

The Actuary

FEBRUARY/MARCH 2012 VOLUME 9 ISSUE 1

ACTUARIES ON BOARDS

Could you fill the position?

THE EVOLUTION OF THINKING

See what's best: clinical
or actuarial thinking.

ANALYTICS IN BASEBALL AND BUSINESS

A story of bats, stats
and a task force.



LIFE & ANNUITY 2012 SYMPOSIUM

JW Marriott L.A. Live
Los Angeles, CA
May 21–22, 2012

LA NOW STANDS FOR LIFE & ANNUITY

On May 21–22, 2012 the leading life and product development meeting will happen in sunny Los Angeles!

Past participants have called it: “interesting and informative,” “truly excellent,” and “attention keeping.”

- Over 50 sessions of the latest expertise in life and product development
- Practical tools and techniques
- Network with the experts
- Additional “hot-topic” seminars after the symposium

Learn more at SOA.org/LAS





Feb / March

The Actuary is published bi-monthly (February, April, June, August, October, December) by the Society of Actuaries, 475 N. Martingale Rd., Suite 600, Schaumburg, IL 60173-2226. Periodicals postage paid at Schaumburg, IL, and additional mailing offices. USPS #022-627.

This publication is provided for informational and educational purposes only. The Society of Actuaries makes no endorsement, representation or guarantee with regard to any content, and disclaims any liability in connection with the use or misuse of any information provided herein. This publication should not be construed as professional or financial advice. Statements of fact and opinions expressed herein are those of the individual authors and are not necessarily those of the Society of Actuaries.

The Actuary is free to members of the Society of Actuaries. Nonmember subscriptions: students, \$22; North American \$43; Int'l \$64.50. Please send subscription requests to: Society of Actuaries, P.O. Box 95600, Chicago, IL 60694-5600.

The Actuary welcomes both solicited and unsolicited submissions. The editors reserve the right to accept, reject or request changes to solicited and unsolicited submissions, as well as edit articles for length, basic syntax, grammar, spelling and punctuation. *The Actuary* is copyedited according to Associated Press (AP) style.

For more information about submitting an article, please contact Sam Phillips, magazine staff editor, at (847) 706-3521, sphillips@soa.org or Society of Actuaries, 475 N. Martingale Rd., Suite 600, Schaumburg, IL 60173-2226.

©2012 Society of Actuaries. All rights reserved. No part of this publication may be reproduced in any form without the express written permission of the Society of Actuaries.

POSTMASTER: Send address changes to the SOA, c/o Communications Department, 475 N. Martingale Rd., Suite 600, Schaumburg, IL 60173-2226.

CONTRIBUTING EDITORS

Corin Chapman, FSA, MAAA
corin.chapman.rog2@statefarm.com

Peter Hayes, FSA, FCIA
phayes@eckler.ca

David Ingram, FSA, CERA, MAAA
dave.ingram@willis.com

Cathy Lyn, FSA, FIA
clyn@sympatico.ca

Tom A. Phillips, FSA, MAAA
phillips.tom@principal.com

James Ramenda, FSA, CERA
jramenda@sscinc.com

Sue Sames, FSA, MAAA
sue.sames@towerswatson.com

Ross Winkelman, FSA, MAAA
rossw@wakelyconsulting.com

Ruth Ann Woodley, FSA, MAAA
ruthann@ruarkonline.com

SOA PRESIDENT

Bradley M. Smith, FSA, MAAA
bsmith@soa.org

SOA STAFF CONTACTS

Patrick Gould
Managing Director of Marketing
& Communications
pgould@soa.org

Lisamarie Lukas
Director of Communications
llukas@soa.org

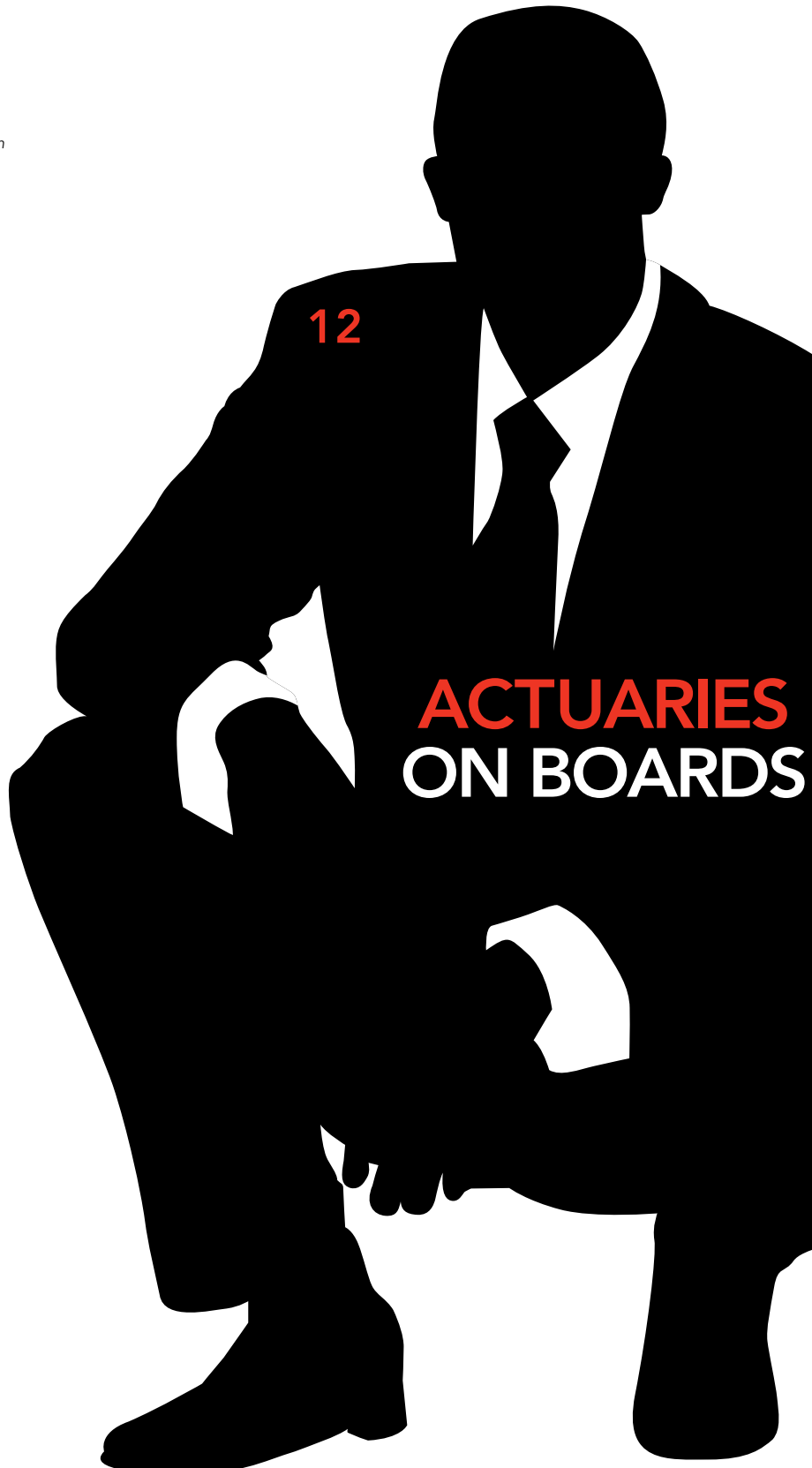
Karen Perry
Publications Manager
kperry@soa.org

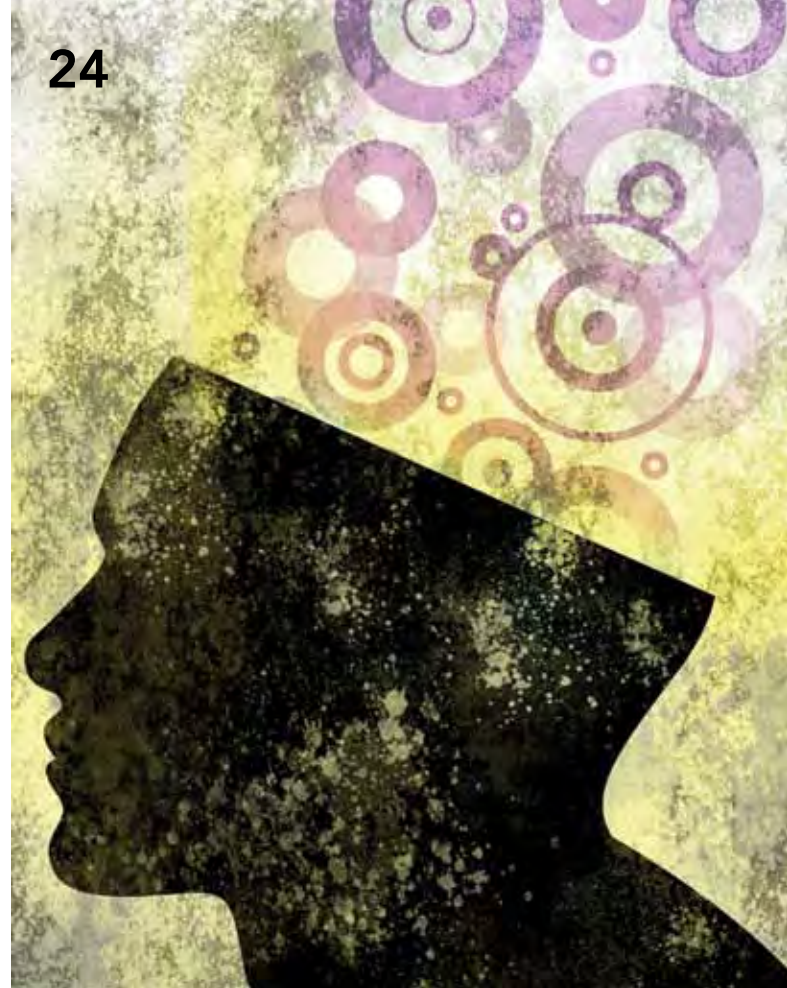
Jacque Kirkwood
Senior Communications Associate
jkirkwood@soa.org

Sam Phillips
Magazine Staff Editor
sphillips@soa.org

Erin Pierce
Graphic Designer
epierce@soa.org

February/March 2012
issue of *The Actuary*





COVER STORY

12 ACTUARIES ON BOARDS

This article is the first in a series meant to highlight and explore the skills and knowledge actuaries have to offer as members of a board of directors, as well as what it takes to get there.

By John G. Turner and Sarah J. Hamblin

FEATURE

18 ANALYTICS IN BASEBALL AND BUSINESS

One actuary's tale about her experiences with business analytics is recounted in this story of bats, stats and a task force.

By Lisa F. Tourville

24 THE EVOLUTION OF THINKING

You might be surprised to learn that actuarial methods have been in the middle of a heated debate for more than 60 years. See what's best: clinical or actuarial thinking.

By Dave Ingram

DEPARTMENTS

06 LETTER TO THE EDITOR: RESPONSE TO CONSUMER DATA DISCUSSION

08 EDITORIAL: THE POTENTIAL TO IMPACT EVERYDAY LIVES

10 LETTER FROM THE PRESIDENT: THE NATURE OF RISK

30 EDUCATION: FSA EDUCATION RESTRUCTURING IS COMING SOON!

34 SECTION HIGHLIGHTS: FOCUS ON INTERNATIONAL, FORECASTING AND FUTURISM, PRODUCT DEVELOPMENT, AND REINSURANCE SECTIONS

36 OUT OF THE OFFICE: ACTUARIES ON THEIR OWN TIME

40 THE SOA AT WORK: SOA MOBILE SHOWCASE

42 RECOMMENDED READINGS

Analytics
In Baseball And Business



18

Letter To The Editor

RESPONSE TO CONSUMER DATA DISCUSSION



The December 2011/January 2012 issue of *The Actuary* contained two letters to the editor discussing the article, “Predictive Modeling with Consumer Data,” by Ksenia Draaghtel, ASA, MAAA. Follows is Draaghtel’s response to those letters.

DEAR EDITOR,

The Affordable Care Act clearly and unequivocally prohibits underwriting based on health status, as part of the law’s larger goal to transform the American health care system into one

that competes not on risk selection, but rather on quality and efficacy. My article, “Predictive Modeling with Consumer Data,” shows how insurers that are better at managing the care of less-healthy people can use consumer data to identify customers who are, under the reform calculus, less healthy and potentially more

profitable. The point of this article was to showcase how this consumer data can be used constructively and in accordance with the law.

I understand that unscrupulous individuals and companies may twist the use of consumer data into circumvention of the Affordable Care Act, and I do not condone it. However, consumer data also has the potential to unlock new business approaches that allow competition based on quality and efficacy. Actuaries are well suited to explore this potential.

