat Grannan**'s "Random Sampler" and **Victoria Stachowski**'s article in this issue of *The Actuarial Review* both discuss international topics that hardly any of us encountered in our day-to-day work ten years ago. (More than twenty years ago, my department manager told me, "I'm sure glad I don't have to pass the exams *now*. They're *hard*!" Today, I look at the syllabus and think, "I'm sure glad I don't have to pass the exams *now*. They're *hard*!" The more things change….)

The CAS devotes considerable effort to distinguish what we NEED to know from what would be NICE to know. Last year's survey of CEOs and other industry officials has resulted in some evidence that perhaps a better job can be done. In November 1999, the CAS Task Force on the Review of Education and Examination Process and Procedures (see front-page story) presented a list of 31 recommendations for improvement. *Thirty-one* recommendations! The system evidently needs more than a quick tune-up.

Sholom Feldblum's opinion piece in these pages exhorts us to look at the Web site of the Association for Investment Management and Research (AIMR), which includes the syllabus for the exams that lead to the designation of Chartered Financial Analyst. (Someone who attains the CFA designation is called a *charterholder*.)

I did look at the Web site. I was impressed.

I printed out the syllabus, which ate up about half a ream of paper.

I have only begun to read the syllabus, but two things have caught my attention already. First is that the Level I exam is offered *once* a year and it consists of *two* three-hour sessions. That makes it *two* exams in my book. There are three *levels* of exams, so I am expecting to find six exams in total. That's a lot of material and a lot of exams.

→ page 6

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

The Actuarial Review (ISSN 10465081) is published four times each year by the Casualty Actuarial Society, 1100 North Glebe Road, Suite 600, Arlington, Virginia, 22201-4798. Telephone: (703) 276-3100; Fax: (703) 276-3108; E-mail: office@casact.org. Third class postage is paid at Arlington, Virginia.

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*, 1100 North Glebe Road, Suite 600, Arlington, Virginia, 22201-4798.

Copies of articles or issues are available on microfilm from University Microfilms International, 300 North Zeeb Road, Ann Arbor, Michigan, 48106-1346, phone: (800) 521-0600.

CLRS Showcases Top Insurance Analysts

Among the magnificent artwork in Minneapolis is the Spoonbridge and Cherry.

Jay Cohen and Weston Hicks, two of the top insurance analysts in the world today, are the featured speakers at this year's Casualty Loss Reserve Seminar (CLRS), to be held September 18-19 in Minneapolis. Both Cohen and Hicks have been named to Institutional Investor's All-America Research Team on multiple occasions with Hicks receiving first-place rankings in each of the past six years.

One of the CLRS' many offerings, a general session entitled, "Investors View of the Insurance Industry," will address the qualities of a successful insurer and the impact of securitization as well as other innovative means of raising capital in the industry. The session will also highlight how investors value insurance companies and the role actuaries can play.

For more details on the 2000 CLRS, contact the CAS Office or visit www.casact.org/coneduc/clrs/2000/index.htm.■

Claes Oldenburg and Coosje van Bruggen, *Spoonbridge and Cherry*, 1987-1988. Aluminum, stainless steel, paint. Collection Walker Art Center. Gift of Frederick R. Weisman in honor of his parents, William and Mary Weisman, 1988.

Task Force

From page 1

the examination process led the Board of Directors to appoint the task force, and work began in December 1998 to assess strengths and weaknesses and make recommendations to improve the process and, as a result, the education and skills of the CAS members.

The task force sought feedback from the widest possible audience, soliciting comments on the CAS Web Site and in the newsletters *Future Fellows* and *The Actuarial Review*. Academics, teachers of examination review seminars, and members of the CAS admissions committees were consulted. Feedback was used to identify the most significant issues that needed to be addressed. A guiding principle in constructing the recommendations was to add value to the current educational process by continuing emphasis to test concepts and understanding by using "thinking" questions rather than questions that merely require rote memorization and by considering the use of personal computers on examinations.

Chairperson **John J. Kollar** presented the task force's final report to the Board in November 1999. Board members actively discussed the 31 recommendations during the first half of this year. President **Alice H. Gannon** placed the report and a summary of the Executive Council's discussion on the CAS Web Site in June. Members can comment on the report and the EC's actions directly on the CAS Web Site.

"A guiding principle in constructing the recommendations was to add value to the current educational process by continuing emphasis to test concepts and understanding by using 'thinking' questions..."

The task force report offers numerous other suggestions to strengthen the existing process and procedures; other recommendations are not new initiatives but are identified to emphasize their continued importance. As one outcome, the admissions committees will continue to communicate the "behind the scenes" work of the examination process to help demystify it for candidates.

Another result is the increased emphasis on improving syllabus material using study notes. The task force made three recommendations. First, the task force recommended that the Syllabus Committee goals should include identifying and prioritizing subjects or readings that could be substantially improved by substituting study notes. Second, the Syllabus Committee should recruit additional resources (either as Part Specialists or as members of a Subcommittee) to oversee the development and update of study notes. Third, the Board should establish funding for commissioned study notes to be used as necessary by the Syllabus Committee.

It will take a few years for the full impact to be felt from the new education structure and from the recommendations of this task force. To continue the never-ending quest for improving exam quality, a final task force recommendation is to have such a review conducted periodically, perhaps every ten years.

Members of the task force are: John J. Kollar, chairperson, **Robert M. Beuerlein**, **Robert L. Brown**, **Richard W. Gorvett**, **Gustave A. Krause**, **Howard C. Mahler**, **Donna S. Munt**, **William F. Murphy**, and **Gail M. Ross**.■

Acclamation for McClenahan

Dear Editor:

I have six words to describe my view of Chuck McClenahan's "Random Sampler" in the May issue of the *Review*: "Right on, right on, right on."

Chuck expresses his views on three issues that I believe many of us feel strongly about. Concerning the lack of contested CAS elections, Chuck regrets, "that there was no mechanism to allow the candidates to promulgate their personal vision for the CAS." At one time, the Society was small enough that most of the members knew the nominees, and presumably their views, personally. I believe that is no longer the case. We have simply become too big for that to be true any longer; and we have certainly become too big to rely solely on personal interactions and knowledge to select our future leaders. The current nomination and election process, once sufficient to insure a steady supply of vibrant candidates, may no longer serve the best interests of the CAS.

"...the Educational Testing Service... care[s] only whether you 'blacken' the correct oval enough times to get a score that meets their profile for success."

Regarding mutual recognition, I agree with Chuck that we abdicate our responsibility by passing on the opportunity to have our codes and standards apply to foreign-trained actuaries practicing in the U.S. It is that abdication, rather than any cheapening of the value of the ACAS or FCAS, that could hurt us.

I save my most resounding "RIGHT ON" for Chuck's words on the state of math education in this country. As the father of a son who has struggled with several rounds of SAT exams, [taken] more than one not inexpensive review course, and who, at this moment, nervously [waits] for a letter from his first-choice college, I can tell you the Educational Testing Service and the colleges they serve do not care what color you think math is. They care only whether you "blacken" the correct oval enough times to get a score that meets their profile for success.

It is interesting that the problems of the lack of contested CAS elections and the state of math education spring from the same misguided liberal thinking: that insulating people's fragile egos from the hard knocks of the real world is in their best interests. Nothing could be further from the truth or, in my view, more dangerous or debilitating to the human spirit. My personal experience has always been that in any endeavor—sports, the class room, everyday human encounters, even the CAS exams—I have learned far more from failure than from success.

Thank you, Chuck, for your insight. Such a gift must have been developed in a world in which you were allowed gloriously to fail.

Frank Karlinski, FCAS

Open Elections

Dear Editor:

The Random Sampler by Charles McClenahan in the May 2000 issue of *The Actuarial Review* was well thought out. One of the only "advantages" that noncompetitive elections offer is the ease of congratulating all candidates. (I say that with tongue in cheek, of course!) As Charles McClenahan rightly picked up, the public discussion of society issues is the major service provided by open elections. The closed nature of most CAS discussions is not healthy for our organization. Nevertheless, many persons—simply by the nature of men and women—cling to power, even when "power" is merely the possession of more information or the right to make certain decisions unimpeded. This helps the egos of individuals but it hurts the organization. And the strength of this desire is surprising; the attempts I made to change the structure during my three years on the Board were fruitless. How unfortunate that our society can not rise above this!

