SOCIETY OF ACTUARIES

The Actuary

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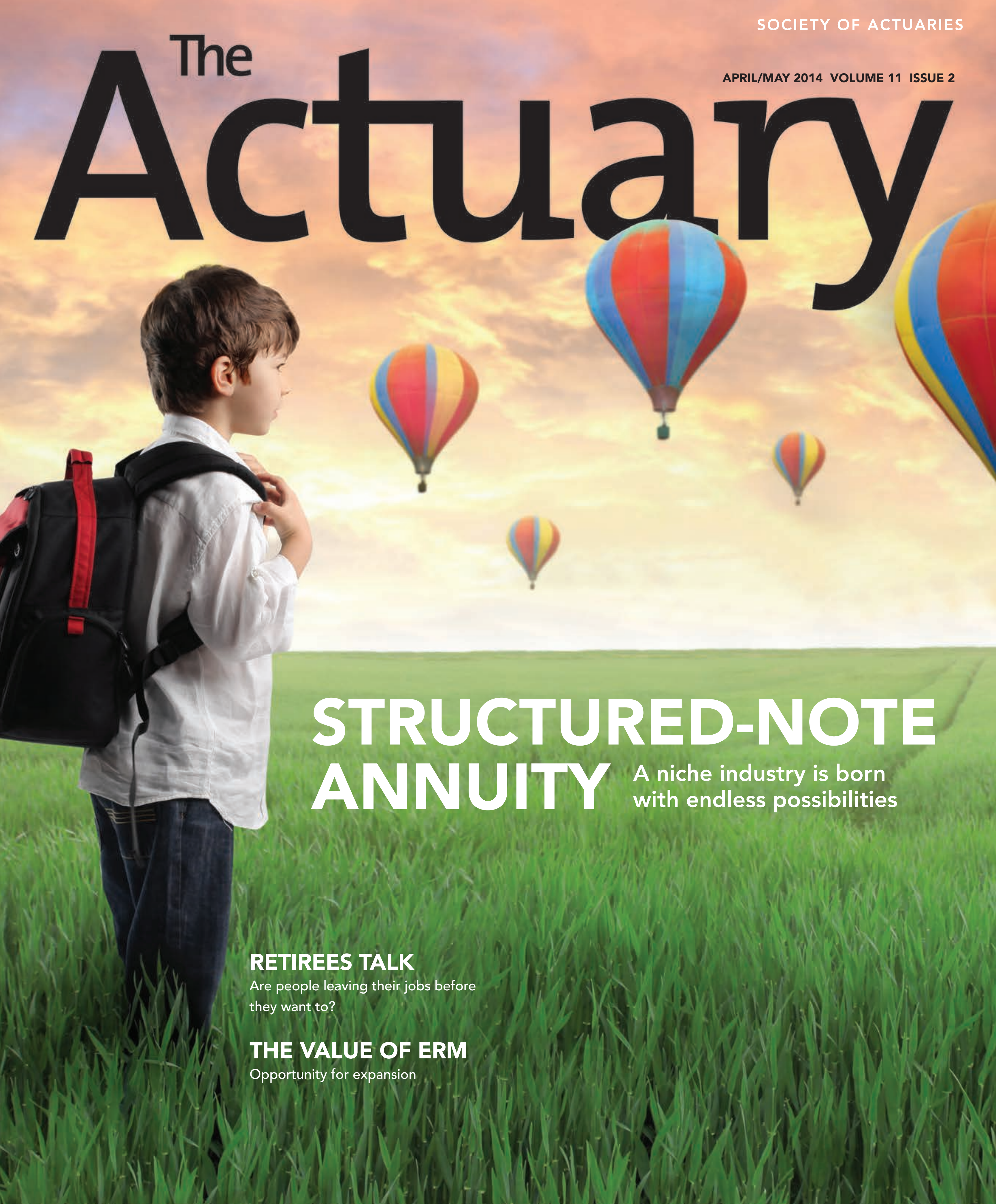

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April/May 14

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The Actuary
SOCIETY OF ACTUARIES

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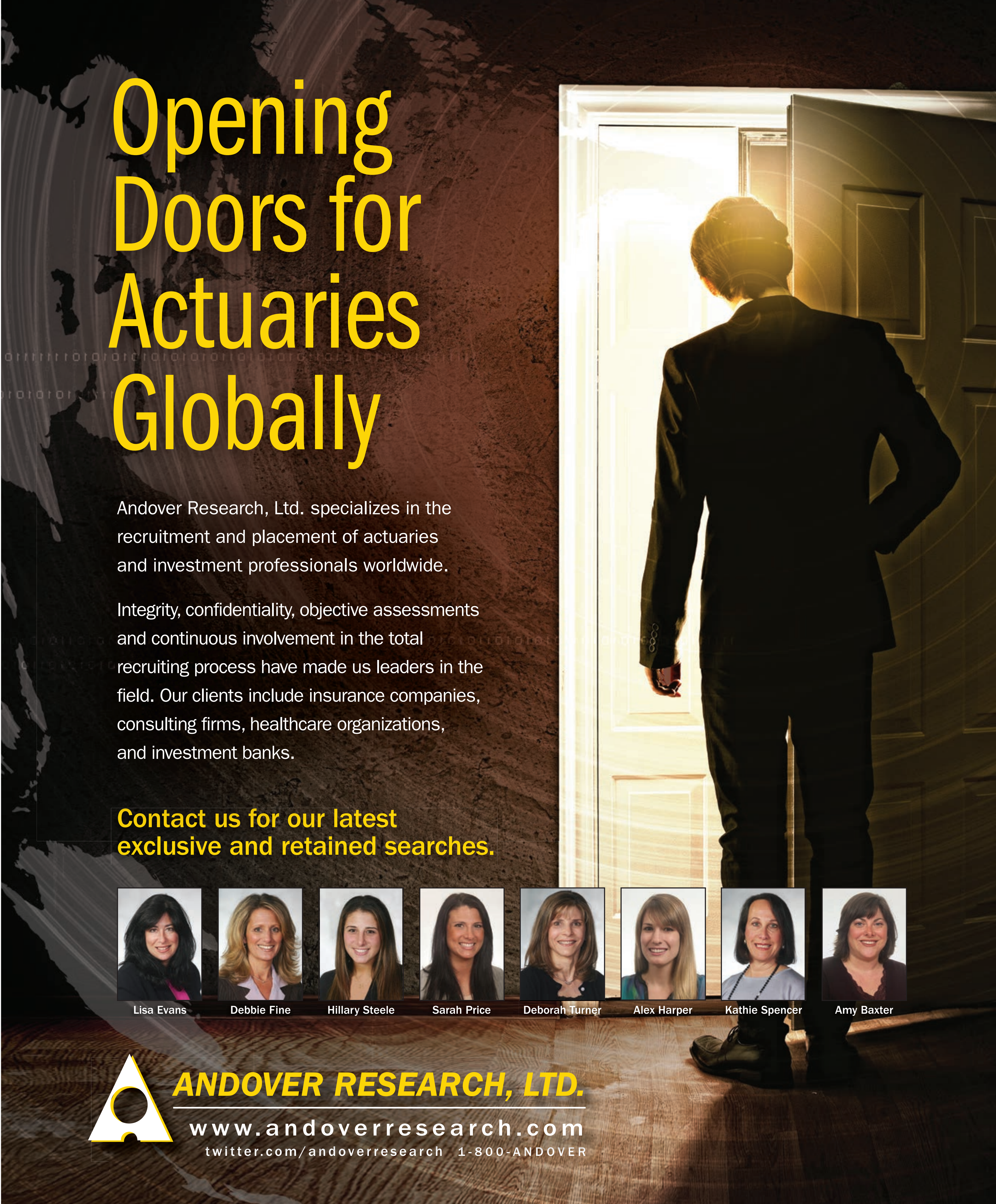
DEPARTMENTS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Editorial

RISK MANAGEMENT AND THE POWER OF SIMPLICITY

BY KURT WROBEL

ACTUARIAL SCIENCE, like many other professions, has changed substantially with the introduction of sophisticated computer programs and greater access to more detailed data. This increased capability has contributed to the development of more sophisticated models that hold out the promise for more accurate models. In addition to increased accuracy, this computing power has the capability to increase efficiency by eliminating "manual" inputs and other processes that require human engagement. These advances have led senior managers to put more and more trust in the models and their predictive power.

The problem with this narrative—and the focus of this article—is the very real risk management costs associated with the increased complexity, efficiency and overconfidence in the predictive power of models. Although I still strongly believe in these tools, I also believe the effectiveness of these tools should be considered in relation to the costs of using them—particularly in light of new legislation that has made the underlying assumptions and historical data much less accurate in predicting the future. In addressing this question, I will discuss the costs of using more complex models and the blind spots that develop when managers put too much importance on models. I will conclude by offering approaches that offer simple solutions to accomplishing our chief task of managing risk in a complex environment.

> The problem with this narrative—and the focus of this article—is the very real risk management costs associated with the increased complexity, efficiency and overconfidence in the predictive power of models.

THE DIDEROT EFFECT AND THE BUILDING OF MORE COMPLEX MODELS

In the 18th century, French philosopher Denis Diderot wrote "Regrets on Parting with My Old Dressing Gown." In the essay, Diderot discussed how he had to constantly upgrade his furniture and decor to match his new dressing gown. At the end of his essay, Diderot complained that his entire life and financial position had been made worse and more complicated because he had to match his surroundings with his dressing gown. The term the "Diderot effect" was coined to describe the dynamic of upgrading your material positions to match a single purchase.

The effect can be seen in the development of actuarial models. As one adjustment prompts another similarly elaborate adjustment, a model can quickly become complicated and substantially more difficult to follow and review. Considering the variability of the underlying assumptions that drive the model, the model could be far too complicated for the required task when a minor change in an assumption could produce a dramatically different result.

The chief problem is that this complexity is not considered in light of the enormous costs associated with the increased probability of error and the difficulty in creating an intuitive connection between an input and a result. Although one could argue the theoretical soundness of the model, the potential for a large systematic error that is not discovered increases greatly and is often not considered in the development of the model.

THE DRIVE FOR EFFICIENCY

With insurance organizations driving for increased efficiency, it is only natural that similar efficiency questions would be asked of actuarial and underwriting organizations. In general, the goal is to decrease manual work and replace repetitive human interaction with a model that can be easily automated. The classic example would be a comparison between an Excel-based rating model that allows the review of specific formulas and a "black box" model that eliminates human input and does not allow that same degree of review.

Although it is difficult to argue with the premise, this desire for increased efficiency often does not consider the systematic errors that can occur when a more manual approach is used. Instead of allowing the inherent checking or review that occurs in a manual process, a single error can be magnified and propagated through an entire block of business. Similar to the development of more complex models, this additional cost is often not considered.

OVERRELIANCE ON MODELS

People love the allure of models that promise to predict the future. By avoiding the inherent uncertainty and anxiety created by unknown future results, these models offer the promise of a more secure future. This narrative has been bolstered by books *Competing on Analytics* by Thomas Davenport and Jeanne Harris is one) that romanticize people using sophisticated data systems to improve business decisions and better predict outcomes.

The problem is that this simple narrative often leads to overconfidence when managers put too much trust in these models—particularly when attempting to predict a complex system. Although several case studies could be used, the experiences with the hedge fund Long Term Capital Management and the inappropriate use of the Value at Risk metric during the 2008 financial crisis offer overwhelming examples of the hubris of putting too much confidence in financial models. Instead of soberly taking a holistic approach toward the accuracy of the financial models, the managers in these cases used the models as justification to unknowingly take more risk.

SOME SIMPLE APPROACHES

In many cases, the advances discussed here can be well worth the additional costs and should be used, but the added risks associated with complex models need to be considered. From a risk management perspective, these costs can contribute significantly to systematic error that may not be easily mitigated through an intuitive knowledge of the model. In addition, these complex models often lead to a false sense of security among senior managers.

Before developing more complex models, I would suggest considering some simple rules to determine whether the additional complexity can be justified from a risk management perspective.

- If the underlying assumptions have the potential for substantial variability, the added benefit of complexity is much less than a more mature system where the assumptions are more stable. In short, if a single assumption change can have a dramatic impact on the result of a model, create a simpler model and focus your discussion on the key assumption.