Ksenia Draaghtel

Ksenia Draaghtel, ASA, MAAA, is an associate actuary with Milliman, Inc. She can be contacted at ksenia.draaghtel@milliman.com.

To read the letters Draaghtel is responding to, please scan the QR code or visit www.soa.org/consumerdataletters. 

Knowledge On The Go
Insightful podcasts are now available to listen to anywhere!

The Society of Actuaries is offering topical podcasts for those interested in insight and perspectives from fellow members. The podcasts are free to download and can be listened to from your computer or any portable audio device. Check back often as new podcasts sponsored by various sections are released.

www.soa.org/podcasts



ReFocus2012

SEE THE FUTURE FIRST

March 4-7, 2012, Four Seasons
Las Vegas, NV

A Global Gathering for Senior Life Insurance and Reinsurance Executives

An Industry at a Critical Crossroads

www.ReFocusConference.com



ACLI
Financial Security...for Life.

Editorial

THE POTENTIAL TO IMPACT EVERYDAY LIVES

BY ROSS WINKELMAN

AT A CONFERENCE I ATTENDED several years ago, the speaker asked an auditorium full of actuaries how many of them wanted to be an actuary when they were little kids. All but one or two hands stayed down, including mine. However, I knew relatively early I wanted to be an actuary. I think this may have had something to do with my much older brother still living at home. You see, my father was pretty focused on making sure I had a stable profession when I graduated from college. Therefore, in my senior year of high school as I was deciding on a college and major, my dad told me I should become an actuary since I was good at math and it was the number one job in America. I did some research and found out that being an actuary paid well and was low stress (they got one out of two right!). At that age, I tended not to think things through for too long so that was enough for me and I signed up.

As a young actuary, I kept my head down and tried to accomplish whatever task was put in front of me. I'd hear about committees and casually listen to the health care reform debates during the Clinton administration. However, I thought of myself and the actuaries I reported to as technicians—we answered technical questions related to accurately pricing products

or estimating financial results. In my mind, actuaries were not big thinkers with the ability to influence public policy.

What didn't occur to me then, but does now, is the potential for actuaries to impact people's everyday lives by shaping our nation's most important financial programs. My awareness of the important impact the actuarial profession has did not start forming until I started volunteering with the SOA. Like many actuaries, my volunteer efforts started with grading exams, which led to work on the Health Section newsletter, to the Health Section Council and so forth. In my various roles, I've seen firsthand the impact actuaries have had at a national level. Smart, energetic and dedicated actuaries have become go-to resources for the U.S. Department of Health and Human Services (HHS), the National Association of Insurance Commissioners (NAIC), states and other influential organizations. A number of actuarial workgroups assembled by the American Academy of Actuaries have worked directly with HHS on the Affordable Care Act in its genesis and as it has evolved.

"Well," you might ask, "what's your point?" My point is that we need to get actuaries more

involved in the profession and in shaping the nation's most important financial programs by getting them involved earlier in their careers.

The Health Section research committee, of which I am a member, has issued several calls for papers that included significant monetary prizes. One of the prizes was for the best paper from an actuary with five or less years of experience. Although we didn't get a lot of papers from qualifying younger actuaries, these types of efforts send an important message: "The profession values volunteerism and contributions from actuarial professionals no matter their experience level."

The SOA has made tremendous strides in attracting top-tier talent by creating Centers of Actuarial Excellence, and continuing to enforce strict professional standards that make the actuarial designation one of the most valuable around. However, we are missing an opportunity (not to mention some horsepower) if we only seek contributions from fully credentialed actuaries. All too often, we see the same group of super volunteers speaking at SOA meetings, leading committees, doing research and representing the profession on Capitol Hill.



Ross Winkelman

While volunteerism is clearly personally rewarding, what might the benefits of increased volunteerism be to the profession as a whole?

1. An increase in our profession's research output.
2. An increase in the quality of our meetings.
3. An increase in the quality and number of public communications from actuaries.
4. An increase in the breadth of knowledge of our professionals.

This would almost certainly lead to an increase in the profile of actuaries and the quality and number of qualified individuals pursuing an actuarial career. These outcomes seem to line up well with the SOA's mission:

The SOA is committed to:

- **Education**—Providing basic education in the fundamental principles of actuarial science, advanced education, professional development and continuing education for practicing actuaries.
- **Research**—Conducting research to develop studies of historical experience and techniques for projections into the future, analyzing the actuarial aspects of public policy issues and providing the foundation for further expansion of the profession.
- **The Profession**—Promoting high standards of professional competence and conduct within the actuarial profession.

Peter Hayes, FSA, FCIA, one of my co-contributing editors on *The Actuary* magazine, wrote an excellent editorial in the October/November 2011 issue of *The Actuary*, "What's Your Why?" In the editorial, Hayes talked about the motivation for volunteerism and he succinctly and clearly described identifying what was in it for you as

the key to becoming more involved. Once you identified what you would receive in return, it became obvious both that you should become involved, and how to go about it.

While I agree with Hayes that identifying your "Why" helps each actuary become more focused on volunteering, I think it is important for the profession to motivate actuaries to become involved and to think of volunteer efforts as part of being an actuary. Creating a culture of volunteerism has the best chance of succeeding if the opportunities begin early in actuaries' careers. I believe there are a

number of different ways the profession can do this—some that are passive and others that are more active.

As employers and peers, we can encourage younger actuaries to get involved with the profession. Back to Hayes' point, employers will in turn receive better representation within the profession and also have better-trained employees in return. As committee chairs, we can actively recruit younger actuaries. In return, our committees will have additional resources to accomplish specific tasks. As editors, we can seek out younger actuaries to write or co-write articles which will increase the content we have to choose from and publish.

The profession could also consider going further, requiring volunteer work as part of the credentialing and/or continuing education process. In my experience, volunteerism in all aspects of our lives is all about that initial

push. Whether it is becoming a Big Brother, volunteering at a soup kitchen, or contributing to charity, once you start volunteering and start understanding how easy and rewarding it is, the more likely you are to continue your efforts.

Actuaries are very analytic, so I like to envision changes in volunteerism in analytic terms. What could we do as a profession if we were able to increase volunteerism by 10 percent or 20

percent? What kind of resources could we marshal to help influence the next round of health care reform or Social Security debates? Could the actuarial profession lead the U.S. health care system away from a volume-based system to one focused on outcomes? Could we help create a more rational debate on entitlement reform?

In many ways, the actuarial profession is a gold standard for other professions. Getting the next generation of actuaries involved in the profession early seems critical to ensuring the actuarial profession retains the title of the "best job in America" for years to come. **A**

Could the actuarial profession lead the U.S. health care system away from a volume-based system to one focused on outcomes?

Interested in volunteering at the SOA? Visit www.soa.org/volunteer to learn more.

Ross Winkelman, FSA, MAAA, is managing director with Wakely Consulting Group. He can be contacted at rossw@wakelyconsulting.com.

Letter From The President

THE NATURE OF RISK

BY BRADLEY M. SMITH

I'VE BEEN THINKING A LOT LATELY ABOUT RISK. After all, "Risk is Opportunity," according to the tagline of the SOA. It is the changing nature of the risk that has me thinking. When I began my actuarial career in the late 1970s, actuaries focused primarily on reducing risk of a random event that would have catastrophic economic consequences for an individual or his heirs. The risk of premature death, disability, accident or sickness, or outliving one's financial resources, was pooled among individuals with similar exposure to similar risks through some sort of insurance mechanism. Those choosing to partake of this mechanism substituted a certain financial loss (i.e., an insurance premium) to offset an uncertain, potentially catastrophic loss. Thus, risk, the uncertainty of loss, was reduced for those individuals. Actuaries played (and continue to play) a large role in developing and managing such insurance mechanisms.

The risks facing those we serve today are different. Volatile capital markets, terrorism, and profligate spending by municipalities, states and countries have all added to this volatility. The failure of governments to fund their long-term obligations has cast doubt upon whether they will be able to meet their obligations as they come due. Credit default swaps (insurance against the risk that a debtor

will not be able to repay the debt when it comes due) are now being sold on U.S. government debt. Equity markets in the United States have suffered two separate drops of approximately 50 percent in the last 11 years. Interest rates are at historic lows that few, if any of us, could have imagined 10 years ago. Actuaries have responded to this volatility by developing products with income guarantees that insulate the consumer from severe drops in interest rates and equity markets. Hedging of these guarantees creates comfort that the guarantor will be able to meet its obligations should/when the equity markets drop again. However, hedging these risks introduces another risk—specifically, counterparty risk. Counterparty risk and the contagion associated with it was the primary reason that the U.S. government bailed out AIG during the financial crisis of 2008. It was concerned that if AIG failed to meet its obligations as a substantial issuer of credit default swaps on subprime mortgages, buyers of these credit default swaps would be unable to meet their obligations to others and the entire financial system would collapse. Yet, having "survived" the financial crisis, little has been done to address the counterparty risk that still exists within the financial system. Perhaps there is no solution. Yet credit default swaps on U.S. government debt are being sold. Presumably, the buyers of these instruments are feeling more comfortable that their exposure to the

default of U.S. government debt has been lessened. However, stepping back, what makes us think that any bank issuing credit default swaps on U.S. government debt will be able to meet its obligations in the severe circumstance in which the United States defaults?

As a partial result of the events surrounding/ causing the financial crisis of 2008, risk management and enterprise risk management have become the focus of some regulators and rating agencies. This has led to significant additional regulatory-related work for actuaries. The underlying premise seems to be that if we just do a few more stochastic analyses, our estimate of the financial obligation will be that much more accurate. Of course, we as actuaries understand the limits of actuarial science. Unfortunately, the users of our work product often do not. We, as a profession, need to do a better job of educating the users of our work on the limits of actuarial science.

As an additional consequence of the financial crisis of 2008, regulators of financial institutions have focused on the amount of capital that is necessary to meet their obligations. Stress tests have been implemented, begging the question as to how much capital is enough. Does a financial institution have to hold enough capital to withstand one catastrophic event?



Bradley M. Smith

What would happen if another catastrophic event followed shortly thereafter? Perhaps sufficient capital should be held to withstand two events in short succession. Maybe three events, just to be safe? Unfortunately, we are losing sight of what the ultimate safety net for financial institutions really is. It is not the federal government, although that is one lesson you could draw based upon the events of the 2008 financial crisis. Rather, it is access to capital markets. Access to capital markets depends upon an institution's ability to return a profit to investors **commensurate to the risk undertaken**. Requiring excessive amounts of capital has one of two consequences. It either forces the institution to increase the price to the consumer of its goods and services or it limits an institution's ability to access capital markets. Neither is appealing. We must be conscious of this when we determine the amount of capital we require our financial institutions to hold.

In September of 2011 a group of chief risk officers (CROs) formed the North American CRO Council representing 11 of the 15 largest life insurers and 12 of the 15 largest property and casualty insurers in North America. An examination of those 26 CROs reveals that only eight hold actuarial credentials. In some ways this is not surprising. Historically, the failure of large life insurance companies has been driven by overexposure to a certain class of assets (junk bonds, real estate, mortgage-based securities) during a period when the market for these particular assets falls or becomes illiquid, rather than problems associated with the liability side of the balance sheet. There have been a few recent exceptions; the underpricing of long-term care insurance comes to mind. So perhaps, notwithstanding the expanded focus of actuaries on the asset side of the balance sheet, the propensity of insurance companies to hire those with investment expertise as their CROs should not come as a total surprise.

What was the SOA's reaction to this changing nature of risk? In 2007 it introduced a new credential, Chartered Enterprise Risk Analyst or CERA. The purpose for doing so was twofold. First, to educate actuaries interested in specializing in enterprise risk management. The second was to appeal to

... we are making significant enhancements for the pathway to the CERA credential ...

other professionals who were not necessarily interested in performing a traditional actuarial role, but who were interested in being experts in enterprise risk management. At this juncture, it appears to me that we have succeeded in the former but have work to do on the latter. From June 2007 (when the first list of new CERAs was produced) through October 2011, there have been 562 CERAs awarded through examination. All but two of those passed exam MLC (life contingencies), thus taking a traditional route to becoming an ASA. Of the two who didn't pass exam MLC, one took it and failed. The other individual appears to be the only incremental professional enticed by the existence of the CERA credential. Over that same period of time, 5,291 new ASAs were awarded without a CERA credential.