"The closed nature of most CAS discussions is not healthy for our organization."

Sincerely,

Sholom Feldblum, FCAS

The Color of Actuarial Science

Dear Editor:

I share Charles McClenahan's concern for the state of mathematics education in this country (*The Actuarial Review*, May 2000), but the question about the color of math sparked a lively debate around our dining room table. My husband, a fellow of the American Statistical Association and the Institute of Mathematical Statistics, favored a highly saturated primary color, because of its depth and clarity. I think of math as sort of opalescent, with many subtle interconnections that are revealed only upon long and careful examination. But we agreed on the colors of actuarial science: foreseeable fuchsia and profits ecru.

Esther Portnoy, FSA■

Random Sampler

Globalization—Some Implications for the Actuarial Profession

by Patrick J. Grannan

The globalization of the business world has important implications for actuaries, both individually and as a profession. Actuaries are aware of globalization in a broad sense, but it is easy to underestimate the impacts, especially in cases where no direct effect is visible on the horizon.

A growing amount of business is being done across geographic and political boundaries. This trend will almost certainly continue, because an important driver is the advance of communications technology. It is impossible to predict many advances that will occur in the future, but two examples of advances that are likely to make it easier to do business internationally are better, cheaper video conferencing and instantaneous translation between languages by computer.

Globalization opens up a world of additional interesting work and location opportunities for actuaries who are interested and who develop the right skills. For many actuaries with no interest in moving to another country, it will be important to learn at least the basics of insurance and related fields in other countries, and to be able to work with actuaries based in other countries. The need for these capabilities can arrive suddenly as a result of a merger or acquisition.

What should actuaries do as a group, through the actuarial profession, to prepare for the more international world of the future? I would suggest two key goals. One is to make sure our basic and continuing education systems include appropriate international components, which will need to grow over time. The other is to facilitate the ability of actuaries in different countries to work together by helping them become colleagues and "speak the same language" to a much greater extent.

As one important step toward both of these goals, I believe we should make a major effort to develop more commonality among the basic education systems (for the CAS, this means the exams) of the various actuarial organizations around the world. Some of the education should differ among countries because of differing insurance coverages, accounting rules, and legal environments. There is a lot to be gained from comparing the education systems in detail, both to learn from one another and to bring about convergence where practical, while keeping our standards high. For example, there is little difference in the basic mathematical knowledge needed by casualty/general insurance actuaries in different parts of the world. The differences in basic education needs of actuaries are likely to be smaller between countries than between disciplines (for example, casualty and life insurance) within a country.

> **"Globalization opens up a world of additional interesting work and location opportunities for actuaries who are interested and who develop the right skills."**

Another important step is to undertake efforts, probably via committees, to make it easier for actuaries to find relevant papers and other sources of information from different countries. Much of the material is accessible via the Internet, but finding it is not easy without help. This effort will be valuable in helping the best practices emerge and become more widely recognized. It will also lead to more convergence of practices, which will make it easier for actuaries from different countries to work together and will make actuarial skills more portable.

Each of these steps is simple in concept but will require a great deal of effort and creative, open-minded thinking. I would encourage others to develop and share their thoughts on how best to prepare actuaries for a future in which international issues will be increasingly important.■

CAS Continuing Education Calendar

Bookmark the online calendar at www.casact.org/coneduc/cal.htm.

September 11-12—DFA Seminar, Westin Atlanta Airport, Atlanta*

September 18-19—CAS/AAA/CCA Casualty Loss Reserve Seminar, Minneapolis Hilton, Minneapolis

September 21-22—CAS/CIA Appointed Actuary Seminar, Hilton Airport Hotel, Toronto, Canada

October 16-17—Seminar on Issues Associated with the Funding of Catastrophe Risk, Providence Biltmore, Providence

October 24-25—Advanced DFA Seminar, Hilton Northbrook, Chicago*

November 12-15—CAS Annual Meeting, JW Marriott, Washington, D.C.

*Limited Attendance

2000 CLRS Papers Focus on Emerging Insurance Issues

by Steven M. Visner

With the upcoming Casualty Loss Reserve Seminar (CLRS) this fall, the CAS Committee on Reserves completes its call for reserves papers on the topic "Estimating Liabilities for Emerging Insurance Issues." The purpose of the call is to encourage the communication of work being done in upcoming areas of concern to those actuaries responsible for estimating a company's loss and loss adjustment expense reserves. The call addresses areas that actuaries will be increasingly called upon during the new millennium to evaluate and measure. These exposures may have the potential for future mass tort issues, may be potentially volatile, and may have limited relevant historical data. They will certainly present significant challenges to the reserving actuary.

Five papers have been accepted into the program and will be presented at various sessions at the 2000 CLRS. The papers cover areas as diverse as tobacco, political disorder and civil unrest, satellites, and unearned premium reserves.

One paper addresses measuring U.S. tobacco liabilities for insurers and provides a conceptual framework for developing an exposure-based model. The paper describes the model-building process and includes the parameters required and sources of data that can be used. A second paper will discuss issues related to satellite insurance, including the disposition of the marketplace; causes of satellite failures; and the nature, measurement, and modeling of various insurer liabilities. A simulation model outlined in the paper considers satellite insurance as an "active life" exposure. This model can be used to evaluate the profitability of the unearned premium reserve and compare competing reinsurance programs and pricing. This topic is especially relevant as commercial communications providers attempt to create global communications networks through the use of satellites. A third paper will address issues related to insurer's exposure to political disorder and civil unrest. The paper considers the types of unrest that are likely to arise in different territories and discusses techniques for evaluating frequency, severity, claims control, financing, and reinsurance. A fourth paper addresses a gap in the actuarial literature concerning calculation of "premium deficiency reserves." This paper will be especially timely given that, effective in 2001, the NAIC's codification project will create the need for such a statutory reserve requirement. The paper will discuss how the reserve differs under current U.S. GAAP accounting rules and the new statutory accounting rules. The fifth paper addresses the heavy toll that asbestos and pollution claims have already taken on U.S. property/casualty insurers. Exploring the characteristics of these two enormous categories of claims, the paper also focuses on the characteristics of several of the emerging potential mass torts facing the insurance industry and likelihood of mass torts of similar dimensions.

All the call papers will be included in the CAS Fall *Forum*, which will be distributed later this summer and will be available on the CAS Web Site (http://www.casact.org/pubs/pubs.htm) prior to the CLRS. A $1,000 prize will be awarded at the CLRS to the best paper submitted in response to the call. The CLRS is scheduled for September 18-19 in Minneapolis, Minnesota.■

In My Opinion

From page 2

What really got me thinking, however, is the first paragraph of my half-ream of paper, which says the following:

"The CFA curriculum is solidly grounded in the practice of the investment profession. Periodically (most recently in 1995), AIMR surveys CFA charterholders around the world to determine those elements of the body of investment knowledge that are important to them in their practice. The survey helps establish the Candidate Body Of Knowledge (CBOK) and determine how much emphasis each of the major areas should receive on the CFA examinations."

Included in my half-ream of paper is ten pages of "The Candidate Body Of Knowledge Outline" for the CFA designation. This outline appears to consist of what a financial analyst NEEDS to know. I see nothing that I would classify as merely NICE to know.

In my opinion, a Casualty Actuarial Student Body Of Knowledge Outline would be immensely valuable. The first paragraph of the **2005** CAS Syllabus of Examinations might say something like the following:

"The 2005 CAS Syllabus is solidly grounded in the practice of the property/casualty actuarial profession. Periodically (most recently in 2000), Fellows and Associates around the world were surveyed to determine those elements of the body of actuarial knowledge that are important to them in their practice. The survey helped establish the Casualty Actuarial Society Body Of Knowledge (CASBOK) and determined how much emphasis each of the major areas should receive on the CAS examinations."

A CASBOK Outline would help many people to understand what actuaries NEED to know and to comprehend the actual practice of the property/casualty actuarial profession. College students would be able to compare and contrast the CAS course of study to other postgraduate options, such as

→ page 7

In My Opinion

From page 6

an MBA program or the CFA course of study. The "best and the brightest" might be attracted to the breadth and depth of the CAS curriculum, once they can see what the curriculum will teach them.