Kurt Wrobel

- Even if complex models are used, a simpler model can still be used as an additional check to the overall reasonableness and accuracy of the model.

- We also need to consider decisions in light of the long-term viability of organizations that provide financial protection to people in the most vulnerable time of their lives. Unlike market researchers who analyze data to help to improve a company's website sales, we need to consider not just the short-term probability of an event using sophisticated data analysis. We also need to consider the long-term financial health of the entire system.

Most importantly, I think that we need to exercise wisdom. While this may include the use of complex models, in some cases, this may also include using qualitative judgment and consideration of other factors that could impact a business. As actuaries, we should be offering something well beyond a technical opinion; we should be providing a holistic opinion that ensures the long-term viability of our own organization as well as the broader insurance system. ◼

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Guest Editorial

LESSONS LEARNED BY A LIFE ACTUARY WHO WANDERED AWAY AND CAME BACK AGAIN

BY CHRISTINE HOFBECK

LIKE MANY OF US, when I declared my mathematics major in college, everyone assumed I was going to become a math teacher. After all, what else do you do with a math major? But I wanted to become an actuary, and again, like many, my decision of life versus property and casualty (P&C) insurance was based on one very important factor: which company gave me the highest offer. So having graduated from my university, I was off to begin my career as a life actuary in benefits consulting.

For over a decade, I happily drowned myself in exams, the Employee Retirement Income Security Act (ERISA), mergers and acquisitions, cash balance and traditional pension plans, nondiscrimination testing, union negotiations and government forms. Life was good for a math geek like me. But after the unexpected sale of the partnership to a then Big 6 consulting firm, followed by a rapid merger, reorganization, resale and reorganization, many of my colleagues and I decided to walk away from the chaos and uncertainty. After all, our "family" had been broken, so it was time to find something new.

My "something new" came six years later. I had taken a break to thoroughly enjoy my three small children, but once they were all in school, I was ready to jump back in the saddle, which to me simply meant anything with numbers, equations, probabilities and data-driven decisions. I wanted to expand and deepen my knowledge and capabilities, and believed that my actuarial designations gave me the opportunity to do just that. In fact, they did. I landed a vice president role within a global P&C company, charged with building a comprehensive analytics team from the ground up. The goals were to develop internal predictive modeling capabilities, optimize reporting and data warehousing, and bring innovative analytical strategies to decision-making such as pricing, risk selection and target marketing. I found this role both challenging and exciting. I hired a diverse team of actuaries, statisticians and programmers. We thrived and learned from each other.

After a few years, I was ready to bring this knowledge back home to the life insurance space. So I reinvented myself yet again. I resigned from my position to launch an independent consulting business dedicated to the advancement of analytic capabilities, techniques and methodologies throughout the life and health spaces and, yes, P&C and marketing applications as well.

I have learned some valuable lessons during my career as an employee benefits (mostly retirement) consultant, turned P&C predictive modeling, reporting and data warehousing lead, turned analytic strategist and independent consultant.

The SOA is a tremendous source of support—use it. It had been nine years since I had attended an SOA event, yet when I flew to San Diego for the annual meeting in October 2013—not knowing a single other person in attendance—I felt immediately welcomed and included. In his address to the attendees, SOA President Mark Freedman said it best: "When you walk into an event like this, you're surrounded by people you know who have a unique and common experience. You have an instant connection just by being an SOA member." Isn't that the truth. Not only did my SOA credentials support me during my P&C adventure, but the SOA members made it an easy transition back.

When performing a job search, don't simply rely on the keyword "actuary." We actuaries are highly skilled and trained, and often can outperform statisticians and other data gurus simply because we know how to make strategic, practical decisions from the data we are manipulating (and effectively communicate the results). Your next great position could come from the keyword "analytics" or "strategy" or "optimization." Think of all the amazing skills you have been honing, and how relevant these may be to other industries and areas. "New opportunities" is currently one of the top three priorities of the SOA. We can all expand the breadth and depth of the actuarial profession and our own career by seizing exciting, new and, perhaps, nontraditional roles. Keep your finger on the pulse of rapidly expanding industries, top-level positions and salary trends. Just because the keyword "actuary" doesn't appear in the position description doesn't mean you aren't the best candidate to fill the role.

Embrace the continuing education (CE) requirement. Sixty units of continuing professional development (CPD) over a two-year period may seem overwhelming. But perhaps this shouldn't be viewed as simply another requirement to plod through. Instead, consider the obligation as 60 hours of career building. Learn a new concept while networking with actuaries you have just met. Volunteer for the SOA or your local actuarial organization by presenting new ideas or research, developing syllabi or grading exams, or designing CPD sessions (and earn an additional line on your resume and LinkedIn profile for your volunteer efforts!). Welcome the CE requirement as an opportunity to talk and learn with actuaries from a different company, industry, background, country or culture. Share your insights with less-experienced actuaries who may be looking to you for career-building advice.


Christine Hofbeck

The CE requirement was the motivation I needed to attend the SOA annual meeting. What I got back in return was far more than 17 CPD credits. I made relationships that will allow me to expand my business, knowledge, networking base and volunteer efforts. And I gained the confidence that, as actuaries, we really can do amazing things.

I'm not sure where the next 20 years of actuarial and analytics work will take me—life, health, P&C, marketing, all or maybe even none of the above. What I do know is that I have a strong network of support and a profession that is highly respected, which frankly can take me wherever I want to go. A

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Letter From The President

THE SOA AND GENERAL INSURANCE

BY MARK J. FREEDMAN

IN MARCH 2012, the Society of Actuaries' (SOA's) Board of Directors decided to develop a General Insurance/Property & Casualty specialty track. The SOA has achieved great strides since then in developing this track. In this letter, I will explore why this decision was important for both the SOA and the profession, where we are in the process, and what is still left on the horizon for us to complete.

THE DECISION'S IMPORTANCE

I was fortunate enough to chair the SOA's Strategic Planning Task Force that developed our current strategic plan in 2012. In developing the strategic plan, we recognized that SOA credentials are among the most valuable, if not the most valuable, professional and economic assets our members hold. As a result, the plan's primary focus is to enhance the value of the SOA's credentials while serving our many stakeholders. The SOA's General Insurance track will not only enhance our current and future members' credentials, but it will also strengthen and broaden our profession.

A hallmark of the SOA is its education system and its commitment to providing our students with the strongest educational foundation possible. The SOA provides educational opportunities of uncommon depth and breadth through its specialty track offerings. The specialty track approach recognizes the need for students to obtain in-depth education in an area of focus, while providing access to the wide range of disciplines that actuaries may encounter in practice. When I was studying for exams, the SOA only offered an Individual Life Insurance track and a Group track, where the Group track included pensions. Over the years, the profession expanded and the specialty tracks grew to accommodate the widening range of expertise. Until last year, our five specialty tracks covered the central topics of the actuarial profession, but with one glaring omission: They did not cover property/casualty—or general—insurance. By adding a General Insurance track, we have filled that hole and now offer our students access to an educational foundation covering all of the key current areas of actuarial practice.

Why is it important to provide a full range of specialty track offerings? Perhaps the primary reason is that it allows students the choice they deserve as they consider the focus of their actuarial careers.

Why is it important to provide a full range of specialty track offerings? Perhaps the primary reason is that it allows students the choice they deserve as they consider the focus of their actuarial careers. Previously, students were forced to commit to a career in property/casualty insurance at an earlier stage, or risk some time studying examination material that would not transfer between actuarial bodies. Now, students can delay their decision until they start taking fellowship exams, and have some experience on which to make an informed decision on their area of focus. The General Insurance track also affords students (and future members) flexibility to change their area of practice without having to obtain a second credential.

This flexibility is beneficial beyond the educational opportunities it provides to new students. It also benefits seasoned practitioners by enhancing the integration of research and practice development between general insurance and the other specialty tracks. Topics ranging from risk management to financial reporting to pension funding have all benefited from cross-disciplinary research that is fostered by the coexistence of diverse practice areas under the SOA umbrella. General insurance research has lagged in its ability to tap into these related disciplines to expand its actuarial reach, or to bring its innovations to these other disciplines. Addition of a General Insurance track will enable more cross-disciplinary activity and opportunity. This will be especially valuable to actuaries in multi-line insurers and therefore to the profession in general.

In many parts of the world where the SOA is already strong, distinctions between practice areas are not as sharp as in the United States and Canada. This is particularly true in the developing economies of Asia and South America where, as the middle class grows, general insurance is often one of the most rapidly growing actuarial specialty areas. We want our students and all members of our profession to be able to participate in these opportunities, wherever they live and work. The SOA is not alone in covering all practice areas in its education system. Almost every other actuarial organization, other than those based in the United States, has gone down this route.

PROCESS PROGRESS

SOA Staff Fellow Stuart Klugman's article in the February/March 2014 issue of *The Actuary*—"On Track with General Insurance"—discusses the details of where we are in the process. Here are the highlights.

Our Model

The SOA has been very successful in developing high quality specialty tracks. In fact, the *Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States* recognize that an actuary completing any fellowship specialty track offered by the SOA, including a new track such as general insurance, will have automatically satisfied the basic education requirement for issuing many statements of actuarial opinion in the area of practice covered by that specialty track.[1]

Textbooks and Exams

- We published our first text for the exam on general insurance reserving and ratemaking. Written by Jacqueline Friedland, *Fundamentals of General Insurance Actuarial Analysis* is the most up-to-date text of its kind in the world today. We have made the text available to general insurance actuaries globally for their use and as a critical addition to their professional libraries.

- We constructed an Introduction to General Insurance exam, based on Chartered Property Casualty Underwriter (CPCU) reading materials from The Institutes, the leading general educational institution for the U.S. property/casualty insurance industry.

Mark J. Freedman

- We developed a new textbook titled *General Insurance Financial Reporting Topics*. It contains study material for the Financial and Regulatory Environment exam and, again, provides general insurance actuaries globally with an important new addition to their professional libraries.

- We developed and released a new Applications of Statistical Techniques module that provides hands-on training for students applying modern statistical techniques to solve actuarial problems.

- We are now spreading general insurance concepts throughout the SOA's education curriculum. In 2012, the new ERM exam included a general insurance extension. To complement the track, we added general insurance material in the Fundamentals of Actuarial Practice course and added sections to the Financial Economics module (with an emphasis on asset-liability management).

We expect to see the track grow slowly, but steadily, during introduction and as students and employers become more familiar with it. Over time, we would expect our proportion of general insurance candidates to be comparable to what other actuarial societies around the world experience. At this early stage, we are seeing our first students coming from a variety of countries (including the United States) and from traditional employers of general insurance actuaries, and we are delighted to see them moving into our new track.

IN THE WORKS

Recognition by Regulatory and Qualification Bodies

Critical to the success of each of the SOA's specialty tracks is the recognition of quality by our many stakeholders, including candidates, members, employers and regulators.

Many states and the National Association of Insurance Commissioners (NAIC) already recognize Casualty Actuarial Society (CAS) credentials as an indicator of an actuary's qualification to sign property/casualty statements of actuarial opinion. Consequently, we have asked the NAIC to review our new specialty track and to determine if it will recognize fellows completing the track on the same footing as actuaries on the CAS pathway. We believe we can demonstrate to the NAIC that our new track meets or exceeds the educational standards of those they have already recognized. The NAIC has charged its Casualty Actuarial and Statistical Task Force (CASTF) to review our track and make a recommendation on it by mid-year 2015.

We think this is important for at least two reasons. First, while the introduction of our General Insurance track is certainly focused on our international strategy, regulators in other parts of the world will look to the NAIC and its acceptance of our track as a demonstration of the track's quality. Second, many international students studying in the United States (and taking our exams) do not yet know where they want to practice. If they end up practicing in the United States, they will need the flexibility of such regulatory recognition here.

In addition, we are in the midst of discussions with the Canadian Institute of Actuaries to determine if it will accept our track as a basis for becoming an FCIA in in the property/casualty practice field. We are also talking to other regulatory bodies outside of North America as well.

At this early stage in the process, we are beginning to introduce opportunities in general insurance, though this will take some time to implement and develop.

Continuing Professional Development

Continuing professional development is high on our list of priorities. At this early stage in the process, we are beginning to introduce opportunities in general insurance, though this will take some time to implement and develop.