These two developments suggest to me that we should focus more on penetrating the markets we currently serve and carefully determine into which new markets we attempt to expand. Do we really think that actuaries and the specialized knowledge we possess can be as incrementally valuable (with respect to enterprise risk management) to a candy bar manufacturer as we are to insurance companies? Maybe we can, but the numbers above suggest to me the need for a reexamination of that underlying premise.

In 2010, the SOA's Employers Council undertook a study to assess the risk landscape

in two fields—energy and broader financial services—to determine whether there are opportunities there for actuaries in risk management roles. The research found that there are significant

barriers to entry for actuaries because of a perception that our education is not relevant to those fields and a general lack of familiarity with actuaries. The SOA's branding campaign is designed to raise awareness of actuaries. Additionally, the SOA is undertaking a strategic initiative to identify the specific barriers in some broader financial services markets and make recommendations on bridging gaps that prevent expansion of the profession. Additionally, we are making significant enhancements for the pathway to the CERA credential and expanding enterprise risk management learning opportunities in all tracks for candidates pursuing fellowship. (See "FSA Education Restructuring Is Coming Soon!" on page 30 for more information on these curriculum changes.)

The changing nature of the risks our stakeholders face creates an opportunity for the actuarial profession, **if** our reaction meets their needs. If it does not, it more likely represents a lost opportunity. **■**

Bradley M. Smith, FSA, MAAA, is president of the Society of Actuaries. He can be contacted at bsmith@soa.org.



ACTUARIES ©

THIS ARTICLE IS THE FIRST IN A SERIES MEANT TO HIGHLIGHT AND EXPLORE THE SKILLS AND KNOWLEDGE ACTUARIES HAVE TO OFFER AS MEMBERS OF A BOARD OF DIRECTORS, AS WELL AS WHAT IT TAKES TO GET THERE.

BY JOHN G. TURNER AND SARAH J. HAMBLIN



ON BOARDS

THE NUMBER-CRUNCHING and analysis skills of professional actuaries have long been invaluable to the life insurance industry, as well as in the areas of property & casualty insurance and pensions. While many actuaries will spend their entire careers in these areas of focus, many others are seeking to branch out and discover where else their actuarial talents might be appreciated. As a result, for the past couple of years the Society of Actuaries (SOA) has been working diligently to identify and create opportunities for actuaries outside of their traditional roles.

One prospect that has caught the attention of the SOA is the possibility of more actuaries serving on public company boards of directors, particularly now that government, media and other stakeholders are calling for stronger, more independent boards in the wake of the financial crisis and new financial regulations. Risk oversight and corporate governance are becoming increasingly important and actuaries have the ability to fill the knowledge gaps in areas such as enterprise risk management, financial management and executive compensation. To this

end, the Actuaries On Boards (AOB) Task Force was created to research the best ways for actuaries to pursue this career opportunity. "The idea was to see if there were ways to get more actuaries on boards, particularly public company boards, and how would we accomplish that, what would be the value proposition?" said S. Michael McLaughlin, FSA, CERA, FIA, MAAA, past president of the SOA (2009–2010). "I think that our actuarial skills would have really good application on boards, but as specialists in technical matters or, more importantly, as seasoned professionals with experience in risk management. This could be potentially in almost any industry, not just insurance."

The task force, chaired by W. James MacGinnitie, FSA, FCAS, MAAA, HonFFA, includes SOA members Nancy Bennett, FSA, CERA, MAAA, Max Rudolph, FSA, CERA, MAAA, Vinaya Sharma, FSA, CERA, Thomas Terry, FSA EA, FCA, MAAA, and John G. Turner, FSA, MAAA. Amanda C. Fox, principal, at Spencer Stuart, rounded out the task force with an executive search perspective. Last year, the task force interviewed more than 15 actuaries currently serving as sitting members of

various boards in the hopes of gathering advice for those who might someday consider going down this career path. This is the first in a series of articles in which the information gleaned from those interviews will be presented.

AN APPEALING CANDIDATE

In general, a spot on a public company's board of directors is not something one would apply for. It is a position offered by the board to the person on their radar deemed to be the best fit for the job. So how does one become an attractive candidate to a board of directors seeking new members? Unfortunately, it's not always an easy task.

"There's not a good formula for getting a board position," said Marla Glabe, FSA, who currently serves on the boards of Wintrust Wealth Management, First Insurance Funding Corporation and Northwest Community Healthcare. She is also president of the North Shore United Way board of directors.

Glabe said she began seeking board positions as a way of staying active in business after retiring from a senior executive position with Allstate. During this time she found that many people holding board positions saw actuaries as more of a behind-the-scenes technical person rather than a communicator. Luckily her broad range of experience brought more to the table than just her actuarial skills. The key, she said, was stressing that she is a business person with actuarial training, not the other way around. "I've built businesses and I've run businesses," she said. "I've dealt with customers. I've dealt with a whole cadre of situations whereas even a seasoned chief actuary's work experience might not be appropriate for a board."

Not that an actuary's skills should be discounted in the consideration process altogether. Analytical skills, understanding financials and understanding the economics of business are also critical skills in the eyes of a board of directors. "An actuary can quickly grasp new concepts and

EXTRA INFO

FOR MORE INFORMATION ON THIS TOPIC, VISIT THE WEBSITES LISTED BELOW.

A recommended reading for those looking to increase general business skills. Visit www.soa.org/selfhelpreadings

Volunteer opportunities to help grow leadership skills. Visit www.soa.org/about/volunteer/default.aspx

Earn CERA and FSA designations. Visit www.soa.org/education/exam-req/

National Association of Corporate Directors (NACD) offers discounts to SOA members. Visit www.nacdonline.org/soa 

new businesses, so even if they came out of, let's say, the health business, it would not be difficult for them to quickly understand the auto business or the annuity business," Glabe said. "This is just based on the way their minds work and the technical skills and the fact that they've been learning, hopefully, most of their careers."

MANAGEMENT EXPERIENCE

Phil Briggs, FSA, MAAA, also began serving on boards in earnest after his retirement from MetLife. He has acted as a member of the board of directors for Trizec Properties, Interstate Bakeries and Blue Cross/Blue Shield, in addition to serving on several subsidiary boards during his career. "I think an actuary is expected in an insurance company or other insurance firm to have good judgment and objectivity, and I think those are two items which are very important for any company board," he said. "So from that point of view those are two strengths of an actuary which would be useful to nearly any company."

Briggs said being an actuary has always been useful in being considered for a board position, but has never been critical. Certain types of leadership experience are far more important. "I think general management experience and experience with boards is key to landing a board of director position," he said. "I think that was an extremely important part of it because you had to hire people, you had to set compensation plans, you had to deal with marketing, you had to deal with investments, you had to deal with every phase of the business and the actuarial part was frankly a fairly modest part of the job."

An actuary working in a traditional role would not generally gain this type of oversight experience. "Most actuaries are not very knowledgeable about governance," Briggs said. "They do not necessarily know much about the business practices of a company, and I think some basic knowledge of those things would be useful to an actuary who is interested in becoming a

member of a board." This is a reason actuaries should be sure to understand all aspects of their company's operations, even if their specific job responsibilities don't require it.

TOP LEVEL EXPERIENCE

Mike DeKoning, FSA, FCIA, MAAA, current president and CEO for Munich American Re, has served on several other types of boards, includ-

ONE OF THE HURDLES WITH ACTUARIES BEING OFFERED TOP-LEVEL ROLES IS A LACK OF KNOWLEDGE ON THE PART OF NON-ACTUARIES.

ing the MIB Group and the American Council of Life Insurers (ACLII). He would take the management experience theory a step further to say actuaries who shoot for senior management positions can be great future board candidates. "I think you're seeing a couple of things with actuaries, one of which is that it's not common even for CEOs and CFOs of insurance entities to be actuaries anymore," he said. "I wonder to what degree the lack of board involvement of actuaries is reflective of the lack of actuarial people at the top of the house before even getting to the board level?"

DeKoning said as an industry, in his opinion, the actuarial field remains relatively insulated in that actuaries do not often branch out dramatically from insurance roles and when they do it is often to pension consulting and employee benefits. "But that is not typically a line to get to a board because my observation is that invitations to boards are typically offered to people who ran organizations, or large parts of organizations, as opposed to running large technical functions," he said. "And so my biggest concern around the actuarial side is that if we're not getting to the top of the house in the C-suite, I'm not sure how you turn the corner on getting more actuaries involved in board work."

One of the hurdles with actuaries being offered top-level roles is a lack of knowledge on the part of non-actuaries. "I think part of it, at least in the life insurance industry, is the black box syndrome," DeKoning said. "It's that nobody really knows how we come up with the numbers we come up with and if you try to nail an actuary down to a number, they're going to give you a range and that range can be

pretty wide. For people outside of the industry, of even on the periphery of the industry, that's hard to understand."

Dale Wolf, FSA, president and CEO of Jessamine Healthcare, has been a member of several boards, including serving on the board of Catalyst Health Solutions Inc. He was also a member of the Coventry board of directors when he was CEO of that company. Wolf would agree that boards are best served by participants having been a CEO at some point in their career. "Until you have sat in the chair and have known what the pressures are that a CEO is under, how do you respond to those pressures?" Wolf said. "The lack of that experience hurts the perspective of board members and so ... in terms of what helped me to be effective on boards, that experience, I think, was invaluable."

THE BROAD PICTURE

Wolf said the broader an actuary's experience in areas outside of the traditional actuarial role, the better. In particular he suggests focusing on accounting, finance and overall corporate strategy to stand above the rest when it comes to being a candidate for a board of directors. "I think more of the education that one would get in a business school environment as opposed to the actuarial training," he said. "You know, the

classic case methods of study, strategic discussions and strategic questions are obviously critical to a board and a company and tend to be the kind of things that go on in a board meeting. I think that actuaries have not historically had that formal education and could benefit from it tremendously. With the education and background required to be an actuary, it would be logical to expect that many actuaries could qualify as audit committee financial experts under the Sarbanes-Oxley Act.

Even getting to the top of the actuarial ladder is not enough without the broad range of other experience to accompany it. “I’ve known very senior actuaries and they did true actuarial work their whole career, be it in consulting or be it in companies, and I venture to say based on those folks that come to mind, they probably aren’t very prepared to be on boards,” Wolf said. “Obviously they can provide technical advice with respect to reserves or some audit stuff, but that’s not most of what boards do and they usually get outside consultants to do that if it’s needed on an ad hoc basis.”

On the other hand, Wolf said actuaries who do take the time to learn about many aspects of running a business make wonderful board members.

“Those who have used the actuarial training and experience as a springboard to do much broader things in business—be it general management, be it finance, be it whatever—that grounding of actuarial training with the broadened experience that’s outside of the pure actuarial field is the perfect combination if somebody’s got it,” he said. “I know actuaries who have done exactly that, who’ve taken the actuarial training, who’ve broadened it through experience and who can speak very eloquently to issues of strategy or executive compensation or risk management or a whole bunch of stuff

like that is what boards, and particularly public companies, are all about.”

AN EXCITING PROSPECT

Monica Hainer, FSA, FCIA, MAAA, CEO of London Life Reinsurance Company and a member of several subsidiary boards, said it makes sense for actuaries to take more positions on corporate boards of directors, particularly with the current economic climate and the way businesses are moving forward.

“You need external board members, you need proper representation,” she said. “The board members have to be able to speak to the business, have to be able to be interviewed by regulators and serve knowledgeably about the business of the company that they’re on the board of, so the level of participation and knowledge is going to have to be at a high level and I think actuaries would make primary candidates for boards.”

Hainer said actuaries would particularly come in handy when dealing with regulators. “If you’re setting up models and the regulators are saying that they have the right to come in and talk to board members about the model, then make sure that the board has some level of reasonable knowledge about what the models do and how they do it. Who would be better than an actuary to answer these questions?”

Wolf also agreed this is a good time for actuaries to pursue board of director positions. “I think clearly in the last five or 10 years boards have become more likely to expand their rank with capable financial people,” he said. “I think that to the extent that an actuary has broadened his skills beyond pure actuarial work and has become either a CFO of an organization or has the requisite skills to be a CFO of an organization, I think that set of skills is in more demand today than in the past. Therefore I think the likeli-

hood, if we ever figure out the mechanism that someone with that set of skills might get asked to serve on a board, is better today than it was in the past.”

Any actuary willing to put in the work could have a shot at one day serving on a board of directors. The basic skills are there and that’s what matters the most according to Hainer.

“It’s only limited by how we want to limit it,” she said. “I mean any board needs thoughtful people and actuaries can be thoughtful people and there’s always numbers and finances to understand. Even a company that is pretty much just a production company ... has significant turnover issues and projections on how to maximize production and minimize time off. Why couldn’t an actuary contribute to any of those kinds of discussions too? I mean I just don’t think there’s any limit where a smart person who has actuarial training could contribute if they wanted to.” **A**

Next article: How industry contacts and networking can aid in the pursuit of board positions.