The CASBOK would likely persuade CEOs and other industry leaders to place a higher value on their actuaries' contributions to their organization. The CASBOK would tell them what is required in order to meet certain responsibilities placed on their organizations by law, regulation, custom, and practice. The actuarial work cannot be done by MBAs and CFAs; they clearly do not have the requisite body of knowledge.

> "A CASBOK Outline would help many people to understand what actuaries NEED to know and to comprehend the actual practice of the property/casualty actuarial profession."

The CASBOK should make clear that actuaries' training does not produce MBAs or CFAs. On the one hand, it may become clear why actuaries do not move into certain positions typically filled by MBAs and CFAs. On the other hand, it may become clear that actuaries are at least as well-educated as MBAs and CFAs to take on certain responsibilities that have not been considered "actuarial" in the past.

The process of constructing a CASBOK will help us to identify what material we pack into one set of exams and how we organize that material into a set of exams. For example, a CASBOK might help us to determine how much emphasis we give to theory vs. practical knowledge at different stages of the exam process. (It might also lead us to add certain items that we have traditionally omitted. Doesn't it seem odd that we spend countless hours filling out state filing forms, but the exams give no instructions or advice to us?)

What we NEED to know takes precedence if we intend to continue to be the property/casualty industry's preeminent experts in all matters related to pricing and reserving.■

AERF Announces Grant Award Recipients

The Actuarial Education and Research Fund (AERF) has awarded several grants in conjunction with its 2000 Individual Grants Competition.

- **Robust and Efficient Methods for Estimation of Reinsurance Parameters**—Vytaras Brazauskas of the University of Wisconsin-Milwaukee will compare empirical nonparametric and robust parametric estimators of different reinsurance premiums on the basis of two criteria: efficiency and robustness. The asymptotic variance of the estimator will be used as an efficiency criterion, and the breakdown point of the estimator will be used as a robustness criterion.
- **Effective Statistical Methods for Group Insurance**—Nanak Chand of CNS Actuarial Services will develop and illustrate simple and practical statistical methods for actuarial applications pertaining to group insurance. The resulting analytical techniques will help in the process of estimating claim costs, margins, risk charges, contingency reserves, and other pricing and reserve factors. The SOA Health Section is cosponsoring this research.
- **Stock Return Models for Financial Guarantees**—Mary Hardy of the University of Waterloo will collate and extend the current research in equity-linked life insurance. The emphasis of the applications in the report will be Canadian segregated fund contracts. However, the techniques will also be applicable to variable annuity contracts in the U.S., to guaranteed annuity rate options in the U.K., and to equity-linked insurance in many other countries.
- **The Grand Pension Experiment in Mexico**—Tapen Sinha of ITAM will analyze the effectiveness of the privatization of the pension system in Mexico. Several aspects of the system will be explored.
- **Premium Death Spirals: Theory and Empirical Evidence**—The research team, including Harry Sutton of Allianz Life, and Bryan Dowd and Roger Feldman of the University of Minnesota, will analyze high and low health-risk consumers' preference for premiums and benefits. The researchers will also evaluate whether a competitive health insurance market can sustain health plans that appeal to high risks. This project is being cosponsored by the SOA Health Section.

Upon completion, the results of the projects are expected to be submitted for publication to journals such as the CAS *Forum* and *North American Actuarial Journal*.■

Correction

In the May 2000 *Actuarial Review* article, "CAS Convenes Annual Leadership Meeting," **Robert Brown** was not identified as a CAS member. *The Actuarial Review*'s custom is to bold the first appearance of a CAS member's name in each article and Brown's name was not bolded. Brown is currently the Society of Actuaries' president-elect.■

Opinion

Finance Careers and the Future of the Actuarial Profession

by Sholom Feldblum

Editor's Note: The Actuarial Review *encourages the publication of opinion pieces. If you would like to respond to a published opinion or express a new one, please send your article to the CAS Office or send it by e-mail to esmith@casact.org. All submissions should be in electronic format with 700 words or less.*

Last September, I sat amidst the Directors at the joint Board meeting of the Casualty Actuarial Society and the Society of Actuaries, and I listened to the visions of the future of our profession.

Our traditional calling is dying out, more quickly on the life side but soon on the casualty side as well, warned one participant. *We must expand our profession to include financial engineers and investment analysts, who also deal with financial risk. We must invite the best of our brethren to become actuaries like us.*

What have we to offer them that they should seek to join our ranks? we asked.

We offer them what we do best: professional examinations and credentials, codes of conduct, standards of practice, and a valued reputation, was the answer.

Is there not already an organization which does this, the AIMR? asked one of the Directors. *Is not the CFA designation already recognized as the mark of investment expertise?*

The remark was perfunctorily dismissed. *The AIMR exams are judged to be elementary in comparison to our own, and the AIMR cannot be viewed as serious competition*.

I wanted to object, but I kept my silence.

Silence is dangerous if it leads to complacency.

I had heard intriguing comments about the CFA examinations. There were two CFA charterholders at my company, and several other persons who were sitting for exams. I had signed up for the first of the three CFA examinations, I had purchased the textbooks, and I had browsed through the AIMR Web Site.

My friends, if you wish to help our profession, browse the AIMR Web Site.

In early June, I sat for the first of the three CFA exams.

There are already 43,000 CFA charterholders around the globe, with an average salary of $140,000 a year.

"Exams 3 and 4 persuade many of the students that we seek to attract to opt instead for CFA exams...."

The AIMR Board includes many of the leading names in investment theory, global heroes of the capitalist age, well-known theoreticians, even a Nobel prizewinner or two.

There were 2,809 candidates in Boston taking the CFA exams on one day in early June. There were nearly seventy thousand more in other cities around the globe.

But the syllabus—is their syllabus comparable to ours?

The CFA syllabus is designed to teach, not merely to test. Parts of their syllabus are easier; they lack the theoretical hoops that our students learn to leap through. Their syllabus focuses on the work of investment professionals. They study economics, accounting, investments, and finance from well-written educational texts. They spend much time studying ethical handbooks that put our own code of conduct to shame.

The skilled college graduate from Harvard or Yale, from Stanford or Princeton, adept in mathematics and eager to join our global economy, has a choice. Three CFA exams give practical investment expertise and a secure job at over $100,000 a year, with much advancement potential. The first four actuarial exams teach esoteric statistics that most employers deem unrelated to the job.

I meet hundreds of students every half year in seminars for the actuarial examinations. They seek advice: *should we continue in the actuarial career path, or should we take the CFA exams?* What can I answer them?

They ask: *Is the Society aware of this problem? What is the Board doing?*

I wonder as well. Yes, our exams are effective. Exams 3 and 4 persuade many of the students that we seek to attract to opt instead for CFA exams, for MBA programs, for other financial and investment careers. We say: "How wonderful that our new students are learning advanced modeling and simulation techniques." In fact, we ought to say: "How ironic that our advanced modeling and simulation exams—with study time and pass ratios out of proportion to work requirements and financial rewards—lead the best students elsewhere."

The actuarial examination system is valuable, but it works only if the syllabus teaches the material that our employers value. Perhaps we once had the liberty to load the syllabus with excessive theory. I don't know; but we surely don't have that liberty now.

I am an actuary, and my life is tied to the success of our profession. But I fear our societies have lost their way; they have become complacent, and cannot see the future.■

Ethical Issues Forum

Rate Levels On the Level?

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.

Everywhere Insurance Company (EIC) is a mono-line writer of private passenger automobile insurance in 30 states. EIC has three field offices with experienced actuarial staffs producing rate indications for their respective region.

In an effort to improve efficiency and reduce costs, EIC replaced the current actuarial staff with part-time computer science college students, and retained Joe Actuary, FCAS, MAAA to build a ratemaking model that will streamline the rate indication process. The college students will download the required information into this model, which will in turn produce the resulting rate indications. The model uses a three-year average of the historical incurred loss development factors to project ultimate losses, calculates on-level premium, and uses a three-year average of the historical company expense to produce a rate-level indication. Each student can use the model to produce a computer-generated rate indication with only four hours of work per state. Joe knows that the model is generally acceptable under Actuarial Standards, but that it may not meet each individual state's requirements as to respect to allowable rates of return, experience period used, credibility, and the like.