Research

Research is always a significant aspect of any endeavor we pursue. As with all practice areas, we need to ultimately develop research capabilities and to integrate research opportunities with other practice tracks. This is critical, since research is also a cornerstone of the SOA's mission. We are beginning to explore how we can make a contribution in this area and will be looking for opportunities to work with researchers and other actuarial societies in this arena.

As always, if you have questions, please feel free to contact me at *mfreedman@soa.org* with any questions you may have on our General Insurance track or other SOA matters.

I'll sign off by borrowing the closing from Stuart's article referred to earlier in this letter. "Great things have been done and we expect that very soon the SOA's involvement in general insurance will be business as usual." A

Mark J. Freedman, FSA, MAAA, is president of the Society of Actuaries. He can be reached at *mfreedman@soa.org*.

END NOTES

[1] There are, of course, experience and continuing education requirements that must also be satisfied when issuing such statements, and there are additional Specific Qualification Standards that apply when actuaries issue certain statements of actuarial opinion for annual statements prescribed by state law.


analyst
specialist
manager
consultant
director
strategist
leader
executive

Retire … Or Not?

RETIREMENT: Most people expect to start this phase at 65. A recent SOA focus group study finds that many resource-constrained workers are leaving their jobs before they want to.

By Anna M. Rappaport

RETIREES TALK

Candid Conversations About Retirement

Within the last 150 years, U.S. senior citizens have gone from working until they no longer could to being pushed into retirement. The Social Security Act of 1935 was put in place to give aid to those 65 and older. Companies started pension programs as another incentive. By the 1960s, workers wanted and expected to retire and enter their golden years—trips to Florida, extra time with the grandkids and finally reading *Moby Dick*. They expected to start this new phase of their lives at 65. A recent Society of Actuaries' (SOA) focus group finds that many resource-constrained workers are leaving their jobs before they want to.

The SOA's Committee on Post-Retirement Needs and Risks conducted a series of focus groups to learn more about the decisions made by people who have retired voluntarily in the last few years.

The researcher leading the focus groups, Mathew Greenwald, who has been involved in the retirement and financial services fields since the 1970s, believes that while many retirement issues do not seem to change much, two findings provided fresh insight into the retirement process.

- Many voluntary retirement decisions were the result of a "push," rather than truly voluntary.
- There were significant differences in experiences and perceptions by gender.

The focus group findings are consistent with observations from the SOA's post-retirement risk surveys. Future retirees expect to work to much older ages than have previous retirees. The 2013 Risks and Process of Retirement Survey found that the median actual retirement age of the retirees in the study was 58, while the median expected retirement age among those nearing retirement was 65. These studies also indicate that a much greater percentage of pre-retirees expect to work in retirement than the percentage of retirees who actually work in retirement. There are other areas with differences between pre-retiree expectations and actual retiree experiences.

This study was designed to explore how individuals make retirement decisions to gain a better understanding of what steps were completed, how finances and other factors were considered, and how successful they have been in their retirement years. Eight focus groups of financially resource-constrained retirees who had retired voluntarily were interviewed. Groups were separated by asset level ($50,000–$150,000 and $200,000–$400,000), sex and geographical locations.

The women had different motivations for retirement and seemed to have less optimistic perceptions about how well off they were in retirement.

HOW ARE WORKERS DECIDING TO RETIRE?

While the focus group participants said they had retired voluntarily, most had been nudged into retirement by the work becoming too difficult, the workplace becoming less pleasant, health challenges, or the need to provide caregiving. Few retired to meet their dreams, pursue a hobby or start a business, but most of them enjoyed retirement activities such as travel. They described workplace difficulties such as physically difficult jobs, messages from their employer they perceived as "encouraging" them to retire and challenges in working with younger supervisors. For example, they retired:

- "When the company reorganized and showed that they weren't interested in people my age and opportunities came and went. Opportunities came to younger people and to me it was a sign that you'd better start thinking about it." —Female, Chicago
- "But the last four years, I used to run big presses, and it was getting too much for my knees physically. If you have an office job, you can probably work until you're 70–75. But you can't do manual work like that." —Male, Phoenix

Typically, entry into retirement is assumed to consist of a clear distinction between a voluntary decision and an involuntary determination. The stories in these focus groups indicate that much so-called voluntary retirement is actually the result of a push, and that the distinction between voluntary and involuntary retirement is not necessarily clear-cut for middle-income retirees. This study focused on middle-income retirees who are

Committee Work

THE SOCIETY OF ACTUARIES' COMMITTEE on Post-Retirement Needs and Risks has been working to improve the management of the post-retirement period for about 15 years. As part of that work, the committee has studied how middle-income Americans (generally those with less than $500,000 of net worth) make decisions about retirement and how they deal with key financial risks after retirement. The SOA uses these results to improve retirement security and the systems that support it. Results of research are communicated to the public, actuaries and others to help individuals achieve a higher level of financial security.

Give It Some Thought

WHAT DO YOU THINK ABOUT THE DIFFERENCES BY GENDER? Share your thoughts on the SOA Pension Section LinkedIn site at ***http://www.linkedin.com/groups?mostPopular=&gid=3320437.***

financially resource constrained. Results may or may not be different for retirees with higher income and asset levels. This lack of a clear distinction between voluntary and involuntary retirement is a new finding, and one that should be of interest to human resource professionals.

WHAT ARE THE DIFFERENCES BETWEEN GENDERS?

The focus groups were conducted with separate groups of men and women who met the specified asset levels and retirement timing conditions. Actuaries and other retirement experts have long known about longevity, earnings and family status differences, and their impact on retirement. While the impact of differing roles in the family is known, the focus groups offered new insights. The women had different motivations for retirement and seemed to have less optimistic perceptions about how well off they were in retirement. Three actuaries who observed the focus group provided some comments.

- "Observing the two Chicago focus groups, I immediately noticed a change in tone and demeanor of the groups. The atmosphere in the men's focus group was fairly easygoing, while the discussion became much more serious in the women's group. The difference was striking." —Steve Siegel, ASA, MAAA, research actuary at the SOA

- "I noticed the women were more involved in caregiving roles. Some had left their jobs for caregiving and others had taken on various caregiving roles since retiring. Of more concern, the women were using their financial resources to help in the caregiving duties. One woman recognized she did not have the resources to continue and expressed some regret for her past decisions.

- "Contrasted to the women, few men left their jobs for caregiving duties. In general, they did not express concerns and did not expect to take on caregiving roles. A few men had significant caregiving roles for their wives who had a debilitating disease." —Carol Bogosian, ASA, Project Oversight Group co-chair, Committee on Post-Retirement Needs and Risks member

- "Most of the men in the Baltimore group said they did not think much at all about life expectancy since there wasn't any use in trying to predict it. About half the women said they had thought about it and those that hadn't felt like they should.

  "Also, some of the men had trouble keeping busy and filling their days but that didn't come across from the women." —Cindy Levering, ASA, MAAA, EA, Project Oversight Group co-chair, Committee on Post-Retirement Needs and Risks member

The researchers noted the differences by gender were more striking than those that surfaced in several prior survey studies. The report discussing the findings includes extensive quotes from many of the participants and nicely captures the provocative exchanges that ensued.

The report, "The Decision to Retire and Post-Retirement Financial Strategies," is available on the SOA's website at ***SOA.org/The-Decision-to-Retire/.*** The study was motivated by a desire to gain understanding of how people make decisions about when to retire and about managing financial risks in retirement. The study was also designed

Additional Resources

THE SOCIETY OF ACTUARIES' "MANAGING RETIREMENT DECISIONS" SERIES provides 11 decision briefs designed to help individuals and advisers think through the range of issues to be considered when making retirement decisions. The briefs offer information about options, pros and cons, and help the users identify issues they might not think about. They can be particularly valuable since there are so many different complex and interwoven issues to be considered. They can be found on the SOA website at ***http://www.soa.org/managing-retirement/.***

Find the full report, "The Decision to Retire and Post-Retirement Financial Strategies: A Report on Eight Focus Groups" at ***http://www.soa.org/Research/Research-Projects/Pension/The-Decision-to-Retire.aspx.***

to help understand the rationale and process used in decision-making. Clearly, this is an important topic for future retirees because whether they have sufficient assets and income for retirement is very dependent on how much they have saved, when they decide to retire, and how they expect to live during retirement. In addition, while certain financial shocks, such as health care expense or loss of income or assets, may be encountered in retirement, just as they were during a person's working lifetime, the individual's ability to respond to them may be less. There are also many nonfinancial decisions involved in the process.

IS RETIRING DIFFERENTLY A GOOD IDEA?

Work is increasingly being accepted as a part of retirement. Working in retirement can include working for the same employer or a different one. Whether phased retirement is offered as a formal program or an informal arrangement, it may include any or all of the following:

- Ability for employees to work on a reduced or modified basis as they approach retirement
- Re-employment of retirees
- Ability for employees to collect some portion of pension benefits while being paid for continued work.

Some of the advantages of offering phased retirement options for employers include:

- Keeping valued and hard-to-replace talent. Former employees do not need training and are ideal to help with mentoring and training.
- Providing a pool of individuals available to help with special needs or projects and increased workloads. Examples of such needs include substitute teachers, extra help at holidays or after major storms (including people such as utility workers and claim specialists), and people to fill in during periods of absence.
- Enhancing the reputation of the company in the community.

There is opportunity for actuaries to assist employers who wish to develop these programs. There are a number of related pay and benefit issues to be considered.

WHO CAN USE THIS RESEARCH AND WHAT CAN THEY LEARN?

Several groups can apply the findings of this research in different ways.

- Employers need to deal with the aging workforce and expected retirements, and integrate their retirement programs with their workforce management initiatives. The focus groups demonstrate there are many

WHAT IS THE VALUE OF RETIRING LATER?

Another new SOA study, "Improving Retirement Outcomes: Timing, Phasing and Benefit Claiming Choices" by Vickie Batjelsmit, Anna Rappaport and LeAndra Foster, reviews how and when Americans retire, including trends in labor market participation and phased retirement. A few highlights of the background research reported in the study include:

- Individuals do not fully understand the value of retiring later, or the factors that contribute to increased security.
- Although retirement ages steadily declined over several decades, there have been modest increases since 1990, particularly for women.
- The aging of the population and delayed retirement trends are expected to lead to an increasing number of people older than 55 in the labor force.
- Phased retirement is an idea of major interest to the public, but it has not been widely integrated in employment arrangements. The majority of implementations to date involve informal phased retirement or rehiring of retirees.
- Many employees phase by retiring from their primary employer and obtaining alternative part-time employment with a new employer.

The authors use a simulation model to investigate the impact of various retirement timing and benefit claiming scenarios on retirement outcomes for typical U.S. married-couple households. Major findings of this research include:

- The typical household has insufficient wealth to maintain its standard of living in retirement if the couple retires and claims Social Security at age 62.
- There are huge differences between the wealth needed to have a 50 percent vs. a 90 percent chance of having adequate resources to not run out of money. This occurs because financial and life shocks, such as unusual longevity or the need for extended long-term care (LTC), are shown to be extremely important factors in the success or failure of a retirement plan.
- While delayed retirement and delayed Social Security claiming reduce the risk of retirement wealth shortfall, households are still exposed to substantial risk from health, LTC and investments.
- While phased retirement strategies reduce the risk of retirement shortfall, the wealth needed at retirement may still exceed the amount accumulated by typical retirees.
- Expense reduction in retirement, combined with delayed retirement and increased saving, will improve the chances that retirement wealth lasts a lifetime but does not mitigate the impact of shock risks such as LTC.
- Although a defined-benefit plan will help retirees meet regular cash flow needs, it will not insulate them from shortfalls driven by investment, health and LTC risks. The choice of a survivor annuity option has minimal impact other than providing income to a surviving spouse.

An important difference between this SOA study and most other retirement forecast models is that it incorporates a wider variety of post-retirement risks. The Employee Benefit Research Institute also has a model that includes a range of risks, but its model is more focused on policy analysis.

The study report provides a full description of the methodology, assumptions and results and includes a number of tips on practical issues. It can be found at ***SOA.org/2013-improving-retirement/.***

issues in the workplace that create opportunities for improvement. Phased retirement is an area for expansion of employer initiatives and will be good for many individuals and for businesses. The "Improving Retirement Outcomes: Timing, Phasing and Benefit Claiming Choices" (see page 19) research includes many examples of phased retirement as well as the analysis of its value.