John G. Turner, FSA, MAAA, is chairman for Hillcrest Capital Partners. He was CEO of Northwestern National and has served on the boards of Hormel Foods and CNO Financial. He can be contacted at jt@turneric.com.

Sarah J. Hamblin, is a free-lance writer. She can be contacted at sarahjhamblin@yahoo.com.

CALLING ALL ACTUARIES!



Are you comfortable being in the **limelight**?

Do you have a **thought-provoking perspective** to share?

The SOA's communications staff is **seeking subject matter experts** to raise the profession's visibility in print and electronic media on a **number of different topics**, including:

- Health
- Retirement
- Enterprise risk management
- Finance
- Investments
- Supply chain management
- Energy

Tell us about your expertise in one or more of the areas listed above and we'll add you to our growing roster of subject matter experts.

As experts, you may be called upon to share your knowledge with the business media as part of our targeted campaign to bring attention to the thought-leadership of the actuarial profession.

Examples of potential opportunities range from shaping future story ideas to conducting broadcast, radio or phone interviews with the media, and authoring relevant content for the SOA blog, as appropriate.

Interested? Contact **Kim McKeown**, public relations program manager, at 847.706.3528 or kmckeown@soa.org. Or, visit soa.org/PRvolunteers.



Be ready to share a brief bio or résumé.

Analytics

In Baseball And Business



ONE ACTUARY'S TALE ABOUT HER EXPERIENCES WITH BUSINESS ANALYTICS IS RECOUNTED IN THIS STORY OF BATS, STATS AND A TASK FORCE.

THERE HAS BEEN A MAGNIFYING GLASS on analytics in business over the past several years. Everywhere you look there are new books being published and articles written. It's even in the movies.

I anxiously awaited the opening of *Moneyball*, the movie based on the book by Michael Lewis that details General Manager Billy Beane's journey into analytics with the Oakland A's baseball team. I went shortly after it opened and it did not disappoint.

I have been an avid student of analytics my entire student and adult life. I just didn't know enough to refer to it in that way. I worked at McDonald's in high school. We were timed, rated and reviewed. And I loved it. I got more and more competitive—wanting to improve my scores and times every way I could. I didn't know it at the time but these were called metrics and we were doing analytics.

ANALYTICS AND SPORTS

I have played softball for most of my life and was really struck when one of my coaches back in my college years set the batting order based on on-base-percentage (OBP). I was the fastest on the team and I got a lot of line-drive doubles to the outfield. But our big home-run power hitter

got on base more often. She batted first—I batted third. We won a lot of games. I still play even though I am old and my daughters will likely be joining our team next year. Our team has been together so long that we can't use OBP to set the line-up. We have to split our hitters out by who can run the bases and who needs a runner.

I have also played fantasy baseball most of my professional life. We started with a

tensive but we loved it. What I found was the formula we used was more influenced by OBP and slugging percentage rather than batting average to identify the top performers. A theme was developing.

After one of my speeches where I brought softball and baseball into the discussion, which I often do, someone told me about the book *Moneyball*. I went straight to the book store and bought it. I read it in two days. It was so exciting

THERE HAS BEEN A MAGNIFYING GLASS ON ANALYTICS IN BUSINESS OVER THE PAST SEVERAL YEARS.

close, dear friend, Doug Bearrood, FSA, MAAA, who tweaked a formula he used in graduate school that identified and weighted statistics that best predicted the final score of a baseball game. He had this great idea to start a fantasy baseball league with a group of actuaries at Fortis using this formula. It was long and cumbersome but there we were, a bunch of young actuarial students, studying the paper every day (except Mondays and Thursdays because too many major league teams took those days off for travel) and entering player by player daily stats into these archaic Lotus 1-2-3 spreadsheets to calculate our team's score along with our opponents'. It was very time in-

for me. It talked about Bill James, senior advisor on Baseball Operations for Boston Red Sox, being one of the pioneers in looking at using analytics in baseball and discovering that OBP may actually be a better predictor of run generation than batting average, stolen bases, bunting, etc. The purpose of the book was more to show that Billy Beane trusted a well-educated economist to dive in and use statistics that were less accepted as standard and who celebrated the workings of Bill James. The bells were really starting to ring for me. Bill James' work started to make its way into conversations one way or another in the late '70s. It was in the '80s that the coach I had used OBP to set line-ups. I had no idea anyone was really using science to start to investigate these things.

$$\text{ABL Runs} = \frac{(25 \cdot H + 10 \cdot 2B + 20 \cdot 3B + 30 \cdot 4B + 10 \cdot BB + 10 \cdot HBP + 5 \cdot S + 7 \cdot SB - 7 \cdot CS)}{AB} - 4.5 - .5 \cdot E - .2 \cdot PB$$

Formula used by the ABL Fantasy Baseball league – simplified somewhat through the years

When we first started our actuarial baseball league (the ABL) in 1990 there was little information out on the Internet and downloading baseball statistics was not an option. For the first year, we relied 100 percent on statistics and rankings from the back of a magazine—none of which valued players the way we did. My actuarial husband and I shared a team and were lucky enough to draft Cecil Fielder in the 23rd round—a little-known player who had no statistics in the back of the magazine as he was just coming back to Major League Base-

we are ALL doing in-depth analytics. Is it worth all of the work we go through each year? Absolutely. Our effort keeps us competitive. In this case we would drown without it.

ACTUARIES AND ANALYTICS

So what about the current world we live in? Advanced Analytics is becoming the new buzz phrase and everyone proclaims to be doing it. Well, some are. But some simply claim to be. Where are you? Actuaries have long been looked to when

ADVANCED ANALYTICS IS BECOMING THE NEW BUZZ PHRASE AND EVERYONE PROCLAIMS TO BE DOING IT.

ball from the Japanese baseball league—but the rest of our draft picks were a bit of a disaster. For our second year's draft we were all experts and there I sat, hand-entering all the statistics, player by player, from the back of a baseball magazine into a spreadsheet I had created. Then I calculated their ABL Score and we researched the top players in preparation for the upcoming draft. With all the research we did—and continue to do—we did not win the league until 2004. Then we went from first, to worst, to first, winning again in 2006. We have not won since. Is it because the analytics we do are not worthwhile? That's an uncon-

ditional "No" in my mind. It's that it's a league made up of several actuaries and

there is a need to perform analytics. The difference is that—many years ago—there were set formulae and the extent of the analytics we performed was fairly prescribed. When I look at the analytical world today, I can't help but wonder if actuaries are starting to get passed by. I know there are individual actuaries who are out there doing what I would qualify as advanced analytics. But I also believe that many have allowed themselves to be placed in an analytical box with their roles being defined for them. One of my colleagues at Humana, a well-respected leader of our organization, commented to me one time that the actuaries do the routine analytics, but the newly developed consumer analytics group is doing the newer, more cutting-edge stuff. Note there is not a single credentialed or exam-taking actuary in that consumer analytics group.

My very intelligent nephew opted not to pursue actuarial science because he said it sounded boring. My colleague makes the claim that actuaries do the routine analytical work. This is a theme I do not like and I think we as

a profession need to change—not only the perceptions, but also the analytic caliber of the actuarial talent entering and moving through the system today.

MY SOMEWHAT NONTRADITIONAL RESUMÉ

I look back at my career as an "Actuary." I started my professional career as an actuarial student at Fortis. Then I spent five years at Delta Dental Plan of Minnesota where I got a very well-rounded education of the various responsibilities generally staffed by actuaries including providing the actuarial opinion for annual statements and the establishment, adequacy, application and results of actuarial and underwriting formulae including corporate liabilities, forecasting (enrollment, revenues and claim expenses), provider reimbursement methods, new and renewal business rating formulae, and administrative/retention fees. As chief actuary, I oversaw the actuarial, underwriting and research departments.

It was in the research capacity that I started down the path of what I would have considered nontraditional actuarial work. It was in this role where I really started to study the value of the health care dollar. Where was it being spent? What were the outcomes? Were we really improving health with each dollar that was spent? Were we as an industry contributing to the improvement of health at all? I had the pleasure of hiring and working closely with associates I would qualify as advanced analysts. These folks were taking all the information we had in our claims databases, starting to blend it with non-claim-based information such as perception and satisfaction surveys and were working analytical magic to develop relationships and to move down the path and draw conclusions. I was fascinated by

it. The folks doing this type of work were those with advanced degrees in areas such as biostatistics or economics.

I spent about eight years in the United Health Group family where my time was spent in health care economics. Basically, we were looking for nontraditional ways to understand the health care dollar. We developed methods and models to help answer some previously unanswered questions (in fact, some questions people didn't even know to ask). When I made the move to Humana, though this specific role was not included in the job description that was originally defined for me given my history, it quickly became one of my many responsibilities.

One of my accountabilities at Humana was to fix our data and analytic issues. We were starting from decentralized, siloed analytics that typify many payer organizations. I am proud to say that our efforts to date to realize analytical value through an enterprise competency and our subsequent progress toward establishing analytic competency has taken us a long way down the path to becoming a pioneering analytical competitor.¹ Today, we relentlessly search for new ana-

lytic information and methods to understand key questions around the future of the health care dollar, how you define health, and how we as an industry can provide and prove value to our customers.

ANALYTICS MOVING TO CENTER STAGE

I was fortunate enough to get introduced to the authors Tom Davenport and Jeanne Harris. They had already written and published their book *Competing on Analytics*. Oddly enough—it was softball that brought us together. I was attending dinner the night before an analytics conference and happened to sit next to Tom Davenport. Neither of us had met, nor did we know who each other was. Throughout the meal our conversation flowed and softball came up. We talked endlessly about softball and baseball and a friendship was born. Throughout Tom's speech on analytics the next morning, he kept looking to me and asking questions about analytics in health care, and softball. Shortly after that conference, I was fortunate enough to meet Jeanne Harris, Tom's co-author on the book. Any time I got the opportunity to talk to either of them, the discussion always led to analytics of one sort or another and I could feel my temperature rise as

my excitement level increased.

I always walked away dreaming of what more I could possibly do. Then I was honored beyond words when they shared with me they had decided to feature me in their upcoming book *Analytics at Work*. I was very touched to have true experts in the field look at what I was doing and conclude we were achieving success.

It's Jeanne I have to thank for inviting me to an analytics meeting at Fenway Park where the assistant GM spoke to us and told us the reason Nomar Garciaparra was traded to the Cubs in 2004 was because everyone else's stats decreased when he was on the field. I distinctly remember questioning that move when the trade was made because his stats were pretty strong—from an ABL perspective anyway. Note the trade included a popular player from my hometown team the Minnesota Twins, Doug Mientkiewicz. The word "plague" was included in the conversation regarding Garciaparra. Ah, I got it and was even more excited. I promptly offered to work for the GM—even if it only paid \$8 per hour. And, by the way, though the Red Sox tried unsuccessfully to hire Billy Beane following his incredible results based on analytics at Oakland, they did hire Bill James—the father of a lot of the pioneering baseball analytic work. The Red Sox were definitely seeing the light.


A TASK FORCE IS BORN

No matter where I was or what the topic at hand was I could not stop thinking about

EXTRA INFO

FOR MORE INFORMATION ON THIS TOPIC, VISIT THE WEBSITES LISTED BELOW.

The SOA offers a variety of audio recordings from meeting sessions covering business analytics and other topics. Visit www.soa.org/baaudio

Read a book review of *Analytics at Work*. Visit www.soa.org/babookreview 



the fact that I felt actuaries were starting to get pigeon-holed into analytic work that now seemed to be deemed routine. It made me sad. I saw a light at the end of the tunnel when the executive director of the SOA, Greg Heidrich, approached me at the reception of the 2010 Annual Meeting. We quickly got into a passionate discussion around advanced analytics and whether the actuarial profession was getting left behind in this area. Not long after that, I was approached to lead the Advanced Analytics Task Force for the SOA to determine if we should increase the focus for the actuarial profession in this area (either add a credential, a certificate or, at a minimum, offer more intensive advanced teaching opportunities for actuarial students). I gladly jumped at the opportunity. Not only did I want bright young analytically minded students wanting to become actuaries, I also wanted companies that hire advanced analysts to quickly think about actuaries when they look to fill these roles.

Now, I know there are actuaries who are out there doing what I would call clear advanced

analytical work. The problem is I feel they are much more the exception than the rule.