In addition, to increase the credibility of the rate filing, EIC has asked that each filing be accompanied by an actuarial memorandum issued under Joe's signature. The college student will prepare the rate indication and the corresponding memorandum that will be forwarded to Joe for his signature. The company product managers will file the proposed new rates along with the rate indication and Joe's actuarial memorandum.

After the initial $25,000 for completion of the model, Joe will be paid $200 per rate indication and memorandum ($200 translates into approximately 45 minutes at Joe's current billing rate). The process is expected to significantly reduce the required time and provide for a more efficient, less costly rate filing process.

Has Joe acted professionally in this situation?

Yes

Joe has provided the exact services requested by EIC. It is quite common for support staff to prepare rate indications at the direction of a credentialed actuary; giving Joe an opportunity to review the results of his model in advance of the filing with the insurance department only serves to ensure the quality of the rate filing process.

No

The use of a purely mechanical process by untrained employees to producing rate level indications is a dangerous situation. Unless he is going to validate the work process on a filing by filing basis, Joe's part in the process is at least irresponsible and likely unprofessional.

Whether Joe signs the rate filing or not, providing EIC with a powerful tool without the expertise and knowledge of how to use it hurts EIC and ultimately the general public at large. If Joe submits the resulting work product under his name with the minimal amount of review time provided by the fee arrangement, the actuarial profession and the public's confidence in our profession is being further damaged. Specifically, Joe would be in violation of Precepts 1 and 4 of the Code of Professional Conduct as listed below:

Precept 1: "An actuary shall act honestly, with integrity, and in a manner to uphold the reputation of the actuarial profession."

Precept 4: "An actuary shall ensure that Professional Services performed by or under the direction of the actuary meet the applicable standards of practice."

Joe should not have agreed to build the model knowing EIC's plan for its use. In addition, given the current situation, Joe should only agree to sign off on the rate filing if ample time is allocated for a review of the work product on a state by state basis.■

CAS Welcomes New Affiliates

Alfons Brodschelm
St. Paul Reinsurance Company, Ltd.
Munich, Germany
Fellow, German Actuarial Association

Matthew W. Kunish
Milliman & Robertson, Inc.
New York, New York
Fellow, Institute of Actuaries of England

Shigeru Taguchi
Tokio Marine Management
New York, New York
Fellow, Institute of Actuaries of Japan■

New Fellows and Associates Honored

New Fellows, Row 1 (from left, bottom to top): Amy Petea Angell, Richard A. Rosengarten, Meyer Shields, Brandon Lee Emlen, Christopher Todd Hochhausler, and Mark Kelly Edmunds. **Row 2 (bottom to top):** Elaine Lajeunesse, Kathy Popejoy, Diana Mary Susan Linehan, Julie Burdick, Brandelyn C. Klenner, Mark E. Bohrer, and Robert Neil Campbell. **Row 3: CAS President Alice H. Gannon. New Fellow not pictured:** Scott A. McPhee.

New Associates, Row 1, from left: CAS President Alice H. Gannon. Row 2 (bottom to top): Warren T. Printz, Sean Evans Porreca, Henry Joseph Konstanty, Brad D. Birtz, Cheryl R. Kellogg, Ajay Pahwa, and Allen J. Hope. **Row 3 (bottom to top):** Parr T. Schoolman, Wendy Rebecca Leferson, Kristina Shannon Heer, David Bruce Hackworth, and Brian Kenneth Ciferri. **Row 4 (bottom to top):** Kevin L. Anderson, Mihoko Yamazoe, Patrick J. Charles, Ernest C. Segal, Andrew Samuel Golfin Jr., and Christine L. Lacke. **Row 5 (bottom to top):** David E. Hodges, Tanya K. Thielman, Angela D. Burgess, Kristin Sarah Piltzecker, Carol Irene Humphrey, and Frederick Douglas Ryan.

New Associates, Row 1 (from left, bottom to top): Cosimo Pantaleo, Shina Noel Fritz, Doris Lee, Jill E. Peppers, and Richard Michael Holtz. **Row 2 (bottom to top):** Josephine M. Waldman, Lora L. Smith-Sarfo, Kelly M. Weber, Michelle L. Sheppard, Richard Paul Lonardo, Petra Lynn Wegerich, Jody J. Bembenek, and Karin H. Wohlgemuth. **Row 3 (bottom to top):** Cynthia Galvin, Patricia A. Deo-Campo Vuong, Susan M. Cleaver, Victor Mata, Jodie Marie Agan, Steven M. Jokerst, Michael Dale Neubauer, and Mark Richard Desrochers. **Row 4 (bottom to top):** Nora J. Young, Kevin George Donovan, Lee Oliver Smith, Dennis R. Unver, Michael Devine, Michael Anthony Garcia, James Brian Gilbert, and Joshua Yuri Ligosky. **Row 5: CAS President Alice H. Gannon.**

at the 2000 CAS Spring Meeting

New Associates, Row 1, from left: CAS President Alice H. Gannon. Row 2 (bottom to top): Stephen Daniel Riihimaki, Tice R. Walker, Martin Menard, Erik Frank Livingston, Jonathan Leigh Summers, Donna L. Emmerling, Gary A. Sudbeck, and Nathalie Tremblay. **Row 3 (bottom to top):** Jennifer Arlene Scher, Rachel Samoil, Lambert Morvan, Kristie L. Walker, Alexander Peter Maiszys, Scott G. Sobel, and Pamela Barlow Heard. **Row 4 (bottom to top):** Salimah H. Samji, Colleen Ohle Walker, Timothy C. McAuliffe, Daniel David Schlemmer, Stacey C. Gotham, Dawn Marie S. Happ, Ezra Jonathan Robison, and Olga Golod. **Row 5 (bottom to top):** Joseph Emmanuel Goldman, Bobb J. Lackey, Ellen A. Berning, Brian M. Ancharski, Omar A. Kitchlew, Paul O. Shupe, James Christopher Guszcza, and John David Trauffer.

New Associates, Row 1 (from left, bottom to top): Chantal Guillemette, Jean-François Larochelle, Jean-François Desrochers, Patrice Jean, Thomas M. Mount, and Keith A. Engelbrecht. **Row 2 (bottom to top):** Veronique Bouchard, Jill E. Kirby, Michael Thomas Patterson, Mitchel Merberg, Eric Millaire-Morin, and Kraig Paul Peterson. **Row 3 (bottom to top):** Louis-Christian Dupuis, Laura B. Sachs, Deborah Herman Ardern, Kevin Thomas Peterson, David Michael Maurer, Kevin A. Cormier, and Terry C. Wolfe. **Row 4: CAS President Alice H. Gannon.**

New Associates, Row 1, from left: CAS President Alice H. Gannon. Row 2 (bottom to top): Donia Burris Freese, Rebecca E. Miller, Jennifer A. McGrath, Juan de la Cruz Espadas, William Scott Lennox, Thomas L. Boyer II, and Peter H. Latshaw. **Row 3 (bottom to top):** Mary Jane Sperduto, Laura Anne Esboldt, Michael Stanley Jarmusik, Mary Denise Boarman, Mary Elizabeth Frances Cunningham, David C. Brueckman, and Ronald Taylor Nelson. **Row 4 (bottom to top):** Charles Biao Jin, Matthew L. Uhoda, Jason Carl Head, Hans Heldner, and Matthew Kevin Moran. **Row 5 (bottom to top):** Richard Jason Cook, Farzad Farzan, Christopher John Westermeyer, Richard Alan Van Dyke, Vadim Y. Mezhebovsky, and Wade T. Warriner. **New Associates not pictured:** Patrick Barbeau, Harry Sigen Chen, Jeffrey Alan Courchene, Hannah Gee, Mark R. Greenwood, Rusty A. Husted, James F. King, Darjen D. Kuo, Rebecca Michelle Locks, William F. Loyd III, Richard J. McElligott, Suzanne A. Mills, Loren J. Nickel, Wendy We-Chi Peng, Michael C. Petersen, Bryant Edward Russell, Christine Steele-Koffke, and Neeza Thandi.

Standardization Pains

by Victoria Stachowski with Alice Underwood

In March, I attended a conference in Frankfurt, Germany sponsored by the Center for Financial Studies (Institut für Kapitalmarktforschung). The conference was for European companies considering filing with the SEC, which would enable them to list their shares on stock exchanges in the United States.