- Individuals planning for their own retirement can get an idea of what their needs might be and which strategies may work best for them. This research demonstrates the need for people to take steps to prepare themselves for longer work.

- Public policymakers can gain insights into how government efforts can support and encourage better programs for working longer, financial education, phased retirement and more thoughtful Social Security claiming. Public policy today includes some barriers to phased retirement and other programs to support employees working differently. The 2008 Employee Retirement Income Security Act (ERISA) Advisory Council "Report on Phased Retirement" offers insight into some of the legal issues.

- Financial advisers can help their clients plan for retirement, including planning and preparing for working longer, saving more, claiming benefits and evaluating different retirement ages.

- Financial service companies providing products and services to support retirement can better develop products to support individuals and financial advisers.

- Consulting actuaries can advise their employer clients to focus on maximizing the utilization and effectiveness of their retirement programs through not only plan design but also targeted communication and workforce planning. With financial service company clients, products and services will be most important.

As more baby boomers reach traditional retirement ages, the integration of work and retirement will continue to grow in importance as many find themselves without sufficient resources to enjoy their desired standard of living.

CONCLUSION: IT'S JUST THE BEGINNING

As more baby boomers reach traditional retirement ages, the integration of work and retirement will continue to grow in importance as many find themselves without sufficient resources to enjoy their desired standard of living. The work of the Society of Actuaries' Committee on Post-Retirement Needs and Risks, as well as other studies, offer important insights for professionals thinking about these issues and focusing on innovation and making systems work better. Areas that badly need attention include improving retirement savings, better risk management after retirement, helping people prepare themselves for later work, improving work options for older workers and encouraging organizations to become more age-friendly. A

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Author's Note: This article draws, in part, from related research studies and the report, "The Decision to Retire and Post-Retirement Financial Strategies: A Report on Eight Focus Groups." Blog posts on this topic have been previously published as well.

About Mathew Greenwald

Mathew Greenwald, Ph.D., is the president of Mathew Greenwald & Associates, a market research firm founded in 1985 that specializes in retirement and financial services issues. Prior to founding Greenwald & Associates, Greenwald spent 12 years at the American Council of Life Insurers. From 1977 to 1985, he was ACLI's director of social research. More information can be found at *http://www.greenwaldresearch.com/.*

STRUCTURED-NOTE ANNUITY: A NICHE INDUSTRY

Born with Endless Possibilities

By Joe Halpern and Greg Henke

Challenges in the variable-annuity market have sown the seeds for the next phase of growth within the annuity industry: risk-focused innovation.

Challenges in the variable-annuity market following the financial crisis of 2008 and the current government-fed financial environment of low rates and volatility have sown the seeds for the next phase of growth within the annuity industry: risk-focused innovation. Products that can gain the attention of the consumer while protecting the balance sheet of the insurance company are key. Early success with structured-note annuities by AXA Equitable Financial Services LLC, along with compelling product characteristics, such as the transfer of a level of risk to the consumer and reduced basis risk resulting in more effective hedging, have caused the industry to take notice.

From an offering context, structured-note annuities (SNAs) sit nicely between fixed-index annuities (FIA) and fund-based variable annuities (VA). Structured notes are similar in design to fixed-index products, which have a more defined outcome as compared to a fund and therefore minimal basis risk, but have much more flexibility to customize return profiles including the ability to pass on downside risk to the consumer. While manufacturers and regulators may debate whether SNAs should be designed as securities or insurance products, it is clear the securities route will allow for more creativity in creating diverse payout profiles to meet clients' needs. These characteristics suggest that SNAs should benefit from the same factors contributing to the popularity and growth of both FIAs and structured notes, and possibly do even better due to other characteristics discussed later.

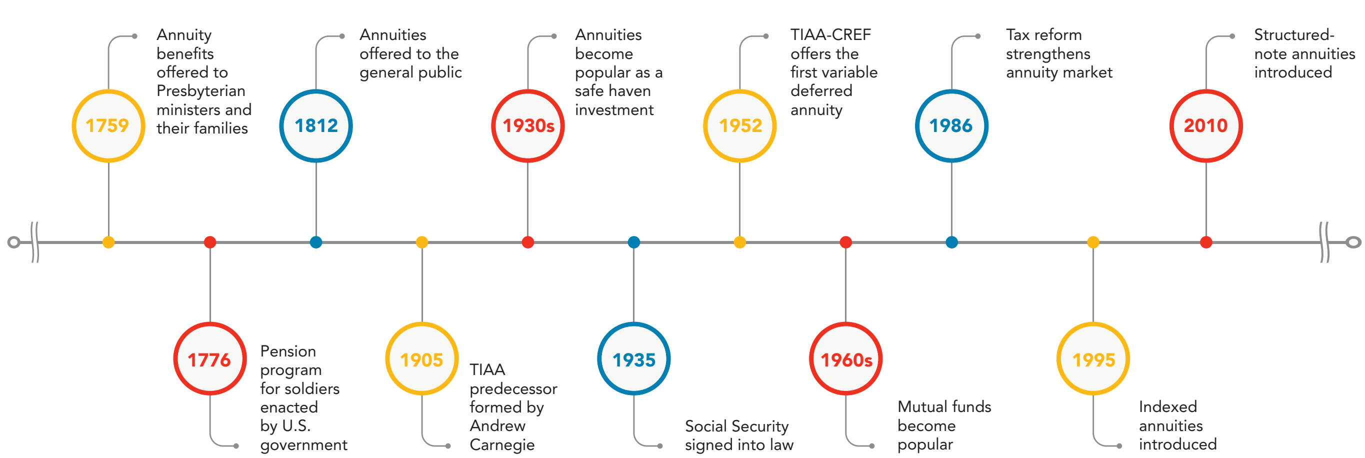
This additional flexibility permits the manufacturer to adjust more levers associated with the product, resulting in a customized approach to the customer's risk/reward profile. For example, in the current yield environment, an FIA that tracks the S&P 500 might offer a very low annual cap, say 5 percent, or be forced to reduce the participation rate to below 100 percent of the index. A structured-note annuity can provide a much higher cap, such as 15 percent, by simply reducing the floor to –15 percent. The consumer would receive more participation in the S&P 500 on the upside in return for an increased level of risk on the downside—a risk that is acceptable to many investors.

A RECENT HISTORY OF THE VA SPACE

The VA industry had grown materially more complex in the late 1990s and early 2000s

Timeline: Development and Growth of the U.S. Annuity Industry

The design and popularity of annuities have changed significantly since Roman soldiers received "annua" for their service and tontines accrued to survivors in the Middle Ages. The seeds of the actuarial profession were evident to issuers that realized that annuity applicants tended to live longer than the general population. Annuities helped fund retirements for pastors before the American Revolution and the innovations have continued ever since.



from its beginnings as a tax-deferred vehicle for simple mutual fund strategies. The sales and marketing arms of large annuity issuers created a dizzying array of investment options and guaranteed benefit programs allowing the consumer (but most likely not the actuary) to sleep better at night. However, the complexity of the programs and the competitiveness of the pricing made these impossible to hedge effectively. So while on the surface the industry seemed extremely successful with dramatic growth up to its apex in 2007 of $184 billion in sales, according to life insurance research group LIMRA, the reality was, the entire risk structure was faulty and, in hindsight, extremely sensitive to a severe bear market.

2008 was such a market. The financial crisis exposed the complex, material risks embedded within the VA platform—seemingly hedged portfolios took on massive losses due to basis, correlation, interest rate, policyholder behavior and other risks not completely hedged. The industry reported billions of dollars in losses, causing a number of issuers to either significantly curtail or close VA programs. Senior management re-assessed programs as the pendulum swung from sales and marketing to a focus on risk management and balance-sheet preservation. As a direct result, sales in 2009 sank to $129 billion, a 30 percent drop from its high just two years earlier.

Exacerbating the now conservative risk approach of the insurance companies is the financial market environment of artificially low rates and volatility due to federal government programs in place that are just now starting to unwind. Between the low yield and risk environment, it has become harder than ever to provide meaningful returns to policyholders who in many cases are relying on insurance products to maintain their lifestyles through retirement.

OUT OF THE ASHES COMES INNOVATION: STRUCTURED-NOTE ANNUITIES

Historically, this sort of market displacement and environment, while difficult in the short term, eventually results in innovation and growth. The insurance companies' challenge has been to manufacture compelling products given the low-interest rates and a new emphasis on risk containment. A SNA (e.g., AXA's Structured Capital Strategies or MetLife's Shield Level Selector) is one of the innovations taking form and finding a level of early success.

The structured note (aka equity-linked note) was first created by the banking industry in the late 1980s and became a popular retail product in Europe during the '90s and then in the United States in the first decade of the 21st century. While it is difficult to fully size the current U.S. structured-note market, estimates of around $100+ billion in annual issuance are reasonable (divided between shelf registered notes, structured CDs, privately placed notes and 3(a)(2) programs, which allow foreign banks to issue unregistered structured notes stateside with certain preconditions). More importantly, the industry has been growing, surpassing its pre-2008 highs.

The primary market for structured notes in the bank channel is high-net-worth individuals purchasing through their advisers, primarily within the wirehouses and private banks. Bank of America and JPMorgan Chase and Co. are among the largest issuers and distributors of the product, which is typically based on the S&P 500. More recently, there has been a push by issuers and third-party wholesalers to expand the market into the Independent Broker Dealer and Registered Investment Adviser space. While some of the simpler structures have application to the broader market, regulatory concerns in regard to complexity and the vehicle being more of an over-the-counter (OTC) product have resulted in limited access for the general investor.

the primary market for structured notes in the bank channel is high-net-worth individuals purchasing through their advisers, primarily within the wirehouses and private banks.

Structured notes are a natural complement to the insurance franchise from a structural and an offering context. The vast majority of notes offered by the banks have a one- to three-year term. At the end of the term, there is a tax event. By placing notes within an annuity or a variable life policy, investors would be able to roll potential gains into the next structured investment and thereby take advantage of one of the major features of insurance vehicles when used for long-term investing: tax efficiency.

Additionally, structured notes have compelling risk characteristics for the insurance complex. Unlike funds, structured notes are both term dated and derivative (i.e., easily hedged through the derivatives market). Due to these characteristics, there is a defined outcome at maturity eliminating basis risk and therefore allowing for more effective hedging as compared to hedging an actively managed mutual fund position. Furthermore, by providing the option of partial protection, the insurance company is able to pass some of the downside risk on to the customer.

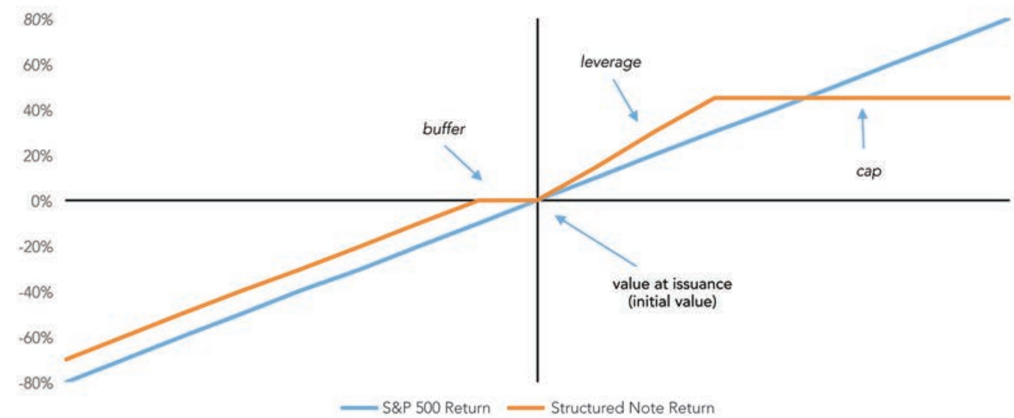
WHAT IS A BANK-ISSUED STRUCTURED NOTE?

A bank-issued structured note is a senior unsecured debt obligation of a major bank whereby in place of the expected yield based on the term of the paper and issuer, it is based on a formula tied to a particular index, security or group of indexes and/or securities.

As mentioned earlier, due to low rates, a current FIA with a minimum guarantee of 0 percent either has to have a low cap on returns, like 5 percent, or a low participation rate, e.g., 50 percent of the upside index movement. By lowering the minimum guarantee to –15 percent, it allows the cap to move higher. The combinations of floors, caps and participation rates among other building blocks borrowed from the structured-note industry are limitless.