As a task force, one of the first accomplishments was to set forth a definition. Sounds easy but we had many personalities and opinions to work with. We now have one we are working with: *“Advanced Business Analytics for Actuaries is a set of tools and techniques used to describe, predict, and recommend business courses of action based on consumer and distributor behavior. It draws from many disciplines. It relies heavily on vast amounts of data and computing power, statistics, modeling, optimization, dashboard and alerts, market research, and clustering. Advanced business analytics provides employers with insightful decision making and affords the opportunity to assess a marketplace from a totally new perspective.”*

With the definition set we have a floor from which to build upon. Our next steps are to identify the skills and techniques that define an actuarial practitioner of advanced business analytics, identify the gaps between

those skills and techniques versus an FSA education, describe a course of study to address these gaps, develop ideas for key measures as input to market research questions and plan internal and external market assessment. Our ultimate task is to present our findings and recommendation to the board in early 2012 in hopes they will be accepted and we will move forward.

There’s a lot of work left to do to determine if the SOA should add special training, certifications or designations to encourage actuaries in the learning of advanced analytics and its techniques. Me? I just want kids coming out of college thinking actuarial science is fun and exciting and will take them down the path to do all of the cool analytics they are hearing and learning about! Google? Microsoft? Apple? Why not hire an actuary?

Finally, actuaries are often thought of as smart, but we can do amazing things outside of what historically has been considered the traditional world of actuarial science. We want to set ourselves up to make that happen! **A**

Lisa F. Tourville, ASA, MAAA, is Chief of Health Care Economics at Humana. She can be reached at ltourville@humana.com.

ENDNOTES

- ¹ Humana’s analytic progress as the International Institute for Analytics “HLSARC Leading Practice Brief—Humana.” May 10, 2011. Authored by Kyle Cheek.

NOW AVAILABLE ONLINE!

Energy. Commitment. Growth.

Read about the advancements, activities and accomplishments of the SOA in 2011.

2011 YEAR IN REVIEW REPORT

High-quality research projects ■ Innovative educational initiatives ■ Progressive communication and marketing efforts




Access the report at <http://www.soa.org/2011yr>.



THE EVOLUTION

OF THINKING

By Dave Ingram, FSA, CERA, MAAA



“At first glance,
Homo sapiens is an
unlikely contestant
for taking
over the world.”

— Gerd Gigerenzer

E VOLUTIONARY BIOLOGISTS have identified that one of Homo sapiens’ original competitive strengths was the ability to run for very long periods of time, chasing their prey to exhaustion. For my money, in the primitive world, I would have chosen large teeth and blinding speed any day.



HEURISTICS

As we know, that did not mark mankind’s only advantage, as we eventually figured out how we could use tools. And best of all, man was one of the best on the planet (among larger life forms at least) in adaptation. Gigerenzer calls this competitive advantage the “fast and frugal heuristic.”¹ With this approach, humans developed ways to best use both man’s limited natural and constantly growing artificial toolset regularly adapting it to the environment. A fast and frugal heuristic approach is a way to solve problems quickly with incomplete information.

Gigerenzer gives an example of a heuristic used by a baseball outfielder in catching a fly ball. In most cases the outfielder will catch the ball on the run; a natural heuristic is to keep moving and making small adjustments to their position until they and the ball are in the same location. Binocular vision does not necessarily provide enough information soon enough to position the outfielder properly in a timely basis. Observations obtained by successfully closer approximations act as using a much wider set of eyes. The heuristic uses a skill that the human brain already has—the ability to process multiple images of the same object to develop a three-dimensional view of the world.

The scientist might suggest that somewhere inside the brain there is an immensely complicated calculation of forces, directions and wind speeds going on. Gigerenzer suggests that is

nonsense. People do not even need to think that way.

Flash forward 10,000 years from the early primitive heuristic users. Zoom to the world of insurance and pensions and a conflict arises for the key decision maker. On the one hand is management or the underwriter whose decision-making process is the product of thousands of years of advances in the “fast and frugal heuristic” who is now regarding the financial risks that insurers and pension plans have been applying more or less profitably for a few hundred years. Their ability to make judgments in this are-

Constant tension between actuarial model builders and heuristic wielders exists when the major decisions of the firm are being made. Since actuaries do not always win, we sometimes feel ignored and underappreciated. In fact, jokes are made about the actuarial approach by the followers of the heuristic approach.

But the two approaches are closer than one might think at first (or even repeated) exposure to the issue. Both approaches have at their core a Bayesian view of how to derive the right decision, which is constantly updating your decision-making engine with new experiences.

the use of regular observation. Only a few hundred years have gone into perfecting this approach, not the thousands of years that support heuristic processes.

“In judgments under uncertainty, one has to ignore information in order to make good predictions.”²

Gigerenzer also shows how simple heuristics can outperform complex models. He suggests that models fit to historical data and predictive quality might well have an inverse relationship. The awareness of this is something that actuaries develop through experience.



YOU MIGHT BE SURPRISED TO LEARN THAT ACTUARIAL METHODS HAVE BEEN IN THE MIDDLE OF A HEATED DEBATE ON THIS TOPIC FOR MORE THAN 60 YEARS.

ACTUARIAL VERSUS CLINICAL DECISION MAKING

na is usually honed by decades of experience, avoiding the necessity to run down their prey for days until it dies of exhaustion. Some of these heuristics can be readily explained to colleagues in the business decision-making process, but some cannot be put into words any better than a baseball player can explain exactly how they are able to hit a 95-mile-per-hour fastball. Those heuristics are called “gut instinct.”

On the other side of this debate are the actuaries. Actuaries represent one of the most highly evolved practitioners of the scientific/statistical/evidence-based approach. We are trained to build what can be excruciatingly complex models of small bits of the world to use as the basis for our decisions. These actuarial models rely upon a number of statistical laws for their power, such as the law of large numbers and Bayes’ theorem, the use of credibility theory.

The heuristic decision makers may cast a wider net for information to bring into their heuristic. The modelers are usually limited to specifically quantifiable information that can be put into their models. Since the heuristic group does not have a quantitative model, they do not have that constraint. However, their disadvantage is that they do not necessarily include a systematic way to incorporate new information. The heuristic forming process is not necessarily a fully conscious process. In fact, explanations of heuristics are usually post hoc, not really a part of the development process.

This flaw does not make heuristics anything to sneer at. Humans took over the world primarily because of this ability to create and update powerful heuristics.

The actuarial, statistical approach is a development of the scientific revolution, through

You might be surprised to learn that actuarial methods have been in the middle of a heated debate on this topic for more than 60 years. Certainly few of us actuaries even know about this debate. Clinical psychologists have had a running debate about whether actuarial or clinical predictions are better. Paul Meehl first raised the issue in 1954,³ with the debate continuing into at least the 1990s.

In a 1989 article titled “Clinical versus Actuarial Judgment” in *Science*, Robyn Dawes and David Faust claim that clinical judgments are made in the heads of clinicians while actuarial judgments rely solely upon established relationships between data and outcomes.

This appears to be a clash between models and experts relying on their judgment, the very conflict that many have said was at the root of the global financial crisis of 2008. Meehl indicates that he became interested in this issue while attending a meeting in 1947



where the issue was hotly debated. Meehl's primary contribution was the suggestion that there should be an experimental way to show the difference in efficacy between the two methods. He suggested that anecdotal evidence that was prominently relied upon in the 1947 debate was never going to lead to a resolution of the question.

"It has been generally accepted in psychology that certain types of risk assessment (violence, sexual recidivism, domestic assault) are more accurate when an actuarial approach is used. These days very few clinicians would go into court using only a clinical opinion. When the court asks what is the likelihood of future violence, for instance, most will turn to actuarial risk assessment. My own area of expertise is the assessment for the risk of sexual violence, and I testify a lot about how these tools work (and don't work)."⁴

Meehl suggested that what was needed to resolve the issue was a large number of comparable or preferably identical situations where the information was available for both the clinical and statistical approach and that the actual correct diagnosis was known from information obtained subsequent to the initial diagnosis. This was accomplished. Meehl documents several such studies. And in every single study, the statistical approach was more accurate than the clinicians. In fact, the actuarial approach was as good as the best of the clinicians in diagnosis.

So, while this particular debate seems to have been won by the statisticians, it is still interesting to assess the issues raised along the way.

Meehl kept revising and republishing his 1954 book. The latest edition was published in 1996. In that version he suggested that the

clinicians might agree with the actuarial approach if they slowed down and understood it. He then showed that both clinicians and actuaries started from and processed the data in a similar manner. However, it was rare that clinicians revised the diagnostic methods they were taught in the university and during internships. Their methods were frozen and did not allow for new data to influence their approach, at least not until there was an overwhelming amount of contradictory data.

In contrast, statisticians update their assumptions when they obtain new data.



ACTUARIAL PLACE IN THE EVOLUTION OF THINKING

Crudely, you can characterize these three ways of thinking along a historical spectrum. Heuristics are the best of primitive man. The shaman was the master heuristic wielder. Clinical or expert judgment was the path of the middle ages. Everyone studied the ancient masters. The most important thing to know to answer any important question was,

"What did Aristotle say about that?" And the statistical approach is the basis of the scientific revolution. Everything was reasoning- and evidence-based.

Real actuaries, not the actuaries of the psychologists' discussions, place our practice somewhere in the middle of these methods.

First of all, actuaries generally use both statistical and clinical decision making; or more accurately, a blend of the two.

Jim Bridgeman, FSA, CERA, MAAA, describes it in the following way:

"In a long actuarial career I have always found (following the lead of actuarial mentors with long careers and mentors in back of them) that the most effective and most characteristically 'actuarial' way of thinking involves a subtle melding of clinical (in insurance read 'underwriting, claims and marketing'), statistical, financial, and dynamic modeling ways of thinking.

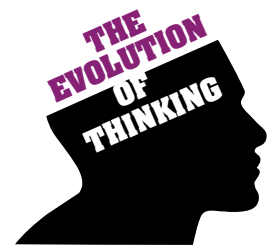
"The role of the actuary is to bring in all possible sources of information, all pos-

EXTRA INFO

FOR MORE INFORMATION ON THIS TOPIC, VISIT THE WEBSITES LISTED BELOW.

The SOA's Competency Framework tool allows members to assess their business skills. Visit www.soa.org/competency-framework

This professional development e-course focuses on decision making and communication. Visit www.soa.org/decision-making 



sible clues, all relevant ways of thinking and all applicable procedures for decision-making that can possibly be brought to bear on the decision to be made.

“In this view, the only reason actuaries generally come from a mathematical background is that generally only someone with a mathematical background (including in that, possibly, statistics, engineering, physics, etc.) is capable of even thinking about bringing in the dynamic modeling ways of thinking, subtle quantitative clues (those numbers just don’t smell right) and the most sophisticated aspects of the statistical way of thinking. Few others even know those ways exist, what they might mean, or how to handle them.

“But it is a poor actuary, indeed, who thinks that her role is to bring in only statistical thinking and/or dynamic modeling thinking and/or structured analytic processes. The actuary’s job is to integrate it all—the precise, the anecdotal, the experiential, the judgmental. It’s just that in most cases the mathematical aspects won’t even be there to get integrated unless the actuary brings those parts in herself. But she can’t stop with just those aspects if she’s going to uphold the tradition of the best of the profession.”⁵

Actuaries, with their blended approach, end up including some of both approaches, along with the strengths and weaknesses of both approaches. While actuaries do spend a great deal of time updating data, we are much more reluctant to change the model that data seems to fit.

The flaw to the statistical approach is that it includes an insatiable need for data. The practitioner of the statistical method will always want more and better data.

And that is where the heuristics come to play. In mathematical terms, heuristics are decision-making rules that work from principal components analysis. The best heuristic will use the readily available data that is the most highly correlated with the best outcome.

“Meehl’s *Clinical versus Statistical Prediction* (1954) ... concluded that (unaided) clinical judgment is unable to outperform, and is usually inferior to, judgment based on actuarial models. The recent fast and frugal heuristics program seems to conflict with this conclusion, showing that simple heuristics, proposed as plausible models of clinical judgments, can outperform standard actuarial models.”⁶

So it is found that in some problems, statistical reasoning is superior to clinical, but heuristics can improve on statistical methods.

So where does that leave us? Has the entire path of the development of human thinking been a waste—if a good heuristic can do better than the statistics that are better than the experts?

It actually leaves actuaries in a good place. We tend to be pragmatic problem solvers. As Bridgeman says above, we seek to “integrate all.” So, the true actuarial method is a blend of all three modes of thinking.