The room was filled with accountants and auditors—if there was another actuary in attendance, we didn't meet. In fact, the vast majority of those present did not even work for insurance companies. Nevertheless, two themes running through the conference are relevant to those working in the multinational insurance world: (1) the creation of standardized accounting systems; and (2) the challenges of meeting specific U.S. requirements.

Creation of Standardized Systems

The fact that there is a *need* to create standardized accounting systems may be a surprise for actuaries working exclusively in the U.S. Yet a multinational company may use several different systems, generally based on different local statutory standards. Historically, financial statements have been designed by different groups in different countries, with each group providing a different perspective or emphasis. Even if the perspective has since changed, the format of the financial statements remains the same for historical reasons.

When business is performed only on a local scale, or the ties between operations in different countries are loose, then the multiplicity of accounting standards may cause few problems. However, as the cold wind of competition blows across the continent, management of multinationals is more interested in comparing apples to apples. At the same time, financial analysts are demanding increased transparency. So, the need for consistent accounting systems has grown.

Adopting any standardized accounting system is a real challenge. One of the speakers outlined three principles required for this adoption. Although the examples discussed at the conference were drawn from accounting-specific issues, these principles also apply to the actuarial processes and results that go into preparing financial statements:

"The fact that there is a *need* to create standardized accounting systems may be a surprise for actuaries working exclusively in the U.S."

(1) Be willing to change the culture. When an organization has been doing something one way for a long time, it's painful for the organization to start doing it another way. A good example of this in the actuarial arena is the person who signs the reserves. In many European countries this has traditionally been done by an accountant or the CFO. These individuals often do have a great deal of knowledge and experience regarding insurance reserves—and even when they don't, they may be reluctant to yield power to actuaries. It may require time, training, and possibly a directive from the parent company to get this responsibility shifted.

(2) Accept the results. A change in financial reporting techniques will almost always affect the results reported, causing great jubilation for some and bleak depression for others. For example, if a business were holding catastrophe or equalization reserves, releasing those reserves would cause calendar-year profit. If a business were holding discounted reserves, the abrupt unwinding of that discount would hurt calendar-year results.

Furthermore, the rules that help in one calendar year often hurt in the next, and vice versa. After releasing the catastrophe reserves, a catastrophe will eat into surplus. After the discount has been unwound, the next year's investment returns look stronger.

Accepting the volatility inherent in International Accounting Standards (IAS) or U.S. standards can be one of the more painful issues for companies in continental Europe. Of course, it's not always easy for American companies, either.

(3) Develop the infrastructure. Adopting a standard system is no simple procedure.

For example, insurance companies wishing to file with the SEC are supposed to supply ten-year reserve development tables. This means the data need to be collected for ten years. This also means teaching the people in the different countries what these data mean, and making sure that these definitions are applied in a consistent and correct manner. For example, what is the definition of IBNR (reserves for future catastrophes may once have been included) or reinsurance (risk transfer may not have been required in the past)? The definitions are not always consistent across borders, and different rules may have been applied historically.

Moreover, it is not simply a matter of training the local employees. There must also be local auditors for reviewing the numbers. They, too, need to understand the procedures and the meaning of the rules.

Keep in mind that these actuaries, accountants, and auditors may now have to create and maintain two or more sets of reports to comply with dual sets of rules. The parent company may have adopted an accounting standard, either for management or for group financial reporting purposes, but local legal entities still have to file reports with local regulatory authorities that conform with local statutory accounting standards.

→ page 13

Standardization
From page 12

Meeting Specific U.S. Requirements

The two main accounting systems most companies consider are U.S. GAAP (Generally Accepted Accounting Principles) and IAS. A company will choose one or the other based on its needs and goals, and based on which system it believes will best present its business. However, if the firm wishes to file on a U.S. stock exchange, it must opt for U.S. GAAP, or else file IAS and provide a reconciliation to U.S. GAAP.

U.S. GAAP, according to virtually everyone I spoke with at the conference, is the most detailed and prescriptive set of accounting rules in the world. This can be frustrating to some would-be filers with the SEC, who claim that these rules distort the picture and prevent them from telling the story they are trying to tell. Representatives from the SEC at this conference did not appear generally receptive to this complaint and emphasized the desire to protect American investors and the need for comparability between companies.

Nevertheless, there appear to be situations for which U.S. GAAP makes little sense. Tracking down all the requisite information may not be possible, and the results could be nonsense. For example, U.S. GAAP mandates that real estate held for investment be valued by applying depreciation factors to original cost. The difficulty here is that some European companies have been using the same property literally for centuries. (To be fair, the SEC appeared willing to listen when foreign companies have genuine issues.)

Of course, no one is *forcing* companies from European or other countries to file with the SEC. The world outside the U.S. contains many stock exchanges. However, there can be strong business reasons for filing with the SEC and being listed on a major U.S. stock listing:

(1) Easier access to the U.S. capital markets, which are the largest in the world.

(2) Greater name recognition by American customers.

(3) More flexibility in mergers and acquisitions, in that the firm's shares become a vehicle for merging with or acquiring other companies listed in the U.S.

(4) Increased ability to hire and retain U.S. employees, because firms listed on a U.S. exchange can give their American employees U.S. stock options, which are essential in some industries for retaining personnel.

The implementation of a standardized and internationally recognized accounting system—whether U.S. GAAP or IAS—is no minor undertaking for a multinational insurer. But as international consolidation in the industry continues, and as more foreign firms work towards a U.S. stock listing, this is a challenge that many insurers face. Those insurers need actuaries as well as accountants to make it happen. While the process can occasionally be painful, standardization facilitates transparency for regulators, financial analysts, investors, and, last but not least, for those managing the business. ■

Actuarial Science Faculty Position Available

A tenure-track assistant or associate professorship in actuarial science, starting in August 2001, is now open at the University of Connecticut. Duties include graduate and undergraduate teaching, actuarial research, professional involvement, and student support. Qualifications include Associateship or Fellowship in the CAS or SOA (or commitment thereto), evidence of teaching skills, and research potential. A doctoral degree is preferred. Send resume and three reference letters, to be received by December 15, 2000, to Richard L. (Dick) London, FSA, Director of Actuarial Science, Department of Mathematics, University of Connecticut, Storrs, CT 06269-3009. Call (860) 486-4236 or e-mail london@math.uconn.edu with any questions.

Further information about the position, the University of Connecticut, and its Department of Mathematics is also available on the Web at www.math.uconn.edu. ■

CAS Seeks Authors for Study Notes

The CAS Syllabus Committee is seeking authors to write study notes on certain aspects of topics for the 2002 syllabus. Details would be developed in conversation with the Syllabus Committee. General topics for the study notes are:

- Allocation of Expenses to Line of Business,
- Insurance to Value (update and replacement for material by Head),
- Premium Trend,
- Casualty Applications of Survival Models,
- Valuation,
- Summary of Court Cases (study note to summarize material formerly covered by Mintel),
- Increased Limits (study note to integrate and simplify current material),
- ALAE Reserving,
- European Regulation Overview, and
- Summary of Important FASB Statements.

Anyone interested in writing one of the study notes, please contact Syllabus Committee Chairperson Nancy Braithwaite at (212) 898-5843 or nbraithwaite@iso.com. ■

Actuaries Abroad

DFA or DST or ALM?

(or TOO MAN YSI LLY AC RON YMS)

by Kendra M. Felisky-Watson

On a last day of summer (okay, it was only June 19 and summer hadn't actually officially started, but here in England we'd already had our allotted two days of sun and didn't expect any more), 90 people attended the second Joint Seminar of the CAS and the Institute/Faculty of Actuaries. Interestingly enough, the people attending came not only from the U.K. and the U.S., but also Albania, Bermuda, Cyprus, Denmark, Germany, India, Norway, and Switzerland.

I think the seminar was very successful in that, not only did we learn something about DFA, but some interesting debate was generated throughout the day. Quite a lot of the debate/discussion centered on the different approaches to DFA taken by U.S. and U.K. theoreticians and practitioners, which seemed to me to be the whole point of the seminar.