Illustrating a buffer (see illustration at top of page) through an example: JPMorgan Chase might issue a three-year note on the S&P 500 where the investor is protected for the first 10 percent downside move in the S&P 500 and receives 150 percent of the return of the S&P 500 up to a maximum gain of 45 percent. This is a similar product to what AXA and MetLife utilize within their SNA programs.

10% Buffer, 150% Leverage, 45% Cap Performance at Maturity



The investor matches or outperforms in bear, neutral and slightly bullish markets but underperforms in strong bull markets.

THE PROCESS OF CREATING AND SELLING A NOTE

The bank structures (and also hedges) the note by using the yield provided by the treasury desk to purchase and/or sell the necessary derivatives that result in the characteristics of the note. One can synthetically create the same product by purchasing three-year JPMorgan Chase paper (or Credit Default Swap), selling a three-year 10 percent out-of-the-money (OTM) vanilla put on the S&P 500, purchasing 1.5 at-the-money (ATM) vanilla calls and selling 1.5 30 percent OTM vanilla calls (the calls together would be considered a call spread). Fees are also embedded in the note.

Below is an example of a relatively simple structured note. These products can become quite complex in their construction and payout features.

The compelling characteristic of a structured note to the investor is its customization. A structured note allows the customer to tailor an investment to their particular risk/reward parameters. Between technology and the growth of financial engineering, capital markets should be able to offer extreme investment customization in an ever-increasing efficient manner.

The downside of structured notes and a potential reason the industry is not significantly bigger is the credit/counterparty risk, and issues with liquidity, transparency and efficiency due to its opaque over-the-counter nature. These are areas the insurance complex should be sensitive to as it develops its programs, as it will provide an advantage in competing with the banks.

the success of target-date funds and other strategies have helped educate investors that the most important decision most of them will make is the size of their equity allocation.

CAN INSURERS EFFECTIVELY COMPETE WITH BANKS IN THE STRUCTURED-NOTE SPACE?

A material advantage the insurance complex has over banks regarding potential structured-note offerings is its tax-advantaged products. Tax-deferred annuities and tax-free death benefits allow investors efficient tax treatment on investments while providing the insurance company a better hold on investor assets as compared to the banks. Terms of equity-linked notes tend to range from one to three years, resulting in capital gains or losses taken every few years. Furthermore, once the term is over, banks need to compete to retain the client's capital in the form of a note or other bank product. Both of these issues are mitigated within an annuity and life structure. Furthermore, annuities allow investors to transfer longevity risk to the insurer by converting their investment into a lifetime annuity, a feature not available in the bank offering.

Another potential area where the insurance complex has an edge over the bank is in the perceived advantage from a credit/counterparty risk perspective. Insurance policies were deemed safe through the financial crisis as policyholders benefit from both state guarantee funds and by ranking higher in the capital structure than debt holders. Current structured-note investors are now sensitive to issuer risk given the demise of Lehman Brothers and the effect on billions of dollars of structured notes that became nearly worthless overnight.

However, the insurance complex currently falls short of the banks in two areas. First, while the structured-note market is not known for its liquidity, it does allow the investor to exit a product at any time. The current insurance offerings typically impose a surrender charge if the policyholder wishes to exit the investment in the early years of the policy.

Second, the industry currently provides a limited set of investment strategy choices. Issuing banks have the capability to offer almost any conceivable product utilizing the derivatives desks within capital markets. As investors demand more customization, insurance companies should think strategically about what level of customization is optimal given the subsequent costs and complexities. Technology investments may be key to offering product flexibility in a cost-effective manner and to maintain hedge effectiveness. The best way for the insurance industry to maintain its advantages would be to learn from the structured-note industry's mistakes (potentially opaque market practices, issues with agents misleading investors and a lack of industry standards in the face of focused attention from the regulators, namely the U.S. Securities and Exchange Commission and the Financial Industry Regulatory Authority) and look to mitigate other issues holding back the potential growth of the industry. At the same time, the industry is well positioned to expand its capabilities and effectively go head to head with the banks on additional strategies.

FUTURE USE AND EXPANSION WITHIN THE INDUSTRY

These are early days for the insurance complex in regard to structured notes. And the jury is still out on how successful these products might become. The strategies offered by just a handful of providers are the most basic of those provided by the banks

Fun Fact

BENJAMIN FRANKLIN left the cities of Boston and Philadelphia an annuity in his will. The Boston annuity continued to pay out until the early 1990s and only discontinued due to Boston electing to take a lump-sum distribution of the remaining balance. The will is a testament to Franklin's grasp of the power of compounding interest well before the advent of the HP12C. Read more at *http://sln.fi.edu/franklin/family/lastwill.html.*

Select Popular Building Blocks from the Structured-Note Industry

BUFFER: A fixed level of protection down to a specified level. For example, a 10 percent buffer would result in the protection of the first –10 percent move in a security or an index, the reciprocal of a floor.

BARRIER (AT MATURITY): A *contingent* level of protection down to a specified level. For example, a 10 percent barrier would result in the protection of the first –10 percent move in a security or an index as long as the index finishes at maturity above –10 percent (e.g., index down 15 percent results in a 15 percent loss, down 8 percent results in no loss). In other words, this protection disappears, or knocks out, once the specified level is surpassed.

DIGITAL: A *contingent* level of yield whereby as long as a specified yield is surpassed, the investor receives the yield. This is also known as a binary. For example, there is a yield payment of 10 percent only if the S&P 500 closes above 1900. MetLife offers a variation within their Shield Level Selector program.

and are only offered in an annuity. These early movers are also simply offsetting the positions created with the customer directly with the capital markets of the banking complex as opposed to analyzing more efficient methods that might be beneficial for other areas of the insurance complex.

Yet, the seeds for a large potential market have been planted. As illustrated above, the insurance industry can more effectively compete with the banking industry in a significant and growing market, representing potential for dramatic annuity growth (internationally, the structured-note industry is tremendous, with an estimated $2 trillion in global Assets Under Management). At the same time, the insurance complex can expand these structures to other business areas. For example, variable life, as mentioned above, is yet another potential vehicle that can provide tremendous advantages to the structured-note investor due to potentially tax-free death benefits.

The development of structured-note annuities is also timely in relation to broader investment trends. Financial advisers have transitioned from stock pickers, to active fund allocators, to beta managers. The success of target-date funds and other strategies have helped educate investors that the most important decision most of them will make is the size of their equity allocation. Structured notes give investors an incredibly efficient tool to modify their beta based on changes to finances, family, personal goals or outlook. Insurance agents are the only planners who can have this strategic conversation with their taxable clients, and then have tax-efficient vehicles to implement their clients' plans.

In conclusion, structured notes represent a compelling retirement solution for the masses while allowing effective hedging and balance sheet usage for the insurance complex. It is a win-win situation with real potential. It will be interesting to see how the industry further innovates and takes advantage of a compelling investment structure to turn what is currently a niche offering by a select few into a home run for the entire insurance complex. A

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Greg Henke, FSA, CFA, is currently enjoying some time on the beach while exploring various roles in VA, PRT, ILS and other savvily acronymed businesses. He can be reached at *gregory.henke.wg92@wharton.upenn.edu.*

Education

THE VALUE OF ERM

BY KORY OLSEN

HERE WE ARE, about half a decade after the start of the recent financial crisis. The economy is still recovering and regulators are putting structures in place to prevent the same thing from happening again. Not only that, but they are looking to prevent anything even remotely similar from happening. One of the areas of focus is enterprise risk management (ERM) and a company's ERM framework.

In this post-crisis era, own risk and solvency assessments (ORSA) are emerging as a requirement for insurance companies in many countries, including Canada, the United States, Australia, Europe and China. The ORSA starts with the insurance company and includes the whole group of companies with which the insurance company may be affiliated. The National Association of Insurance Commissioners (NAIC) ORSA guidance manual states two primary goals:[1]

1. To foster an effective level of ERM at all insurers, through which each insurer identifies, assesses, monitors, prioritizes and reports on its material and relevant risks identified by the insurer, using techniques that are appropriate to the nature, scale and complexity of the insurer's risks, in a manner that is adequate to support risk and capital decisions; and

Enterprise Risk Management Framework

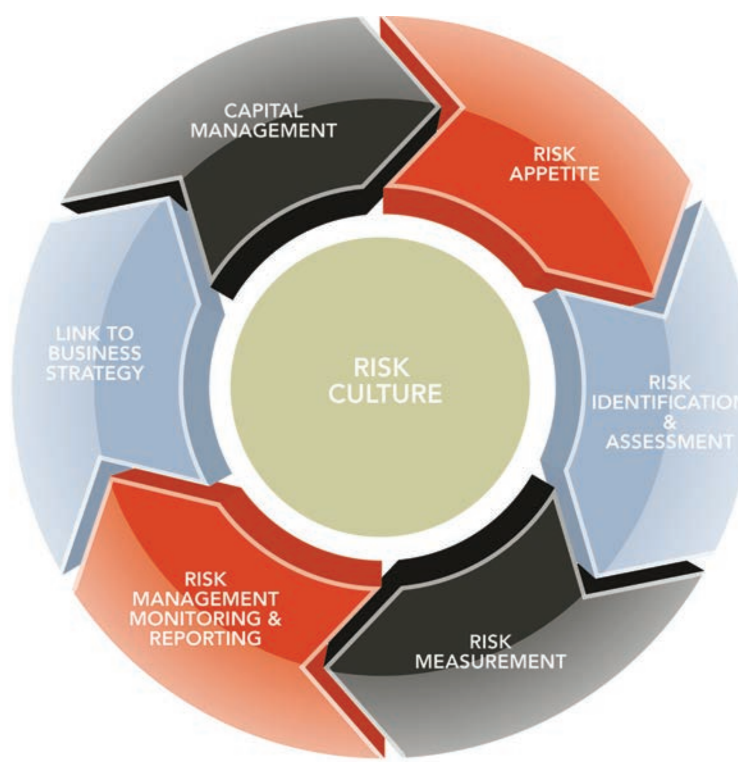


Diagram used with permission. The original version appeared in the essay, "Understanding ORSA Before Implementing It," by Anthony Shapella and Owen Stein.

2. To provide a group-level perspective on risk and capital, as a supplement to the existing legal entity view.

ERM practice has been growing and evolving since the financial crisis. However, the enactment of ORSA will push a company's ERM practice to the next level. The ORSA is a summary documentation of the company's risk management framework and risk analysis. This document will be the starting point for many risk-based financial exams and "insurers with ERM frameworks appropriate to their risk profile may not require the same scope or depth of review upon examination and analysis as those with less relatively comprehensive ERM frameworks."[2] This implies a substantial benefit for those companies with an appropriate ERM framework. The chart on page 30 shows what would be encompassed in an ERM framework.

The goals set out by the NAIC ORSA guidance are well suited for actuarial input as they require the identification, quantification and aggregation of the company's risk. An actuary's knowledge of these areas also means they are the professional best suited to create the ORSA summary document and communicate the results to others. This is certainly an area where an actuary can lead the company to fulfill the ORSA requirement.

An ERM framework used by a company to drive real business decisions and achieve its business purpose is an underlying goal of the ORSA requirement. The ERM framework needs to benefit the company, and should not be done just to fulfill the minimum regulatory requirement. In the development of the ERM framework, actuaries have the opportunity to show that they are the risk experts at their company.

The chartered enterprise risk analyst (CERA) credential is a valuable asset to have, given this increasing importance of ERM within companies. The CERA credential shows the actuary is knowledgeable of ERM criteria and skilled in the techniques of assessing and analyzing risks. This includes understanding risk aggregation and risk mitigation techniques. With the growing globalization of insurance companies, the CERA is an actuarial ERM credential recognized around the world.

ERM is applicable to all companies and all education tracks within the SOA. As such, in 2013 the SOA redesigned the FSA pathway to make it possible for candidates in all tracks to earn their CERA credential on the way to attaining fellowship. In the past, only the candidates on the finance/ERM track attained their CERA on the way to their fellowship designation. In the old education system, other tracks had different FSA requirements, generally two six-hour written exams and several FSA-level modules. The redesign now gives candidates on all tracks the opportunity to attain the CERA credential on the path to fellowship.