“To gain insights about future possibilities, the actuary depends on observation and wisdom gained through prior experience. Actuaries use these observations and experience to construct, validate and apply models. Actuaries continually incorporate additional observations and insights into their models. This feedback cycle systematically addresses discrepancies between these models and observed reality.”⁷

We just need to be careful as we are going down the path of more and more complex statistical models that we find ways to integrate the judgment of experts and the heuristics of the canny observers of human experiences. And especially that we do that early in our processes to make us smarter modelers. Otherwise, we may end up acting more like the primitive runners chasing down the prey of the modeled answer to the point of utter exhaustion. ■

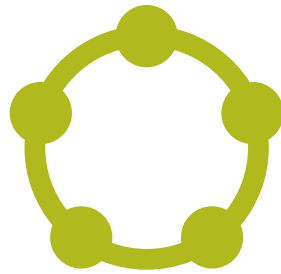
Dave Ingram, FSA, CERA, MAAA, is executive vice president with Willis Re Inc. He can be contacted at dave.ingram@willis.com.



ENDNOTES

- ¹ Rationality for Mortals—How People Cope with Uncertainty, Gerd Gigerenzer (2008).
- ² Gigerenzer (2008).
- ³ “Clinical versus Statistical Prediction, A Theoretical Analysis and a Review of the Evidence,” 1954, University of Minnesota.
- ⁴ Dean R. Cauley Ph.D., MBA, Board Certified Forensic Mental Health Evaluator.
- ⁵ Jim Bridgeman, FSA.
- ⁶ *From Meehl to Fast and Frugal Heuristics (and Back) New Insights into How to Bridge the Clinical-Actuarial Divide*. Konstantinos V. Katsikopoulos, Thorsten Pachur, Edouard Machery, Annika Wallin. Max Plank Institute (2008).
- ⁷ “Principles Underlying Actuarial Science.” Mark Allaben, Christopher Diamantoukos, Arnold Dicke, Sam Gutterman, Stuart Klugman, Richard Lord, Warren Luckner, Robert Miccolis, Joseph Tan (2010).

March 26–27, 2012
New York, NY



Investment SYMPOSIUM

Leading you through the investment landscape.

REGISTER FOR TWO FULL-DAYS COVERING FOUR TRACKS:

Retirement/Pension Plan; Portfolio Management; Quantitative, Risk Management and ALM; Economics, Accounting & Regulatory Topics

PAST ATTENDEES SAID:

- “The educational contents were particularly relevant to the topics. In some sessions, the mix of presentations with varying degrees of complexity was a valuable element.”
- “I very much enjoyed the presentations—relevant and useful material.”
- “Really got a lot out of the sessions with three presenters. The keynote and luncheon speakers were excellent and spoke on very timely topics.”

Visit www.InvestmentSymposium.org.



Actuaries
Risk is Opportunity.®

Education

FSA EDUCATION RESTRUCTURING IS COMING SOON!

BY KATHLEEN R. WONG AND ROBERT G. SANFORD, JR.

OVER THE PAST YEAR the Society of Actuaries (SOA) Education Committee has been communicating with members and candidates about changes that are in the works for our CERA credential and FSA tracks. A major driver of the restructuring is our desire to enhance the pathway to the CERA (Chartered Enterprise Risk Analyst) credential and to expand Enterprise Risk Management (ERM) learning opportunities in all tracks for candidates pursuing fellowship.

As a reminder, here are the changes that are headed your way:

- New CERA requirements will become effective July 1, 2012. CERA candidates will be required to complete:
 - Preliminary Education exams P (Probability), FM (Financial Mathematics), MFE (Models for Financial Economics) and C (Construction and Evaluation of Actuarial Models);
 - VEE (Validation by Educational Experience) requirements for Economics and Corporate Finance;

- Fundamentals of Actuarial Practice (FAP) course;
 - Enterprise Risk Management (ERM) exam;
 - Operational Risk module; and
 - Associateship Professionalism Course (APC).
- The first administration of the new four-hour ERM exam will be in fall, 2012.
 - Additional ERM foundational material will be added to the FAP course early in 2012.
 - The Operational Risk module will be modified (and likely renamed) during 2012 to better align with the new ERM exam.¹
 - Each FSA track will have a CERA option beginning July 1, 2013.

Changes to the FSA tracks come into effect in July 2013. At that time, all FSA candidates will continue to complete the traditional ASA requirements (all Preliminary Education exams, all VEE requirements, the FAP course, and the APC), plus an FSA specialty track.

TRADITIONAL OPTION

Just as now, FSA candidates will choose one of five specialty tracks. Most tracks will continue to have available a traditional route consisting of 12 hours of examinations, three eLearning modules, plus the Decision Making and Communication module (DMAC) and the Fellowship Admissions Course (FAC). The only change to the traditional route is that the 12 hours of examinations will consist of two five-hour exams and one two-hour exam, rather than the two six-hour exams offered under the current system.²

FC (Fellowship Core) 5-hour exam

FC (Fellowship Advanced) 5-hour exam

FC (Fellowship Non-Core) 2-hour exam

Three FSA Modules plus DMAC plus FAC

- Same total hours as current requirements.
- Allows more rational organization of educational material.

CERA OPTION

In addition, all tracks will offer a CERA option, under which the ERM exam can

be taken in place of the track-specific two-hour exam. CERA/FSA candidates will therefore take two additional hours of total examination time as compared to the traditional route, but will then be eligible to receive both the FSA designation and the CERA credential.

FC (Fellowship Core) 5-hour exam
FC (Fellowship Advanced) 5-hour exam
ERM 4-hour exam
Three FSA Modules plus DMAC plus FAC (one must be Operational Risk)

- Two additional exam hours as compared to standard track.
- For the Corporate Finance and Enterprise Risk Management (CFE) track, there is only the CERA option.

SPOTLIGHT ON NEW CORPORATE FINANCE AND ENTERPRISE RISK MANAGEMENT (CFE) AND QUANTITATIVE FINANCE AND INVESTMENTS (QFI) TRACKS

All of the FSA curriculum committees are using the restructuring as an opportunity to re-organize their syllabus material in a more pedagogically appropriate manner. However, two tracks in particular will be changing more dramatically. The Finance/ERM track and the Investment track currently have one of their two fellowship exams in common—the Financial Economic Theory and Engineering Exam (FETE). While this common material has served both tracks well, over the past few years the focus of the two tracks has diverged. Candidates in the Finance/ERM track include those who may aspire to chief financial officer or chief risk officer positions, while the Investment track candidates are increasingly focused on a more quantitative understanding of invest-

ment issues and may be aiming for chief investment officer roles.

Instead of trying to manage the single FETE exam to satisfy both audiences, the restructuring will be used as an opportunity to fully separate the two tracks.

Finance/ERM will become Corporate Finance and Enterprise Risk Management (CFE). All FSA candidates in this track will complete the ERM exam; there will not be a non-CERA option. Building on that common base, the two five-hour examinations

will be able to explore more advanced risk management topics, and take a broader approach to corporate finance and strategic management. Curriculum committees are still designing the overall structure of the CFE track, but, at a high level, the two examinations are expected to look something like this:

FOUNDATIONS IN CORPORATE FINANCE AND ERM

- Corporate Finance/Capital Structures;
- Organizational Structure and Governance;
- Option Pricing; and
- Financial Risk Management.

ADVANCED TOPICS IN CORPORATE FINANCE AND ERM

- Capital Management;
- Financial Accounting/Taxation;
- Advanced ERM Topics; and

- Decision-Making Process/Case Studies.

The FSA modules supporting the track are likely to undergo some modifications as well, to ensure they coordinate well with the new examinations.

The Investment track will evolve into Quantitative Finance and



Kathleen R. Wong



Robert G. Sanford, Jr.

All of the FSA curriculum committees are using the restructuring as an opportunity to re-organize their syllabus material. ...

Investments (QFI). Within this track, many of the topics will be similar to those that currently make up the Investment track, but they will be explored at a more technical, quantitative level. The two five-hour examinations may, at a high level, be similar to the current FETE and Advanced Portfolio Management (APM) examinations. However, the coverage of topics is expected to be more integrated as opposed to two very distinct exams. The new two-hour examination is expected to focus on the topic of Investment Risk Management.

A sampling of the topics currently expected to be included on the two QFI five-hour exams includes:

QFI-I

- Option Pricing Theory;
- Financial Modeling;
- Mathematics, Statistics and Stochastic Calculus;

- Portfolio Management;
- Fixed Income;
- Equities;
- Derivatives and Hedging; and
- ALM, LDI and SAA.

QFI-II

- Option Pricing Theory (advanced topics);
- Financial Modeling (advanced topics);
- Portfolio Management (advanced topics);
- Fixed Income (advanced topics);
- Equities (advanced topics);
- Alternative Assets;
- Derivatives and Hedging (advanced topics);
- ALM, LDI and SAA (advanced topics);
- Liability Manufacturing;
- Environmental Factors (Accounting, Rating Agencies, Regulation, etc.); and
- Performance Measurement and Attribution.

It should be noted that the allocation of topics, as well as the topics themselves, are preliminary.

As with the CFE track, the FSA modules supporting the QFI track will likely undergo some modifications to ensure they coordinate well with the new examinations.

THE "OTHER TRACKS" (GROUP AND HEALTH, INDIVIDUAL LIFE AND ANNUITIES (ILA), AND RETIREMENT BENEFITS)—MODEST RE-ORGANIZATION

Curriculum committees re-examine their learning objectives and update their syllabi annually. The goal is to keep material current and appropriate, covering emerging topics in each specialty field while replacing outdated material. The FSA

restructure gives the committees a rare opportunity to do a bit more than just the routine updating.

The current organization of the remaining three tracks separates study material into two categories—DP (Design and Pricing) and CSP (Company/Sponsor Perspective). While this division of material has been useful, the tracks are taking a fresh look at whether it is the best way to organize the material. Taking advantage of the fact that all FSA exams are now offered twice per year, committees are also looking at this as an opportunity to set a preferred order for candidate progression through the exams.

The new structure may differ by track, but a likely approach may be to divide topics into those that are considered core (the basic foundational material for the specialty) and those that are advanced (perhaps applications of the basic material or more in-depth coverage at a technical level). The two-hour exam option for non-CERA candidates may consist of specialized topics in the practice area or may cover basic ERM concepts for that specialty (since these candidates will not be taking the four-hour ERM exam).

While not final, the following is provided to give you a preview of the direction that each of the other tracks is taking with respect to their exams under the redesigned system:

GROUP AND HEALTH TRACK

Core Exam

- Three-hour portion, not nation-specific;
- Coverages, underwriting and pricing;
- Two-hour portion, nation-specific (Canada and United States); and

- Financial measures, government programs, taxation, regulation and employee benefits.

Advanced Exam

- Five-hour, not nation-specific; and
- Disease/claims management, reserving, product development, provider contracting, employer strategies, predictive and business analytics.

Specialty Exam

- Two-hour, not nation-specific; and
- Risk/enterprise management, actuarial appraisals, population management.

INDIVIDUAL LIFE AND ANNUITIES (ILA) TRACK

Core Exam

- Five-hour, not nation-specific; and
- Life insurance and annuity marketplace, product features, assumptions, modeling and monitoring.

Advanced Exam

- Five-hour, nation-specific (Canada and United States); and
- Financial statements and management, reinsurance, valuation, capital and solvency, and professional and audit standards.

Specialty Exam

- Two-hour, not nation-specific; and
- Asset and liability management and enterprise risk management.

RETIREMENT BENEFITS TRACK

Core Exam

- Five-hour, nation-specific (Canada);
- Completion of the two EA-2 exams (United States); and
- Cost methods, funding, regulation.

Advanced Exam

- Five-hour, nation-specific (Canada and United States); and
- Plan design, accounting, executive benefits.

Specialty Exam


- Two-hour, not nation-specific; and
- Retirement plan investment and risk management.

For the Group/Health, ILA and Retirement tracks, the FSA modules supporting each track are likely to undergo some modifications to ensure they coordinate well with the new examinations.

MORE TO COME!

Curriculum committees will continue to work on the final syllabi for the redesigned exams during 2012. A final syllabus for the four-hour ERM exam is expected to be published in spring, 2012. For the FSA-level, track-specific exams, syllabi will be published beginning in spring, 2013 for the exams to be administered in fall, 2013.

Ensuring that the SOA provides a relevant and rich program of education is the central mission of the Education Committee. This redesign has been undertaken in order to fulfill this mission. It is our hope that the redesign will enable actuaries to make valuable contributions to their employers, the public and all stakeholders, on both a local and global basis.

The SOA website contains more information on the pathway changes and transition rules at soa.org/pathwaychanges. 

Kathleen R. Wong, FSA, CERA, MAAA, is a consulting actuary. She can be contacted at rkmwong@optimum.net.