After a brilliant introduction by the day's chairperson, Julian Lowe, the two presidents gave quick presentations on their respective organizations. Our illustrious president, **Alice Gannon**, discussed the mutual recognition issue and also talked about the CAS Survey on Nontraditional Practice Areas (a.k.a., Wider Fields in U.K.-speak). Then Paul Thornton, president of the Institute of Actuaries, discussed the incredible growth in general insurance/casualty actuaries over the last twenty years and how a statutory role is being discussed with the regulators. He also touched on mutual recognition, exam structure, and the role of the Institute in India and Southeast Asia. Alice appeared to be a bit jealous of Paul's ornate chain of office draped around his neck.

Then it was on to the real topic of the day, dynamic financial analysis or dynamic solvency testing as most people in the U.K. call it. Bryan Joseph kicked off with an introduction to DFA and the regulatory and business planning uses of DFA. He discussed what an ideal solvency test required by regulators should incorporate, and how well the tests of four different regulatory environments (E.U. Capital Requirement, Lloyd's Risk-Based Capital Approach, U.S. Risk-Based Capital Requirement, and the Canadian Dynamic Capital Adequacy Testing) met his criteria. According to Bryan, these criteria should be underwriting risk, asset risk, credit risk, and operational risk, as well as actual mix of business, financial strength of reinsurers, and no double gearing (that is, of capital).

"Interestingly, Bryan [Joseph] used the banking industry's adoption of capital adequacy models as a prediction of the insurance industry's future use of DFA."

Bryan then went on to discuss how DFA can be a solvency test as well as a business-planning tool for the company. He also talked about model construction and output. Interestingly, Bryan used the banking industry's adoption of capital adequacy models as a prediction of the insurance industry's future use of DFA. Finally, he discussed the hurdles for the acceptance of DFA, primarily the "black box" problem. In discussion, Chris Daykin mentioned that the Netherlands, Finland, and some other parts of the E.U. are investigating DFA but that there were no plans for an E.U.-wide risk-based capital model.

Sholom Feldblum discussed the thought processes and decisions that were taken when his company implemented its DFA model a year and a half ago. He described the procedure for using the targeted return on capital to derive a target loss ratio by line of business for pricing purposes. Sholom then worked through his company's model for capital allocation using an option-pricing analysis to derive the expected policyholder deficit as a risk measure. He paid particular attention to describing a stochastic reserving model. Some pros of his DFA model are that it is theoretically sound and has consistent capital determination across lines of business; drawbacks are that some risk distributions are not known, along with the usual bugbear of parameter risk.

After lunch, our local "mega-economic wizard," Andrew Smith woke everybody up with an intriguing discussion of the most important step after construction of a DFA model: how to use the outputs. He started by debunking traditional methods of deciding between different strategies based on the outputs from a DFA model. He described how DFA models give distributions of the outcomes but no guidance as to how to select the best scenario. There is an overload of data, but little actual information! To illustrate his point, Andrew constructed a simple model with five scenarios leading to five different results, each with its own distribution. He then set about comparing and contrasting the different measures of risk and return and how some traditional methods would pick inappropriate strategies if there were incomplete understanding of the underlying scenarios. Andrew then introduced the concept of state price deflators (conventionally called "deflators") acting as a stochastic discount factor. Andrew

→ page 15

Actuaries Abroad

From page 14

concluded with a warning that you must get an answer from your DFA model that you believe to be robust and then communicate it to management.

A jet-lagged **Stephen Lowe** stepped up to describe his DFA model and he definitely deserves some sort of award for managing to link DFA models with cans of beer, thermodynamics, and fractals. Stephen described how there are three markets (capital, factor, and product) that are all sources of systematic risk. He described the external risks (systematic and event) and internal risks (operational). He then went on to discuss the importance of calibration of the DFA model to ensure that the results are realistic. Finally, Stephen spent some time describing how to take the results of a DFA model and translate them into information for management. Specifically, he has used his model for asset allocation, determining the debt/equity mix of capital, comparing different strategies in an underwriting cycle, determining the optimal mix of business, and comparing alternative reinsurance structures to maximize retention levels.

The final presenter of the day was Stavros Christofides with a ramble through the history of DFA, or asset liability modelling as it used to be called. It was an interesting walk from the 1960s through risk theory models in the 1970s and ALM and solvency models in the 1980s to the DFA developments in the 1990s. The early models were focused on ruin probabilities and solvency whereas the latest models are stochastic planning systems. Stavros described how the DFA process could be used to test different strategies. He also discussed the various issues with model specification and model calibration and how we must understand what drives the results. It is important to comprehend the exchange of risk for reward. Stavros concluded by warning that there remains plenty of scope for expensive failure.

The next Joint Seminar will be held in October 2001 where the topic will be International Insurance Issues. I am sure that an interesting debate will be stimulated again.■

From the President

From page 1

The task force solicited member input, gathered information about the election procedures used by other organizations of professionals, and carefully considered the pros and cons of a wide variety of possible changes. They developed an extensive report and made several recommendations. You may view the report on the CAS Web Site.

The Board carefully considered those recommendations and adopted many of them, including significant expansion of the information about Board candidates to be included with the election ballot. All Fellows can expect to find this expanded information in the ballot package they will receive in September. There will be more biographical information about the candidates, if they chose to provide it. This will include such information as employment history, activities in other organizations, and awards and recognitions, which had not been provided in our previous ballot packages. Also included will be candidates' responses to two questions: "Why do you want to be a member of the CAS Board?" and "What particular qualities and experiences would you bring to the Board?"

"...a significant number of CAS Fellows are not aware of many of the long-standing aspects of our election process."

While this and other election process decisions made by the Board are very important, I think the most important outcome of the task force's work was the realization that a significant number of CAS Fellows are not aware of many of the long-standing aspects of our election process. In particular, we discovered that many members don't know that the CAS has a very open process that makes it quite easy for any Fellow to seek office.

For example, do you know that all it takes is the signature of fifteen Fellows indicating support to get any Fellow's name on the ballot for either the Board or president-elect position? Do you know that each year in April the Nominating Committee solicits input from the members about whom to nominate for the Board and officer positions through a preferential ballot? And do you know that they receive responses from only a tiny portion of the Fellows (less than 4 percent in 1999)?

The task force recommended that more communication and education about the election process should be provided to members on a regular basis and in various forums. The Board endorsed that recommendation and directed the EC to develop an action plan for achieving this, which the EC has done. The first step, which we have now completed, was to document the election process. This "Summary of Election Process and Procedures" is now available on the Web site for all members to review. We also plan to include a presentation about the election process in the Course on Professionalism and include information in a package for all new Fellows. Other communication ideas are also being explored.

I encourage all CAS Fellows to become familiar with the CAS's election process and use it to assure that the CAS is the organization you want it to be. To quote the task force's first principle governing CAS election procedures: "Proper membership control of the CAS: The Fellows should have the opportunity to move the CAS in whatever direction they wish through election procedures and approval or disapproval of constitution and by-law changes." I am confident that the CAS's election process is consistent with that principle but it will serve us best if all Fellows understand it.

My thanks to all the members of the Task Force on the CAS Election Process: John Purple, **Regina Berens**, **Chuck Bryan**, **Bill Carpenter**, and **Ira Kaplan**.■

Esipov and Guo Awarded Michelbacher Prize

Robert S. Miccolis (right), chairperson of the Michelbacher Prize Committee, congratulates Sergei Esipov on winning the 2000 Michelbacher Prize. Esipov, along with his coauthor, Dajiang Guo, were awarded $1,500 for their paper, "Portfolio Based Pricing of Residual Basis Risk with Application to the S&P 500 Put Options." The paper is published in the 2000 *Discussion Paper Program* and can be found on the CAS Web Site at http://www.casact.org/pubs/dpp/dpp00/index.htm.■

Mathematical Olympiad Winners Announced

Twelve young adults from around the country were honored on June 5 as winners of the 2000 USA Mathematical Olympiad. Ceremonies were held in the Diplomatic Reception Rooms of the U.S. Department of State. The final twelve contestants have continued on to the Math Olympiad Summer Program at the University of Nebraska and to the International Mathematical Olympiad in Seoul, Korea.