The redesign generally converted the two six-hour FSA-level exams into two five-hour exams plus a two-hour exam. The FSA-level requirements for the CERA credential include passing the four-hour ERM exam and the ERM module. Under the new requirements, candidates in all tracks have the option of replacing the two-hour exam with the ERM exam and including the ERM module in their pathway. Thus, all candidates now have the opportunity to receive their CERA credential, as well as their FSA, on their pathway to fellowship. As shown by the ORSA requirements, ERM is important to all practice areas and companies.

The path to the CERA credential provides valuable ERM knowledge. The exam and module provide education in general ERM analysis and techniques, risk aggregation, risk measures, and risk and capital management, and provide the candidates the opportunity to apply what they have learned. The exam also includes a case study and track-specific extensions where candidates can gain a better understanding of how ERM applies to their practice area and that of a sample company.


Kory Olsen

Regulation is moving to ensure that companies have a meaningful analysis of their risks, both at the company level and at the group level. ERM is an area of current and future expansion and growth and an area in which all actuaries should develop an understanding. A well-developed actuary should be able to understand how any risks assumed impact the company and group.

ORSA demonstrates the expanding requirement of ERM in the insurance industry. However, the insurance industry is not alone in using ERM; it is being used in banking and other industries. This provides an opportunity for actuaries to expand further into other industries, especially with the CERA credential. A

Kory Olsen, FSA, CERA, MAAA, CFA, is assistant vice president at Pacific Life Insurance Company. He is also an SOA Board member and SOA Education Common Curriculum chair. Olsen can be reached at *Kory.Olsen@PacificLife.com*.

END NOTES

1 NAIC Own Risk and Solvency Assessment (E) Subgroup of the Financial Condition (E) Committee, *Own Risk and Solvency Assessment (ORSA) Guidance Manual* (March 2013), 1.

2 Ibid., 5.

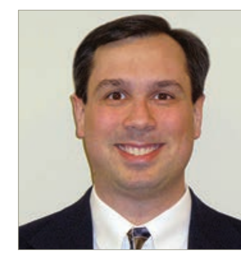
Section Highlights

PRODUCT DEVELOPMENT SECTION

BY TIM ROZAR

IN MY FIRST "CHAIRPERSON'S CORNER" article for *Product Matters,* the newsletter of the Product Development Section, I wrote about how Disney, Netflix, Microsoft and other companies deliver shareholder and customer value by focusing squarely on the creation and dissemination of original content. The Product Development Section may not be producing an edgy new sitcom about actuaries (although that would be pretty awesome), but we are similarly focused on creating member value through original content—including research studies, podcasts, webcasts, meeting sessions and seminars.

To build upon this mission, the Product Development Section organized and sponsored a new standalone seminar in 2013 focused on the future of life insurance underwriting. This seminar brought together underwriters and actuaries for a unique networking and professional development opportunity. Among a densely packed agenda were panel discussions on predictive modeling, laboratory testing, prescription drug histories, fraud detection, cognitive testing and tele-underwriting. Breakout sessions included "actuarial science for underwriters" and "underwriting for actuaries." Audience engagement was terrific throughout the seminar and the feedback exceeded our wildest expectations: 98 percent of attendees would like to see the seminar held again! Luckily for them—and you—the seminar will be held again in August 2014. Be on the lookout for details.



Tim Rozar

If you aren't already a member of the Product Development Section, I'd encourage you to join. The Product Development Section leadership remains committed to delivering leading-edge, original content that members have come to expect. A

Tim Rozar, FSA, CERA, MAAA, is senior vice president, Global R&D at RGA and the chairperson of the Product Development Section. He can be reached at *trozar@rgare.com.*

Section Highlights

SMALLER INSURANCE COMPANY SECTION

BY DON WALKER

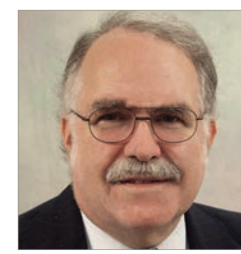
THE SMALLER INSURANCE COMPANY SECTION (SMALLCO) embraces the responsibility of bringing value to our members. We don't have the depth of financial resources of the larger sections, so we concentrate on putting the resources we do have to good use.

One opportunity we have embraced is webinars. We find topics that will be of interest to our members and develop webinars around them. This serves our members in two ways. First, we deliver continuing education at an affordable price. Second, we get a share of the profits back from the SOA, which we can then plow into research projects, which will benefit our members down the road. A double win.

Sometimes we partner with a larger section. Both sections provide content and speakers; the big section can often bring a larger audience to the table, translating to more webinar revenue, which we then share. A triple win.

Consider the work we did on low interest rates:

We realized early on that low interest rates could be a challenge for smaller companies and their actuaries. We did research and we developed presentations, which we test-drove in some smaller settings, such as the Chicago Actuarial Association meeting. We then repurposed that content into both large meeting sessions and webinars. We are now using the profits from the webinars to fund additional research, in partnership with the Financial Reporting Section and the SOA's research arm, on what may happen when interest rates rise.



Don Walker

We find that our small company focus often assists us in being effective in a webinar setting. Small company actuaries have to be generalists; they have to be able to operate on less than fully adequate data and to embrace a wider sphere. This can be a helpful perspective when putting a presentation together.

All of which brings me to the other big benefit of SmallCo membership—the networking opportunities. We sponsor buzz groups and forums that bring smaller company actuaries together. We specialize in developing sessions that help an actuary get to the core of the problem. If you participate in a SmallCo project, you develop a great set of contacts that share your world view and just might share the idea that will get you through a problem.

And remember—SmallCo Rocks! A

Don Walker, ASA, MAAA, is director–Life Actuarial, at Farm Bureau Life Insurance Company of Michigan and the chairperson of the Smaller Insurance Company Section. He can be reached at *dwalker@fbinsmi.com.*

Book Review

ACTUARIAL CHECKLISTS

BY JAY M. JAFFE

RECENTLY I INVITED my investment advisor to join me at a lecture. The speaker was Atul Gawande. Dr. Gawande is a Harvard-educated physician, a MacArthur Fellow and a Rhodes Scholar. He practices medicine at the Brigham and Women's Hospital in Boston and is a professor at the Harvard Medical School.

When my friend greeted me, he immediately announced that Gawande had made a significant contribution to the operations of their firm and, consequently, the management of my assets. My immediate reaction was that I had misheard my friend's remark. How could a physician be so important to the management of my assets? As I discovered during the course of the evening and my subsequent reading of Gawande's book, *The Checklist Manifesto: How to Get Things Right* (Metropolitan Books, 2009, Kindle edition $8.89), Gawande's prescription was applicable to many situations and professions besides medicine.

Gawande makes it clear that "in the end, a checklist is only an aid." The contribution of a checklist is not the checklist itself but the discipline that the checklist brings to the management of any operation (pardon the pun).

I'm sure that none of us wants to find out that the pilot of our next flight bypasses the checklist before taking off or landing. We all have accepted that the pilot's checklist is both necessary and the right way to fly a plane. We recognize that the checklist does not ensure that all accidents will be avoided if the checklist is used but rather that a checklist helps to minimize the probabilities of an accident because it helps to reduce "stupid mistakes." In other words, it provides discipline to a process and, as a result, increases the chances that pilot error won't be the cause of an accident.

Our world today is very complex and becoming more complex each day. Gawande explains that "in a world which success now requires large enterprises, teams of clinicians, high-risk technologies, and knowledge that outstrips any one person's abilities" checklists make it much easier for groups to work together. Complex projects require the team members to park their egos at the door rather than having dictatorial leaders. He laments that the closest professional codes come to articulating the need for effective teamwork is the "occasional plea for 'collegiality.'" Simply being nice to each other won't provide the discipline to manage the complex problems professionals work on today.

Gawande's book provides several concrete examples of how checklists have made the practice of medicine not only safer but better. The main point of these examples could easily be that operational discipline (i.e., the use of checklists) can help reduce health care costs. Saving people's lives or performing better surgeries doesn't depend only on finding new drugs or technology! Sometimes we forget Occam's razor that the simplest solution may be the best one to pursue. Checklists aren't a new technology, but they have been shown to reduce medical costs by avoiding the most common medical errors.

Even though actuaries don't deal with life and death or the irreversible impact of failed medical services situations in the same sense as doctors, the actuarial profession faces the same general types of operational and management issues as the medical profession and should be able to benefit from creating and using checklists. I can think of at least two types of actuarial checklists.

The first is the up-front checklist. The purpose of this checklist is to be as certain as possible that we haven't forgotten to consider an assumption or that the data we are using are correct. For instance, if an actuarial valuation model is built to reduce the number of cells that require calculations, a series of steps should be in place not only to ensure that all of the members of the database have been accounted for but also that the model is sufficiently accurate for the actuary to be comfortable that it will produce appropriate results. Think of this as a pilot's takeoff checklist.

Once the model is used there should be another checklist that checks the results for consistency between prior uses of the model or otherwise helps to determine the reasonableness of the results. The main purpose of this checklist is not to be absolutely certain that the results are correct to some level of accuracy but rather to prevent the "big error." In other words, are the results consistent with an actuary's expectations? If not, the actuary had better go back to "square one" and repeat each and every step of the process in order to ascertain whether (a) the actuary's expectations were wrong or (b) the results are incorrect. Think of this as the pilot's landing checklist.

If you've read this far, you're probably wondering why my investment advisor was excited to hear Gawande speak about checklists.

If you've read this far, you're probably wondering why my investment advisor was excited to hear Gawande speak about checklists. The answer can be found in Chapter 8 of the book. A large portion of this chapter is devoted to how and why investment advisors use checklists. As in medicine, not only does the use of checklists help investment advisors avoid bad investment decisions, but also the checklists have enabled them to operate more efficiently. Increased efficiency translates into better investment performance because in the investment business as in most other businesses "time is money."

Jay M. Jaffe

On a personal note, I am now greatly comforted knowing that my investment advisor is following a disciplined procedure to managing my money. The team handling my nest egg requires each new member of their team to read *The Checklist Manifesto*, and I have seen how they directly use checklists in their asset management business.

Incorporating checklists into many diverse areas of our daily lives seems obvious once you've read Gawande's book. But as the author points out, most professions seem to need pushing in order to develop and use checklists. I doubt if actuaries are any different from others when it comes to adopting the concept of checklists.

Gawande's stories of how the medical profession and we as patients have benefited from checklists should encourage every actuary to think about how checklists could be implemented in our profession. I'm sure that there are many ways actuaries can incorporate checklists into our standard way of working and improve both the efficiency and accuracy of our projects. If you have any experience with checklists, please send them to me, and together we'll publish a follow-up article about actuarial checklists. A

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SOA AT WORK

BUILDING VIBRANT COMMUNITIES AROUND THE WORLD

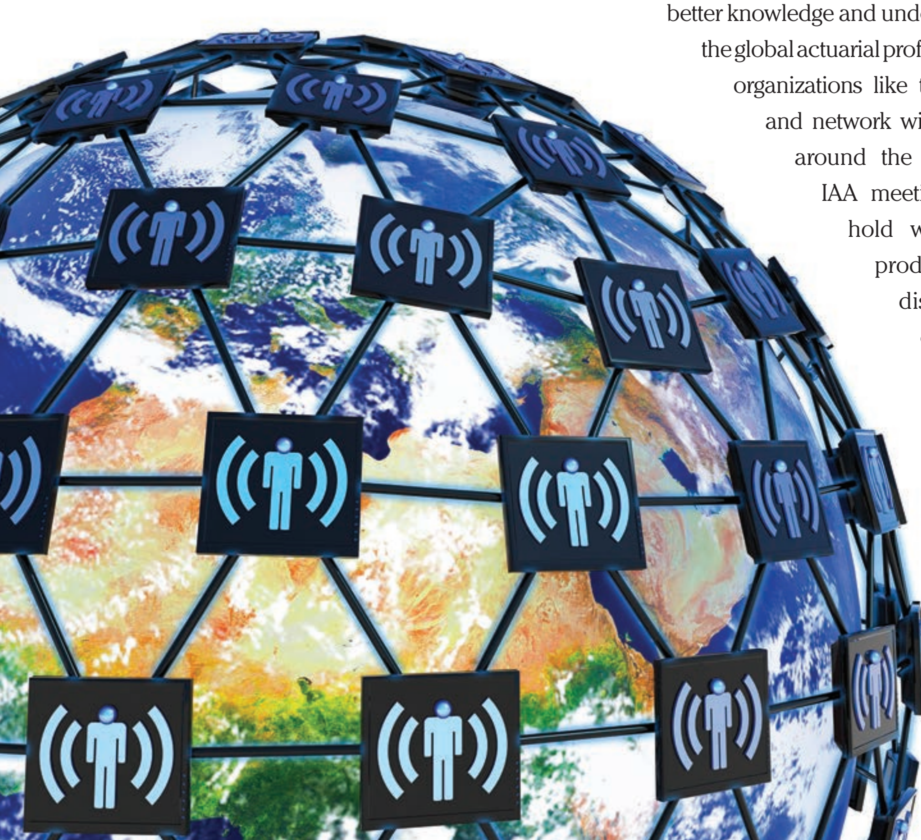
BY GREG HEIDRICH

A couple of years ago, when the Society of Actuaries (SOA) spent time developing its international strategy, one of the critical initiatives we identified was the need for us to help build and support actuarial communities in North America and around the world. While we've always provided members with opportunities to connect with one another through our meetings, conferences, seminars and section activities in North America, we face a particular challenge in helping actuarial communities grow outside our historic home in the United States and Canada.