Robert G. Sanford, Jr., FSA, EA, MAAA, is a consulting actuary with PRM Consulting/Sanford Actuarial. He can be contacted at rgs@sanfordabc.com.

ENDNOTES

- ¹ Candidates with credit for the current version of the Operational Risk module will be able to use it to meet the new CERA requirements.
- ² For U.S. Retirement the current 3.5- and 4.5-hour SOA exams will be changed to one five-hour and one two-hour exam; the Enrolled Actuaries (EA) exams will continue to be a requirement for U.S. Retirement fellowship.

Magically Double Your Money!

Make a first-time gift to The Actuarial Foundation and—like magic—watch it double!

All new donors who contribute \$50 or more to the Foundation will have their gift matched—dollar for dollar—through the Foundation's Matching Gift Challenge.

Donate now and double your money in support of teaching materials in the classroom, scholarships for students, financial education for the public and the intellectual capital of the profession.



Make your first-time gift today and double your donation!
www.ActuarialFoundation.org/donate/index.shtml



THE ACTUARIAL
 FOUNDATION®

Preparing for tomorrow's possibilities® through education

Section Highlights

INTERNATIONAL SECTION

The International Section is unique among sections in that it serves members who have a strong international interest and members who actually work overseas. In fact, only 60 percent of the current membership resides in the United States. This is a different perspective compared to other sections in terms of scope and coverage. In other words, the International Section really is “international”!

The section provides the usual menu of services to its members, but there are two areas where it is specifically trying to bridge the gap between the Society of Actuaries (SOA) and its international members. One effort is the Ambassador Program and the other is continuing education.

The International Section has been dedicated and will continue to support and expand the international Ambassador Program, which connects our members with the SOA in international markets. In 2011, the total number of countries with ambassadors was more than 30, spreading over five continents. The ambassadors have added tremendous value in bringing the SOA closer to our members overseas. As this program grows, it will be necessary to address the resources needed to effectively monitor and evaluate this program.

In North America, the section utilizes its diversified strength and a renewed commitment to offer international content at SOA meetings. In the growing Asian market, by partnering with other SOA sections and actuarial parties, the International Section

offers seminars in international locations. In the past, the International Section had sponsored a series of well-attended IFRS seminars located in Hong Kong. In addition, for the first time in 2011, the International Section offered a successful Variable Annuities seminar in mainland China as the result of responding to local regulatory changes and addressing local member needs to fulfill their CPD requirements. While there continues to be great value in the traditional continuing education formats, the section will be pursuing more ways to deliver timely and informative continuing education programs to our members by using quick-to-market media.

In October 2011, the board of the SOA approved the formation of the International Strategy Committee. The mandate and initiatives of this committee will certainly influence the future direction of the International Section. To support the SOA international initiatives, the section will continue to be one of the effective communication and execution channels for the membership in North America and the rest of the world. **A**

Genghui Wu, FSA, FCIA, MAAA, is senior investment vice president with Prudential Financial, and 2012 chairperson of the International Section. He can be contacted at Genghui.Wu@Prudential.com.

FORECASTING AND FUTURISM SECTION

While many of the sections of the SOA are centered on individual areas of practice, the Forecasting and Futurism Section instead focuses on tools, techniques and methods that are used in every branch of actuarial

work. One of the topics that the section has attempted to tackle during the last two years is the study of complexity science. Not only does the study of complexity science naturally fit in the section because several sub-topics can be very valuable in forecasting, but the phenomenon of interaction between elements creating larger scale effects fits into our usual style of thinking.

There are three requirements for an area of study to be considered a part of complexity science: complex collective behavior, signaling and information processing, and adaptation. While some of the areas of topics are fairly new to mainstream actuarial work, such as cellular automata and ant optimization, others are beginning to be much more widely used in the profession. Predictive modeling is being used to underwrite life policies using data from the Internet. Network science is being used to analyze distribution channels and help managers formulate succession planning. It has been debated, but behavioral economics, which has more history with the profession, is also included in complexity science.

Genetic algorithms are what spurred interest in several of us and have real applications in asset/liability management as well as portfolio and capital optimization. Our initial application of using genetic algorithms as a tool to efficiently search solution spaces is only the beginning for this technique—it is exciting to think where this technology will lead us! The curiosity of how other professions used these techniques led us to develop actuarial applications that provide

real contributions to actuarial work. As with this and other adaptations of complexity science, if other professions are so successful using these ideas and techniques, why can't we? **A**

Ben Wadsley, FSA, MAAA, is associate actuary with Aegon USA, Inc., and 2011 chairperson of the Forecasting and Futurism Section. He can be contacted at bwadsley@aegonusa.com.

PRODUCT DEVELOPMENT SECTION

The product development section focuses on individual life and annuity product development issues. We strive to provide relevant content and timely research to assist our members in their daily lives. One of the ways we are doing this is through a research project on market consistent embedded value (MCEV). Many sessions at meetings have used this MCEV acronym and many actuaries have a vague idea about what it is, but what the Product Development Section really wanted to explore is why this MCEV measure is getting so much attention and would it be a good idea to use this in the risk profiling tools that product development actuaries have. The project is meant to give a high level overview of MCEV and compare it to other profit measures that product development actuaries may currently be more comfortable with like internal rate of return (IRR). This may be able to help with discussions with management and getting a fuller picture of the products and risks that the company is opening itself up to.

Another area of research that the Product Development Section is trying to dive into is older age mortality. Many companies sell insurance at older issue ages, and as the in-force population ages, assumption setting that is realistic is key to understanding the risk profile for the products as well as the expectation of value added in offering the product. When experience is far from being

credible since it hasn't had time to develop, we want to provide a resource to know what companies are doing in terms of assumption setting at older ages to help others develop reasonable assumptions for their products.

Certainly one of the bigger venues we have to deliver information to members is at the Life and Annuity Symposium as well as the post-symposium seminar. We have two to three days of sessions and content that are geared to helping the attendees find material, experts and ideas to bring back with them to their workplace and use from that point on. In 2012, the Life and Annuity Symposium will be in Los Angeles and planning is well under way for sessions and the post-symposium seminar, so we encourage members and nonmembers to join us. Some session ideas include results from the research projects above, life and annuity market updates, illustration actuary compliance, underwriting trends, and much more. We also try to have networking sessions to help meet others who may have the same issues and provide a relaxed environment to talk with other product development actuaries. **A**

Donna Megregian, FSA, MAAA, is a consulting actuary with Milliman, Inc., and the 2012 chairperson of the Product Development Section. She can be contacted at Donna.Megregian@Milliman.com.

REINSURANCE SECTION

The Reinsurance Section is in the enviable position of having a diverse range of topics of interest to our varied membership. The Reinsurance Section aims to identify significant trends and events with an overriding objective of enhancing the understanding of reinsurance for all our actuarial and non-actuarial membership. After identifying the issues of interest to the section membership, our research, webcast and continuing education committees go to work to gather and disseminate information.

Risk identification and stratification in underwriting has historically been of keen interest to many professionals, including those employed by life insurers and reinsurers, and it continues to evolve. Current Reinsurance Section research is under way to evaluate the protective value to all cause mortality of a range of laboratory testing medical markers that are not currently widely used in the underwriting process. Research titled "New Medical Markers in Life Insurance Underwriting" will be available on our website. Separate research reports covering high face mortality experience and older age mortality experience will be coming soon as well.

Whether conducting an in-house meeting or negotiating an external reinsurance arrangement, the professionalism with which we conduct our day-to-day activities is critical not just to the actuarial profession, but to other professionals we interact with daily. Realizing that our section members pride themselves in abiding by the SOA Code of Professional Conduct, we supported this with a webcast outlining some of the reinsurance-relevant precepts of that code. We hope you found this refresher of the code of value in your daily work! **A**

Kelly Levy, FSA, FCIA, is vice president, Capital Management, with Great-West Life, and 2012 chairperson of the Reinsurance Section. She can be contacted at Kelly_Levy@canadalife.com.

Out Of The Office

WELCOME TO the magazine's newest addition, "Out of the Office." This is the place where you can display your talents, your community involvement, or extracurricular activities you participate in just for the sheer fun of it. We hope you enjoy reading about the actuaries we feature here. One is a pilot; the other owns a cake business.

ROLLS, LOOPS AND SPINS ... FUN IN THE SKY

RUTH JOHNSON, FSA, never dreamt of flying when she was a little girl. She didn't read books about airplanes or take piloting courses in college. She discovered this passion quite by accident. Her love affair with flying began when she went to an air show.

IT ALL STARTED AT OSHKOSH, BY GOSH!

My husband is an aerospace engineer at Honeywell—he is not a pilot himself—and one year his work took him to the EAA (Experimental Aircraft Association) air show in Oshkosh, Wis. I came along on the trip because it sounded like fun. I wandered through the rows of planes and exhibits. I kept thinking to myself, how do people do this? The following spring my husband forwarded me an email about a plane wash for the Honeywell Flying Club.



Ruth Johnson, FSA

I went on an introductory flight with one of their flight instructors and got hooked. I joined the club and got my private pilot certificate about 10 months later. I now belong to the Flywell Flying Club and fly out of Anoka-Blaine Airport in the Minneapolis area.



IN THE COCKPIT FOR 10 YEARS

I got my private pilot certificate in April of 2001 in a Cessna 172, which is a single-engine land four-seat aircraft that is frequently used for training. I began instrument training shortly after 9/11, because only instrument-rated pilots were allowed

to fly then. I consider my instrument rating to be a tiny, personal strike for freedom on my part.

SEVERAL FOR THE MEMORY BOOK

My husband and I flew to beautiful Sedona, Ariz. in 2005. The airport is on top of a red rock mesa. While we were there, I scratched another itch and booked a flight in one of the Red Rocks Waco biplanes, my only time in an open cockpit aircraft. It was great fun, but I did learn that you need to tie back long hair. I didn't, and it took me hours afterwards to comb out all of the snarls.

In 2002, my daughter was in seventh grade and agreed to fly with me to Niagara Falls. We landed in Buffalo, N.Y. right behind a Boeing airliner—it was my first time mixing it up with the big boys

My daughter and I have also flown over the Rockies to the Los Angeles area. I spent months planning that trip, and purchased a portable oxygen system which I use at altitudes above 12,000 feet. I love seeing our beautiful country from the sky. Circles in the crops in Kansas, the Great Salt Lake, and the Sonoran Desert all look spectacular. We did a fly-by of Mount Rushmore, which doesn't look nearly so big from the air.

IT'S ALL ABOUT THE RATINGS

I got my private certificate after 10 months and at about 110 hours. When I got frustrated at times, I would remind myself that the only natural flier in our household was our pet parakeet. I got my instrument rating about 15 months after 9/11 and my tail

wheel endorsement in a Super Decathlon, where I also did some aerobatic training. I love doing rolls, loops and spins. I also got my sea plane endorsement at Surfside, a local seaplane base in Lino Lakes, Minn. I'd go flying wearing a swimsuit, and do touch-and-goes on the Minnesota lakes. My instructor called them splash-and-goes, and there is nothing better on a hot August day.

THE ACTUARY CONNECTION

There is a lot of planning and risk assessment that goes into flying, which appeals to me. I think that actuaries are especially good at this aspect of flying. Assessing risk is second nature to us, so I am constantly amazed that things that seem obvious to me simply don't occur to other pilots. For example, I was flying on a beautiful winter afternoon and returned to the airport just as some cloudy weather moved into the area. The next pilot in my flying club checked out the plane and went flying after sunset. He came back with a layer of ice on the plane, which is not a safe condition for these small planes. He asked how he could have known that that would happen? I told him that I will never fly in the winter (cold), at night (dark), in instrument (lots of moisture) conditions because a combination of these three means you have a good chance of getting ice on the plane and you won't know it. I had already thought this through, but this was a revelation to him.

OH, WHAT FUN!

Flying is incredibly fun and I have lots of flying stories. I think you'll find this is true of any pilot. I have no special flying abilities. If I can learn to fly, you can too. **A**

Ruth Johnson, FSA, MAAA, is an actuary with ING U.S. Annuity Manufacturing. She can be contacted at ruth.johnson@us.ing.com.

FOR MORE OUT OF THE OFFICE,
TURN TO PAGE PAGE 38



QUITE CAKE-ABLE

When **ASA SHERRY CHAN'S** dream of becoming a pastry chef was pureed by her father, her choice of career naturally molded to become an actuary. Many years and actuarial exams later, Chan still had the burning desire to make cakes. So, she signed up for a baking class and has since become an award-winning cake maker—now she's really on a roll!