Pictured front row, from left, Yian Zhang, Gabriel D. Carroll, Po-Shen Loh, David G. Arthur, and Ian T. Le. Back row, from left, Liaison Representative to the Mathematical Association of America **John Robertson**, Kamaldeep S. Gandhi, Reid W. Barton, George Lee, Po-Ru Loh, Ricky I. Liu, Oaz Nir, and Paul Valiant.■

Proceedings to be Available on CD-ROM

The *Proceedings of the Casualty Actuarial Society* (*PCAS*) will be available on CD-ROM when the 1999 volume is published later this year. Forty *PCAS* volumes, from 1960 to present, will be available as a two-CD set for a purchase price of $24. Orders for this new product can be placed now by using the order form on the CAS Web Site at www.casact.org/pubs/pcascd.htm.

The two-CD set will be contained in a jewel case that holds two CDs. CD #1 will contain *PCAS* for years 1960-1995 and CD #2 will contain 1996-1999. For future *PCAS* volumes, only CD #2 will be amended, enabling the yearly production of a single 1996-present disc for current owners of the 1960-1995 CD. For example, when the 2000 *PCAS* is produced in 2001, the volume will be added to the 1996-present CD and made available for purchase at a lower cost than the original 2-CD set.

The CDs will contain search features, including the ability to perform multi-file PDF searches. Enhanced navigation features will be added, including an opening screen with a table of contents linking to each title, and a "home" button added to each page for navigation back to the opening screen. The CDs will also contain the Adobe® Acrobat® Reader™ and will operate on both Windows and Mac platforms.

The Committee on Online Services (COOS) conducted a survey of members to gauge interest in having the *PCAS* available on CD-ROM. The survey revealed that nearly all respondents (97.4 percent) had access to a computer with a CD-ROM drive and that 82 percent indicated that having the *Proceedings* available on CD-ROM would be useful in their actuarial work.

Though the *PCAS* are available through the CAS Web Site, respondents indicated that there are additional advantages to having the *PCAS* available on CD-ROM, including portability and shorter download times.■

"Land of Midnight Sun" Hosts AFIR Meeting

by Gary G. Venter

"There are strange things done in the midnight sun," delares Robert W. Service, and this was before the late June meeting of the actuaries of AFIR in Tromsø, "the uncrowned capital of northern Norway," which at 70° north, 4° above the Arctic Circle, has two months of midnight sun each year.

AFIR, a section of the International Actuarial Association (and almost but not quite exactly an acronym for Actuarial Approach for Financial Risks), was designed to provide a forum for "actuaries of the third kind," in other words, financially oriented actuaries from any of the traditional actuarial disciplines. With life and pension actuaries now addressing the impacts of variable interest rates, casualty actuaries looking at financial risk as a part of DFA, and both using financial reinsurance products that credit earnings from any selected investment vehicle, the quantification of financial risk is a growing topic that overlaps all of the actuarial areas.

Like ASTIN, AFIR meetings include discussion of a mix of theoretical and applied papers. Three papers presented at the June meeting seem particularly relevant to the financial risks of casualty insurers.

One was the invited lecture "Pricing Risk Transfer Transactions," by Morton Lane of Lane Financial. Lane looked at the pricing of catastrophe bonds, and was able to approximate the prices of all the bond deals done to date by finding the best fits for the probability of a loss to the cover and the expected severity. He then showed that this same function could be used to reconcile the differences across industries in pricing corporate bonds with similar agency ratings. His approach was similar to one method recommended for insurance pricing (see Shaun Wang's paper on proportional hazards transforms, 1998 *PCAS*). A somewhat controversial paper, "Arbitrage in Asset Modeling for Integrated Risk Management," was presented by one of the few attendees working on U.S. casualty applications, Eric Thorlacius of Swiss Re. His challenge to the need for arbitrage-free methods in DFA-like applications was a surprise to many, but there are important issues that support his case. This matter will be debated further in the new CAS Advisory Committee on Asset/Liability Management.

"[Thorlacius'] challenge to the need for arbitrage-free methods in DFA-like applications was a surprise to many, but there are important issues that support his case."

Also of potential application is the paper by James Maitland, "Interpolating the South African Yield Curve." He uses principal component analysis to express 99 percent of the historical variability of that yield curve with just two or three components. This could provide a fairly quick algorithm to generate a realistic collection of yield curves. One application might use this to add muni and corporate curves to a set of simulated treasury curves. Even the short-term muni and corporate rates have a fairly complex relationship to treasury rates.

The AFIR and ASTIN colloquia usually have an interesting social program, and Tromsø was no exception. The opening reception started at an aquarium for Arctic sea life, including seals. The gourmet Arctic buffet also included seal, which is a very heavy, rich meat, whale marinated in cognac, and reindeer.

The second night was sunny, and at midnight a group took a gondola up a mountain and followed Morton Lane from there to a peak well above. Even in the midnight sun the valleys are in shadow at some point, as the sun slowly revolves around the horizon. Not so the peaks, where we could stand in the sun and watch the shadow creep across Tromsø. By 2 a.m. we were back at the hotel bar sun deck, shadows gone, enjoying what felt like late afternoon. During the trip, some attendees were also able to visit Tromsø's planetarium and northern lights show, and a botanical garden of Arctic and high-altitude plants, many flowering.

After the colloquium, a few of the participants headed even further north, to the Norwegian island of Svalgard, formerly known as Spitsbergen. At over 80° north latitude, this is the north-north of Norway. It is, however, slightly southerly compared to Alert (82.5° N), at the top of Canada, the country hosting next year's AFIR colloquium. Following successful meetings in Tokyo and Tromsø, another "T"—Toronto—is the site of AFIR's 2001 meeting, set for September 6-7. This will be a good opportunity for more North American actuaries to experience an AFIR colloquium. Mark your calendars and watch for an announcement of the registration procedures.■

Annual Meeting
From page 1

positioning themselves for Internet development. In addition, a multiple topic general session will be offered. These sessions will include "Auto Safety, Engineering, and Insurance—A Dynamic Troika," a review of the interrelationships among factors affecting auto frequency and severity distributions, and "Financial Services Modernization: Information vs. Privacy Issues," a discussion on recent attempts to safeguard consumer privacy in their dealings with insurers. Finally, a general session on "Worshipping at the Altar of Shareholder Value" will explore the implications of the shareholder value concept for property/casualty insurers.

Concurrent session topics being planned include financial statement analysis, an update on securitization, emerging financial products, the actuary's role in due diligence, the view of actuaries from offshore, an update on the state of the workers compensation market, volunteerism, and earnings management. A limited attendance workshop focusing on developing general business skills will also be offered.

On Tuesday evening, members and guests are invited to the Smithsonian Air and Space Museum for a special dinner.

More detailed information on the CAS 2000 Annual Meeting will soon be mailed to members.■

25 Years Ago In *The Actuarial Review*

Two items from the "Some things never change" department:
(From ***M. Stanley Hughey****'s column)*

From the President

"I was impressed by the number of panelists who challenged us, as casualty actuaries, to tackle somewhat different assignments from traditional ratemaking and actuarial analysis. We should have the training, skill, and experience to handle the traditional tasks but the panelists were reminding us, and properly, that the same training, skill, and experience somewhat uniquely qualify us to perform some other badly needed tasks."

(From an opinion piece by ***Norman J. Bennett****)*

Maunderings

"I have been told that the Society's examinations today are considerably more difficult than they were five years ago, and that those of five years ago were in turn much harder than those given five years earlier. Obviously, I derided this interesting intelligence from a current candidate, with his added observation that the sequence of diminishing rigor in standards extends back to our earliest days."

And one item from the "Some things do change" department:
(From an editorial by ***Matt Rodermund****)*

Who Will Certify Casualty Reserves

"...exclusive of the county mutuals, there are over 2,100 property/liability companies in the United States (2,108 are listed in the 1974 Best's Reports) and, as of now, about 625 qualified property/casualty actuaries (CAS membership). About 350 of these actuaries are employed in about 80 property/liability companies. Of the remaining 275, about 110 are employed by life and health insurance companies, bureaus or company associations, or governmental departments; and about 90 are retired or otherwise inactive, and may not be willing to accept reserve valuation assignments. Thus there are roughly 75 actuaries available to serve over 2,000 companies."■

GIRO Set for Birmingham, U.K.