STRONG COMMITMENT TO MEMBERS AND CANDIDATES

We're committed to meeting our members' and candidates' needs outside North America, and to supporting them where they live and work. To do this, SOA leaders travel to meet and hear from them directly, building relationships with local actuarial societies in countries where we have members and students, offering more educational and networking events in their local areas and time zones, and working with other multi-national organizations to serve and support the profession.

Our relationship with the International Actuarial Association (IAA) is important. The IAA serves as a means by which the SOA can work with and coordinate its activities more easily with actuarial bodies around the world on issues such as responses to the financial crisis, development of international actuarial standards of practice, and international regulatory standards. Most importantly, perhaps, is that the IAA promotes better knowledge and understanding among the global actuarial profession by allowing organizations like the SOA to meet and network with other societies around the world. At every IAA meeting, SOA leaders hold wide-ranging and productive bilateral discussions with counterparts in other actuarial societies from countries and areas such as China, Hong Kong, Taiwan, Australia, the United Kingdom, South Africa, Mexico, the Netherlands, Canada and more. These meetings have been enormously helpful in building relationships between the SOA and these organizations, and for identifying areas where we can work together. Through these discussions in recent years, we've launched broad education system benchmarking efforts; taken the CERA credential "global"; created and published a joint international enterprise risk management (ERM) textbook; helped administer the Hong Kong office that jointly serves five actuarial organizations; identified opportunities for the SOA to support or sponsor key educational events in Asia; and learned about efforts of other organizations to develop new opportunities for actuaries (for example, in banking) in their countries. For all of these reasons, the IAA is an important hub connecting the SOA to other societies around the world.



WHERE WE TRAVEL—WHO NEEDS US AND WHY

Member, candidate, student and employer needs dictate much of our non-IAA international travel. In deciding where SOA leaders will go, we think about several questions: Where do we have members who need to see and talk with their elected leaders? Where do non-North American members need in-person professional development opportunities, and can we work with local actuarial societies to deliver education together? Are there SOA candidates or students who are preparing to pursue SOA credentials and would benefit from hearing directly from SOA leaders? Are there developments in the profession or with the SOA that would be of interest to key actuarial employers in the region?

We're currently planning leadership trips to Asia, Europe and Latin America this year, in addition to our leaders' normal extensive travel schedules in the United States and Canada. In Asia, we'll be reaching out to members, universities and employers in Hong Kong and Taiwan this spring. We're holding the 4th Annual SOA Asia-Pacific Symposium in Macau in June, and we expect to have leaders attending both the annual meeting of the China Actuarial Association and the East Asian Actuarial Conference in October, of which the SOA is a primary sponsor. We're also sponsoring—and will have leaders attending—the 10th Annual Longevity Conference in Santiago, which has become a "must-attend" event for longevity researchers and practitioners seeking practical, market-oriented solutions to longevity risk. Finally, we'll have a major presence at IAA meetings in Washington, D.C. and London.

While it sounds like a lot of travel (and it is), these visits are incredibly valuable for an organization with the international reach and presence of the SOA. I remember well my first visit to meet SOA members and students in China several years ago. We held events in Hong Kong, Shanghai, Beijing and Tienjin. Members, university faculty and students were uniformly pleased to see us and gave many insights into the issues they faced and their needs for SOA services.

THREE IMPORTANT ACCOMPLISHMENTS

At one time, we might have seen these visits primarily as "helping the local profession grow," and certainly we still want to do that wherever it's needed. At the same time, those of us who live and work primarily in North America need to appreciate as well how much the profession has grown outside this continent. Actuarial practice, insurance market development and risk management knowledge are developing the world over, and those of us living and working primarily in North America have much to learn from our colleagues elsewhere.

By the end of this year, I hope we've accomplished the following from our international outreach efforts:

- Deepened our relationship with our members in China by offering more professional development events to them. We hope this can be done in partnership with the China Actuarial Association (CAA) and by adding staff resources where necessary to provide support to members and students in this region.

- Strengthened our ties with a number of local actuarial societies and communities, particularly in Hong Kong, Taiwan and elsewhere.

- Developed a solid assessment of how we might be able to serve aspiring actuarial students and a growing community of actuaries in Latin America, and identified concrete steps we can take to make this happen.

If we can accomplish these three things, I think 2014 will have been a very good year.

Greg Heidrich is executive director of the Society of Actuaries. He can be reached at *gheidrich@soa.org*.

SOA GOES GOLD AT ASNA

BY ÉMILIE BOUCHARD

Happy 25th anniversary to the Actuarial Students National Association (ASNA). We are proud to have been a gold sponsor of your 2014 event!

Gold sponsorship afforded the Society of Actuaries (SOA) the opportunity to be greatly involved in ASNA's convention, including session presentations and sponsorship of the case competition. The following individuals represented the SOA:

- Ian Genno, SOA Board vice president
- Émilie Bouchard, staff fellow—Canadian Membership
- Anthony Cappelletti, staff fellow—General Insurance
- Scott Lennox, staff fellow—General Insurance

Case competition winners (left to right) Mike Gee, Trevor Gary, Jeff Bowman, Justine Chiasson and Siddhesh Pawar.

SESSIONS

Genno presented a session titled, "Making a Difference as an Actuary." He explored how actuaries add value in society and how the prospect of helping others can inspire future actuaries as they embark on this career path. "Find Your Inner Actuary and Change the World" was the title of the session Anthony and I presented. We explored how the SOA supports actuaries on their journeys, some non-traditional roles, and how to best contribute to our communities.

CASE COMPETITION

The case competition is one of the main attractions of the event, allowing students to learn a lot about actuarial and soft skills, all while having fun. Finalists also have the opportunity to demonstrate their skills, as they present their case study solutions to a panel of judges and all conference attendees.

About ASNA

ASNA IS A STUDENT-DRIVEN organization composed of member universities from all over Canada. Student delegates from each of these member universities form committees responsible for the different aspects of ASNA's operations, including hosting the annual convention.

The University of Waterloo presented this year's event, which was held in Toronto, January 3–5, and this year's theme was "UnConvention." Each year, the conference brings together actuarial students, employers of actuaries, and members of actuarial organizations from across Canada. It includes a career fair, seminars, a competition and opportunities to mingle with peers. This year's event was an immense success with total attendance of 550 students and 27 sponsors.

The topic of the competition was pension plans. In a nutshell, Ketch-Up Factory initiated a pension plan redesign exercise to align their defined-benefit plan with their objectives. In the preliminary round, students were asked to comment on the use of funding relief measures and to submit a proposal to assist Ketch-Up Factory in the redesign exercise. In the final round, Ketch-Up Factory merged with the Fry High organization to form Fryed Tomatoe. Students were asked to deliver a presentation to the board of directors of Fryed Tomatoe to assist them in making a decision with respect to the pension plan to offer their employees after the merger, recognizing the objectives of the merged organization.

Nine teams, comprised of four or five participants each, registered for the competition. Three teams made it to the finals:

- University of Waterloo
- University of Toronto
- Joint team from McMaster University and University of Calgary.

The joint team from McMaster and Calgary won the competition. Congratulations to winners Jeff Bowman, Justine Chiasson, Trevor Gary, Michael Gee and Siddhesh Pawar, for their understanding of the case, their team work and their well-articulated presentation.

Thank you to all contestants for their enthusiasm and eagerness to learn. Many thanks, too, to all of the organizers of the event, including ASNA President Lambert Leduc, and to all attendees for creating this amazing gathering of actuaries and future actuaries! A

Émilie Bouchard, FSA, FCIA, is staff fellow—Canadian Membership for the Society of Actuaries. She can be reached at *ebouchard@soa.org*.

SOLUTIONS FOR ADDRESSING LONGER LIFE EXPECTANCIES IN RETIREMENT

BY R. DALE HALL

Early this year, the Society of Actuaries (SOA) collaborated with organizations from around the globe to host the triennial Living to 100 Symposium in Orlando. The symposium is a global gathering of actuaries, demographers, physicians, academics, gerontologists, economists, financial planners, researchers and other professionals to discuss the latest ideas, initiatives and research on aging and increased longevity. The symposium covered a broad range of research and presentations on our worldwide aging population, including mortality improvements, longevity risk, social insurance and societal challenges as a result of longer life span.

Several sessions focused on ways businesses work with the growing numbers of aging employees and customers. While there seems to be acceptance and recognition that people are living longer, big gaps still remain in how society has adapted to longer life. Workplace retirement consultant Sally Hass discussed the evolving definition of retirement, as well as the term "reHirement" for those wanting to be employed after retiring from their original jobs. She noted that flexibility is needed and can come in many creative forms. Older individuals may be offered different job options and compensation after retirement. For example, if an individual was in executive management at an architectural firm during his formal working years, he may be offered a job as a consultant to an architectural design team. The key is flexibility and a willingness to pursue new options. Employers are also looking to establish work programs where future retirees help train new generations of workers.

Some employers additionally look to offer special programs to accommodate the interests of older workers in a way that serves their business needs well. There can be legal uncertainties and challenges, however, which may arise in part to age discrimination legislation and the regulations developed to protect older workers. The sponsoring organizations of the Living to 100 Symposium look forward to more research to understand to what extent current regulations may deter programs and practices that would support opportunities for older workers.

Similarly, many industries are seeing dramatic shifts due to the aging population. Customer bases are changing for many products, older people are seeking new and unique services, and, at the same time, they are also becoming part of the workforce providing the products and solutions. Panels discussed the future of employment and key economic drivers such as housing and the financial services industry. The symposium also included discussions around innovations with retirement income products and insights on annuitization strategies. Anna Rappaport, FSA, MAAA, chair of the SOA's Committee on Post-Retirement Needs and Risks, presented a paper documenting how changes in life spans have far outstripped changes in retirement plans, leading to much longer periods of retirement. She called for increasing adoption of different work options for people nearing and in retirement, and for higher retirement ages.

Cindy Hounsell of the Women's Institute for a Secure Retirement (WISER) provided some insights on the population explosion coming for people 65 and older over the next 40 years. She provided insights into the growing demand for suitable housing that attends to physical mobility issues. Panelists also discussed the growing network of local aging communities that help older community members, and alternative options like cohousing and home modification programs to help people remain living in their homes in the elder years.

In my years as a practicing actuary in the insurance industry, it was rare to come across an SOA meeting where you would find a diverse mix of academics, physicians, actuaries, demographers and researchers from various professions in one setting. The Living to 100 Symposium, however, succeeded in bringing these wide areas together to contemplate not only the challenges of an aging population, but also to share ideas for building the solutions needed for the future. A

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CONNECTING CANDIDATES WITH THE SOA COMMUNITY

BY XIAOYAN ANDERSON

The Enhanced Relationship with Candidates initiative is going strong. Since 2011, when the Society of Actuaries' (SOA's) Board of Directors approved this initiative to build and strengthen relationships with those weighing their education and career options, there have been a number of significant accomplishments.