THE RAW INGREDIENTS

I've always been left-brained-inclined but have also always yearned to use my right brain. I wanted to follow my father's footsteps and be an executive chef but he assured me that standing on my feet in a hot kitchen for hours on end is not as glamorous as I think. There went my dreams to be a pastry chef in Vienna. Instead I became

an actuary. In 2008, I still had an urge to go to culinary school so I signed up for a baking program. I told a friend about it and she became really excited so she enrolled as well. A year-and-a-half later, we finished with the skills to bake bread, deserts and anything in



Sherry Chan, ASA, (right) and her business partner, Lily Leung



between. I made cakes here and there for friends and family, but then I went all out for a cake competition I entered. I ended up winning first place! I started getting requests for cakes after that so my friend and I brainstormed a name for our bakery, registered as an LLC, got our food license and now I'm a patissier with flair! We begin each order by talking to the client to see what are the cake recipient's favorite hobbies, colors, sports teams, passions, etc., and we take it from there! We've made an Xbox cake, a Rubik's cube cake, many Angry Birds cakes, a Kate Spade purse cake (that I named Cake Spade, see photo above), and many more.

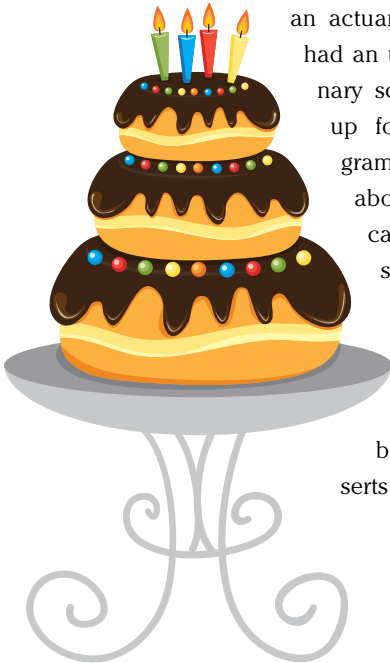
A BAKER'S DOZEN?

Between consulting with the client to understand what kind of cake to create and brainstorming about how to design it, a cake order takes us about two weeks. We try to limit our cake orders to about one every

two weeks given other priorities in our lives such as work, pursuing an Executive MBA and family. We recently had to turn down a Wheel of Fortune cake because we had a baby shower cake due the same week. We were very disappointed to have to do that.

THE APPLE OF HER EYE?

Every cake we make has a story behind it so it's difficult to say there's a favorite. We made a Rubik's cube cake for a bunch of talented kids after they competed in a Math Counts competition. We delivered a cake to a local recipient whose order came in from a client living in Iowa who found us on Facebook. Her dad was obsessed with Angry Birds, so she asked us to make an Angry Birds cake and deliver it to him as a surprise on his birthday. Seeing the surprise on the recipient's face when we present our works of art is by far our favorite part.




THE DEVIL'S FOOD IS IN THE DETAILS

Our most difficult cake to date was a pool table cake we made that was Ohio State-themed because of all the details that went into it. We had to get the proportions right so the pool balls and the legs of the table would be accurate and the servings were right for the amount of guests the client had requested the cake to be for. We built a cake stand from scratch that served as the legs to the pool table. The wood stain we used for this had to match the wood-stained fondant we made for the cake. Further details were in making the Ohio State logo, making sure the colors of the balls matched the numbers, painting the numbers onto the ball, etc. This was for a big Ohio State fan who was an avid pool player and competed in competitions so there was no cutting corners!

A FEW SPILLS

We made a skydiver cake and much of cake decorating is about improvising and being creative with what edible items you can use to replicate what you're trying to model. I had this great idea (so I thought) of using cotton candy as clouds. Our bakery even invested in a cotton candy machine maker. We usually assemble the final pieces right before delivery or on site. We put the cotton candy clouds on the fondant that covered the cake as our final preparation before leaving to deliver the cake. Shortly thereafter I asked my business partner, "Are these clouds shrinking or is it just me?" Sure enough, in about 15 to 20 minutes they thinned out. What we forgot was the chemistry behind the ingredients—since fondant is mainly made out of sugar,

it is highly hygroscopic; meaning it absorbs water (and cotton candy) from its environment. With just minutes left before we had to deliver the cake, I ended up making another batch of cotton candy and putting it in a bag. After we delivered the cake and right before the skydiver, birthday boy showed up, we placed the clouds on—and then told everyone the day starts out cloudy but the skies clear and it becomes a beautiful day as the skydiver embarks on his adventure.

To see Chan's cakes visit: <http://www.facebook.com/?ref=logo#!/pages/Hot-Cakes-Bakery/205251252833478> 

Sherry Chan, ASA, MAAA, is chief actuary for State Teachers Retirement System of Ohio. She can be contacted at chans@strsoh.org.

What do you do when you're **out of the office?**

- **Collect** rare artifacts?
- **Play** an instrument, or
- Win ballroom dancing **competitions?**
- **Create** artwork?

The Actuary has introduced a new column called, "Out of the Office." It is a place where you can showcase your talents, your community involvement, or extracurricular activities you participate in just for the sheer fun of it.

So, what are you waiting for? Send us a short paragraph providing some basic details about your out-of-the-office experiences, along with your contact information, and we'll be in touch. Visit <http://www.soa.org/pub-out-of-office>.



We look forward to hearing from you!

The SOA At Work

SOA MOBILE SHOWCASE

THE USE OF MOBILE TECHNOLOGY at the SOA is growing quickly. Intended to put valuable information at the fingertips of SOA members, mobile technology can be found in almost every department at the SOA.

MEETING APPS

In what may be the most visible use of mobile technology, the SOA meeting apps have won rave reviews. The meeting apps allow mobile device users to download a plethora of information. A small example of some of that information is a map of the meeting venue that shows where each seminar is being held as well as the handouts for most of the seminars.

QR CODES

The QR codes used in this magazine are another example of the SOA enriching the membership experience. By using the QR code reader

app in your mobile device, you can get directly connected to some handy bits of information or websites. For example, if you scan the QR code in the SOA Attestation ad, your mobile device will take you to the attestation website and you can begin the attestation process.

PODCASTS

A series of podcasts on the art of networking was introduced in 2011. The podcasts are approximately 10 minutes in length and cover what networking is, tips for networking, and how to transition to a managerial role. The podcasts can be found on the SOA homepage under the Professional Development tab.

E-LEARNING

The e-learning courses available on the SOA website have been formatted to fit the Apple iPad. Simply log on as you would from your desktop computer, and you can work on any of the courses in the e-learning lineup.

MOBILE ONLINE DIRECTORY

The SOA directory has gone high tech! Through your mobile device, not only can you get the contact information of the person you are looking up, you can call or email the person with the touch of a button, and also get a Mapquest map of the person's address listed in the directory.

The SOA continues to work hard to help make the actuarial profession the best it can be. We hope you take advantage of these new features and make the most of your membership. **A**

— SOA Executive Director Greg Heidrich



THE ACTUARIAL PROFESSION IN THE NEWS

The SOA is focused on raising awareness of actuaries in the media. Recent efforts have been successful. Here are just a few examples:

We're Not Ready: More Bad News About Retirement

SOA retirement-related research is noted by *Daily Finance*. www.dailyfinance.com, click on Search Daily Finance, search term Society of Actuaries, or use the QR code.



Stern Advice: Are You Saving Too Much For Retirement?

Reuters quotes actuary Bonnie-Jeanne MacDonald about retirement replacement rates. www.reuters.com, search term Bonnie-Jeanne MacDonald or use the QR code.



The Agenda With Steve Paikin: Pension Envy

Member Allan Shapira is featured on Canada's *TVO* television. ww3.tv.org, search term Allan Shapira or use the QR code.



Building A Moat

Noel Abkemeier and Anna Rappaport discuss longevity insurance with *Financial Advisor*. www.fa-mag.com, search term Building A Moat or use the QR code.



World Economy Needs China To Slow Growth Gradually


Associated Press references SOA's 2011 Emerging Risks Survey conducted by member Max Rudolph. www.news.yahoo.com, search term China Slow Growth or use the QR code.



Huffington Post's Slam On Annuities Is Uninformed And Way Off Base

Member Steve Vernon discusses the benefits of annuities for a secure retirement. www.cbsnews.com, search term Huffington Post's Slam or use the QR code.



View all of these articles by going to www.soa.org/newsroom and clicking on the Profession In The News link. 

PROFESSIONAL DEVELOPMENT OPPORTUNITIES

REFOCUS CONFERENCE

March 4 – 7
Las Vegas, Nev.

INVESTMENT SYMPOSIUM

March 26 – 27
New York, N.Y.

ENTERPRISE RISK MANAGEMENT SYMPOSIUM

April 18 – 20
Washington, D.C.

THE LIFE INSURANCE CONFERENCE

April 23 – 25
Orlando, Fla.

THE RETIREMENT INDUSTRY CONFERENCE

April 25 – 27
Orlando, Fla.

LIFE & ANNUITY SYMPOSIUM

May 21 – 22
Los Angeles, Calif.

HEALTH MEETING

June 13 – 15
New Orleans, La.

47TH ACTUARIAL RESEARCH CONFERENCE (ARC)

Aug. 1 – 4
Winnipeg, Manitoba

VALUATION ACTUARY SYMPOSIUM

Sept. 10 – 11
Los Angeles, Calif.

CRITICAL ILLNESS INSURANCE FORUM

Sept. 10 – 12
Las Vegas, Nev.

View all Professional Development opportunities by visiting www.soa.org and clicking on Event Calendar.

ATTENTION READERS!

If you have an idea for an article you think should appear in *The Actuary*, or a response to something you have read in these pages, tell us about it by sending an email to theactuary@soa.org.





Recommended Readings

The following is a list of recommended readings from the contributing editors that they feel will pique your interest and help keep you informed.

From Ruth Ann Woodley

“The Eternal Adolescence of Beavis and Butt-Head.” This article mentions that the creator of Beavis and Butt-Head and the movie “Office Space” once considered becoming an actuary! Would the world have been richer or poorer if he had gone that way? For more information, visit <http://nyti.ms/rxejz9> or use the QR code.



“The Quiet Health-Care Revolution,” in *The Atlantic*. It’s nice to finally read a story about the health care system that shows there are ways to make it work better. For more information, visit <http://bit.ly/tvnGdF> or use the QR code.



From Ross Winkelman

The CCIO whitepaper on risk adjustment is timely and important to the actuarial profession (health at least). It’s also an interesting example of the Feds reaching out to the market in general and the profession in particular to solicit input. For more information, visit <http://bit.ly/tRO51F> or use the QR code.



From Corin Chapman

“The 10 College Majors With The Lowest Unemployment Rates,” *The Lookout on Yahoo! News*. Yet another reason to love being an actuary. For more information, visit <http://yhoo.it/uw85HS> or use the QR code.



Attestation is OPEN!

Attestation is now open. You must attest compliance with the SOA CPD Requirement or be considered non-compliant. Three simple steps to attest:



- STEP 1:** Log on to the SOA membership directory and click the SOA CPD Requirements button on the main page.
- STEP 2:** Indicate if you have met the SOA CPD Requirement.
- STEP 3:** Identify which compliance path was used.

That’s it! Attest today at soa.org/attestation.





Where Cutting Edge Theory Meets State of the Art Practice

More than 400 senior executives, directors and risk management experts gathered at the 2011 Enterprise Risk Management Symposium in Chicago to present the latest on ERM thinking and practices. Make sure you don't miss the next opportunity—our 2012 ERM Symposium—to learn from industry leaders about this emerging discipline and expand your ERM skills.

Highlights include:

- Top risk management experts offering their perspectives on key risk issues
- Pre-symposium seminars on ERM topics
- Networking opportunities to renew and expand your list of ERM contacts
- Call for papers program showcasing new research
- Exhibitors demonstrating their ERM services and knowledge

Visit www.ermssymposium.org to learn more about this global conference.



The 10th Annual Premier Global Event on ERM!

2012 ERM Symposium
April 18–20, 2012

Washington Marriott
Wardman Park
Washington, D.C.



Presented by the Casualty Actuarial Society, Canadian Institute of Actuaries, Professional Risk Managers' International Association and Society of Actuaries



Colegio Nacional de Actuarios, A.C.



and with collaboration of the Asociacion Mexicana de Actuarios, Colegio Nacional de Actuarios, and Enterprise Risk Management International Institute.

New Financial Economics E-Courses

Asset Pricing, Financial Mathematics & Corporate Finance

The **Society of Actuaries** has released **three new e-courses** focusing on **financial economics**. These convenient courses give you 24/7 access to professional development. Launched directly to your desktop, you set your own learning schedule.

www.soa.org/ecourses