The General Insurance Research Organization (GIRO) is sponsoring the General Insurance Convention on October 25-27, 2000, at the Birmingham Metropole Hotel. Programs and contact information can be found at http://www.actuaries.org.uk/cpd/conferences.html#giro or on the CAS Web Site (www.casact.org) under continuing education.■

Golf Tournament Winners Announced

Attendees of the 2000 Spring Meeting in Las Vegas, Nevada enjoyed some friendly competition on the greens at the Las Vegas National Golf Club. The Seventeenth Annual CAS Golf Scramble Tournament was held on May 9 with prizes for individual teams, longest drive, and closest to the hole. Winners include: First Gross—**Mike Curry**, **Barton Hedges**, Julia Hedges, and **John Ellingrod**; Second Gross—**Dan Czabaj**, **Dale Edlefson**, **Ernest Segal**, and **Gary Ganci**; First Net—**Joe Herbers**, **David Brueckman**, Ben Tucker, and **Patricia Jensen**; Second Net—**Jim Nikstad**, **Jim Buck**, **Pat Woods**, and **Timothy Koester**; Longest Drive—Sam La Duca and Judy McFarlane; Closest to Pin—**Pete Senak**.■

It's About Time

by Stephen W. Philbrick

One of the themes of the Social Security Privatization debate is the notion that stocks may be risky in the short term but the risk is reduced over longer timeframes. This notion has some validity. Essentially, we can think of this as a time diversification. Returns that may look unacceptably risky over a short time horizon become more acceptable over a longer planning horizon.

The concept of diversification is basic also to insurance and financial professionals, although we are more apt to discuss diversification across items, rather than over time. In financial securities, we look to Markowitz for motivation of diversification. The law of large numbers motivates the existence of insurance—the willingness of a company to write a portfolio containing many risks, each of which individually has a potential loss many times its expected value.

> **"The concept of diversification is basic also to insurance and financial professionals, although we are more apt to discuss diversification across items, rather than over time."**

We formally express this in our not-yet-finished actuarial principles. The Statistical Regularity principle in the joint committee's working version

(Principle 1.1) states:

> Phenomena exist such that, if a sequence of independent experiments are conducted under conditions that are substantially similar to a set of specified conditions, the proportion of occurrences of a given event converges as the number of experiments becomes large.

As DFA tools progress, we are learning to quantify risk relationships. We intuitively knew that adding geographically diverse auto exposures improved diversification more than adding a cluster of new homes in an earthquake or hurricane region. Now, we can calculate (okay, estimate) correlations to get a quantification of diversification across risks.

DFA tools also help us look at risk over a planning horizon. It is reasonably obvious that the risk profile of a company will look different over a five-year horizon, than over a one-year horizon. We anticipate that typical risk measures, such as the ratio of the standard deviation to the mean, will depend on the time frame of the model. DFA tools will help us quantify the differences, as a prelude to improved strategic planning.

What is less obvious and more interesting (and finally, the point of this column) is that the relative mix of risk components will vary considerably depending on the time horizon. I won't go into all of the risks that an insurance company faces, but concentrate on an important source of risk—underwriting risk. I will break it into two components: real claims cost and the effect of inflation on claims costs.

> **"In a one-year horizon, real underwriting risk dominates the contribution to the total risk. Not surprisingly, the inflation risk could have only a modest impact."**

Normally, these two components are combined, but there is merit to distinguishing the two. In this discussion, I will refer to the two components as real underwriting risk (the risk that actual real claim payments differ from expected claims payments) and inflation risk (the risk that actual inflation differs from expected inflation).

Teasing the inflation risk component from the overall underwriting risk isn't trivial, but it can be done by accessing a DFA model that explicitly considers the inflation sensitivity of liabilities. We need to choose a variable of interest, and a risk measure. In this example, the variable of interest is end-of-period surplus, and the risk measure is the variance of the end-of-period surplus. We can decompose the total variance into components by running a model three times; once with stochastic modeling of both real claims cost and inflation, and once with each of these elements modeled deterministically while the other is modeled stochastically.

→ page 20

It's a Puzzlement

Parrondo's Paradox

by John P. Robertson

Some of you may have seen this in the news recently. Consider three games, each of which involves flipping coins. You start with some amount of capital, say \$1,000. Your capital goes up by \$1 if the coin comes up heads, and goes down by \$1 if the coin comes up tails.

Game A—Use a coin that comes up heads with probability 0.495.

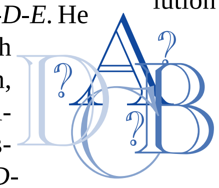
Game B—Use two coins, one that comes up heads with probability 0.095, and another that comes up heads with probability 0.745. If your capital is a multiple of 3, use the first coin, otherwise use the second coin.

Game C—Flip a fair coin to determine whether to play Game A or Game B (play one round of whichever game is selected, and then flip the fair coin again, and so on).

The puzzlement is to determine what is likely to happen to your capital if you play any of these games some number of times. For example, try each game 100,000 times, starting with \$1,000 capital. Explain what happens. (Note that I used the word "likely" in the first sentence because statistics means never having to say you're certain.)

Exact Ranking

In this puzzlement, **David Bickerstaff** was trying to guess a ranking. His first guess was *A-B-C-D-E*. He was informed that he had each person out of her true position, and not one in his ranking followed her immediate predecessor. He then asked if it were *D-A-E-C-B*. He was told that he had two in the correct position and two correctly following her immediate predecessor. David was then able to determine the correct ranking. What is it?



The correct ranking is *E-D-A-C-B*. **Mike Fusco**'s solution is essentially as follows. The two that are in the correct position must be consecutive otherwise there is no way to have two correctly following their immediate predecessor without having at least three in their correct position. A little testing shows that the two in their correct position are *C* and *B*. Then either *A* follows *D* or *E* follows *A*. If the latter, then neither possible ranking meets both conditions. So it must be that *A* follows *D* and the solution is as given.

Solutions were also sent in by **Martin Adler, Michael Belfatti,** Mary Ellen Cardascic, **Al Commodore**, Brett Gissel, **John Herder**, **Charles Hewitt**, **Paul Ivanovskis**, **Ira Kaplan**, **Frank Karlinski**, Mark Kertzner, Alex Kozmin, **Richard Newell**, **Nick Pastor**, Dan Post, Evan Spiegel, **Walter Wright**, Christopher Yaure, and Anthony C. Yoder.■

Brainstorms

From page 19

In a one-year horizon, real underwriting risk dominates the contribution to the total risk. Not surprisingly, the inflation risk could have only a modest impact. In a short time period, adverse underwriting scenarios (such as hurricanes) can have a material impact on the value of the company, but adverse inflation scenarios have much smaller impact. The results are markedly different over a five-year horizon. Adverse underwriting shocks in one year are often followed by better than expected underwriting results in a subsequent year (although this will be dampened, and, in extreme cases nonexistent, depending on the size of parameter risk, such as a mispricing of the entire portfolio). To be sure, some scenarios produce several years of adverse underwriting results, but scenarios with five consecutive years worse than expected results are quite rare. (Note that this does not simply mean a five-year soft cycle, but five years worse than the expected, where the expectation might be poor results.) In contrast, inflation results tend to be highly correlated over time. A scenario where modeled inflation exceeds expected inflation is likely to be followed by another year with higher than expected inflation. As a result, adverse inflation tends to "accumulate" rather than "diversify."

In a particular example of a realistic property casualty company, we found that the real underwriting risk was four times the inflation risk (in a one-year horizon). However, over a five-year period, the relationship was almost the opposite. The contribution of inflation was almost four times the contribution of underwriting. (For simplicity, I'm ignoring the contributions of other types of risk, such as asset risk.) Not surprisingly, the exact values are heavily dependent on assumptions, such as the sensitivity of insurance cash flows to inflation. However, over a broad range of reasonable values, the relative contributions of risk were dramatically different for different horizons. This has major implications for planning. A company with a one-year outlook will view real underwriting risk as a major concern, and will focus on ways to control this risk, such as underwriting standards, limit profiles, and reinsurance. A company with a longer time horizon, however, will conclude that inflation is a major risk and will concentrate on ways to control inflation exposure, such as contract terms or asset selection.

After looking at the results, it is easy to conclude that they are obvious, but I haven't seen much written on the subject. Has anyone else done any work in this area, or read any research into this subject?■