A few of the most notable achievements to date include:

- The SOA Candidate Connect event made its debut in Philadelphia in November. More than 120 students, career changers and entry-level actuaries gained an insight into the profession from the presidential address and educational presentations. They were able to connect with SOA leaders, members and fellow candidates during the networking reception. "The dialogue will continue when we cross paths in the future," a candidate attendee said.

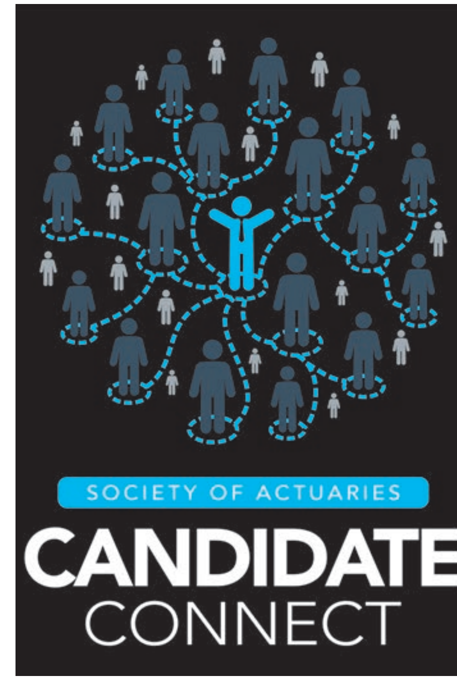
- Twenty students from local universities were invited to the Valuation Actuary Symposium, one of the largest SOA meetings. Attending the selected sessions and networking with working actuaries granted most of them the first professional development meeting experience in their lives. The symposium was held in Indianapolis in September.

- The SOA continued to support other organizations and candidate events by soliciting sponsorship opportunities. As a top-level sponsor, the SOA connected with more than 200 college students at the first Midwest Actuarial Student Conference held in Indiana in October. We also sponsored the Actuarial Student National Association convention with dedicated contribution to its annual case competition, an intellectually stimulating experience for some of the best actuarial students in Canada.

These activities support the SOA's goal to connect with candidates prior to their attaining a designation—a strong way to attract and retain the brightest young minds in the actuarial profession, and promote a lifelong relationship that may lead to increased volunteering and support.

The activities also are an outgrowth of a strategy developed around the needs and interest of candidates: "The SOA will provide a sustainable foundation of services to ensure our candidates have a complete understanding of the profession, access to the tools needed to accompany their educational experience and an opportunity to participate in the broader SOA community."

Moving forward in 2014, Candidate Connect will take place in identified actuarial hot spots and in conjunction with select SOA meetings, bringing an enhanced event experience to candidates and participating members. Those who can't attend will be able to get involved in the conversation through



Candidate Connect webinars, an outreach to candidates worldwide. Informative and timely communication with candidates will also evolve with the build-up of effective channels and tailored content, such as publication for candidates and the SOA Facebook Candidate Community followed by nearly 6,000 candidates today.

These efforts reflect the SOA's vision for the future of the profession. By strengthening bonds with candidates, we believe the SOA will be the information resource and support for aspiring actuaries on the rigorous pathway to membership as well as a source of actuarial community spirit. A

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E-COURSES: GROWING YOUR KNOWLEDGE

The SOA is proud to offer 20 e-courses worth more than a combined 80.00 continuing professional development (CPD) credits. E-course topics range from professionalism and communication to social insurance and enterprise risk management, and can be completed in as little as two hours. Whether you're changing fields, in need of some refreshers or looking to improve your communication skills, get the knowledge you desire by registering for an e-course today. See our full listing at *www.soa.org/ecourses.*

DECISION MAKING AND COMMUNICATION

Decision Making and Communication (DMAC) provides a foundation for making decisions related to complex business problems that require the involvement of many stakeholders and decision makers. DMAC presents a decision-making process that is specific enough to provide solid guidance when making decisions yet general enough to be applicable in a wide variety of situations.

FINANCIAL AND HEALTH ECONOMICS

This e-course is designed to provide you with an overview of the financial and health economics disciplines and their relevance to the actuarial profession. Financial economics is the study of the production, distribution and consumption of goods and services. These disciplines underlie all financial and health services.

FUNDAMENTALS OF ACTUARIAL PRACTICE (FAP)

This e-course is set in the context of the control cycle. It encompasses real-world applications and uses examples to demonstrate actuarial principles and practices. You will also have opportunities to apply these principles and techniques in traditional and nontraditional actuarial practice areas. With the fundamentals in your toolkit, you will be better prepared to apply your learning to new areas of practice that may emerge during the course of your actuarial career.

HEALTH FOUNDATIONS

The Health Foundations e-course discusses the health care system at a micro level. It begins with an exploration of health care terminology and coding. The module moves on to discuss sources of data with regard to medical treatments and claims experience. The next step is to learn about the administrative systems that bring the data sources together. The module ends with examples illustrating how these elements combine to help provide solutions to actuarial problems.

INTEGRATED DECISION-MAKING PROCESS (IDMP)

The Integrated Decision-Making Process (IDMP) provides a foundation for making decisions related to complex business problems that require the involvement of many stakeholders and decision makers. IDMP presents a decision-making process that is specific enough to provide solid guidance when making decisions yet general enough to be applicable in a wide variety of situations.

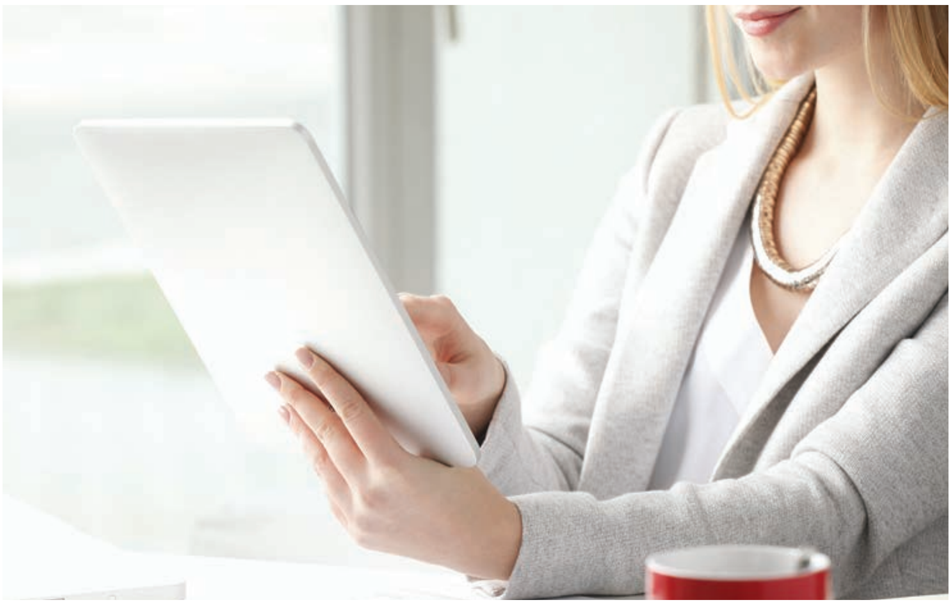
PRICING, RESERVING AND FORECASTING

This e-course is designed to build upon the information presented in the Design and Pricing (DP) and Company Sponsor Perspective (CSP) examination syllabi and the Health Foundations module in the Group and Health FSA Track. Basic concepts that were presented in the exams will be integrated and expanded upon in this e-course. You will learn practical techniques involved in managing the financial control cycle of a health care company—from trend determination to pricing and reserving to analysis of historical results to forecasting future experience.

STRAIGHT TALK: EFFECTIVELY COMMUNICATING WITH A NON-TECHNICAL AUDIENCE

In today's business environment, professionals of all disciplines are turning to actuaries to clarify risk-related issues. You can no longer assume your role as an actuary is to only crunch numbers. The reasoning behind actuarial calculations and the business decisions resulting from actuarial analysis are valuable to today's organizations. This e-course will provide you with tips, guidelines and activities designed to help you communicate effectively with professionals across all disciplines. It also provides video examples demonstrating effective communication. This course will focus primarily on oral communication although many of the concepts can be applied to written communications as well. A

GOOD RESEARCH READS



COMPLETED EXPERIENCE STUDIES

SOA and LIMRA Release New Study on Variable Annuities—The SOA and LIMRA are proud to release a new study of variable annuity guaranteed benefit options. Researchers examined more than 3.4 million contracts with a guaranteed lifetime withdrawal benefit, guaranteed minimum withdrawal benefit, guaranteed minimum accumulation benefit or guaranteed minimum income benefit option. The analysis is based on 2011 experience and looks at how policyholders use these guaranteed options and exhibit other behaviors involving step-ups, cash flow and persistency. See the report for the findings in this important new study.

To view a complete listing, visit ***SOA.org/Research*** and click on Completed Experience Studies.

COMPLETED RESEARCH STUDIES

Paper Summarizes Natural Resource Sustainability Summit—The SOA's Research Department announces the release of a paper summarizing its December 2012 Natural Resource Sustainability Summit. The paper contains a synopsis of presentations and discussions and outlines many considerations for the SOA on natural resources sustainability and how actuaries might get involved in this area.

Health Section Sponsoring Project: Actuarial Model for Wellness—The SOA's Health Section is sponsoring a multi-phase project on the current wellness environment and an actuarial model for wellness. The phases of the project include a literature search, a survey of the actuarial and vendor community, and interviews with researchers in the field. The literature search summarizing pertinent research is now available. The report of findings from the survey and interviews are forthcoming. A team from Sibson Consulting, which includes Steve Cyboran, Leonard Spangher and Matthew Kersting, is conducting the research.

Applying Fuzzy Logic to Risk Assessment and Decision Making—The CAS/CIA/SOA Joint Risk Management Section's new report explores areas where fuzzy logic models may be applied to improve risk assessment and risk decision-making. The report, authored by Kailan Shang and Zakir Hossen, discusses the methodology, framework and process of using fuzzy logic systems for risk management. An Excel tool showing examples of some simple fuzzy logic modeling is included.

SOA Releases New Report: Improving Retirement Outcomes—The SOA's Pension Section recently published a report evaluating several of the more common retirement timing and claiming strategies using a retirement simulation model that incorporates investment, inflation, health and long-term care risks. Results of the simulations provide insight into the comparative risk exposures and costs of various retirement timing and claiming strategies for typical retiree households. The authors, Anna Rappaport, Vickie Bajtelsmit and LeAndra Foster, also provide background on U.S. trends in the timing of retirement, the claiming of benefits behavior, the timing of commencement of Social Security, phased retirement alternatives, work as part of retirement, and the effects of retirement plan participation on these decisions.

To view a complete listing, visit ***SOA.org/Research*** and click on Completed Research Studies. A

PROFESSIONAL DEVELOPMENT:
Your Opportunity to Grow

When is the last time you attended a meeting or seminar, or tuned into a webcast? As an SOA member, there are a number of events you can attend, in person or from your computer. Here are just a few of the upcoming meetings and webcasts coming your way that can help you:

- Stay up to date with current trends in your area of practice,
- Continue to make meaningful contributions to your company, your team and the profession, and
- Develop or fine tune new knowledge and skill areas.

MEETINGS AND SEMINARS

SOA LIFE & ANNUITY SYMPOSIUM
May 19–20
Atlanta, GA
Join the premier conference for life and product development.

HEALTH MEETING
June 23–25
San Francisco
Learn about the latest updates on important health issues.

THE 4TH SOA ASIA PACIFIC ANNUAL SYMPOSIUM
June 26–27
Macau
The theme for this year's event is "Breaking New Ground: New Skills, New Techniques and New Trends."

VIRTUAL SESSIONS/ WEBCASTS

ANNUITY PRODUCT UPDATE—FIXED AND VARIABLE VIRTUAL SESSION
May 19
Get an update of the current state of the individual annuity market in the United States.

CHRONIC ILLNESS ACCELERATION RIDERS VIRTUAL SESSION
May 20
Panelists will discuss pricing and risk considerations regarding these riders, including impact to life product mortality and policyholder behavior.

REGULATORY ISSUES FOR SMALL COMPANIES WEBCAST
June 11
Save the date for this event—more information will soon be available on *SOA.org.*

READY TO REGISTER?
Visit ***SOA.org/calendar*** for the full complement of meetings, seminars, virtual sessions, webcasts and more. We look forward to hearing from you!