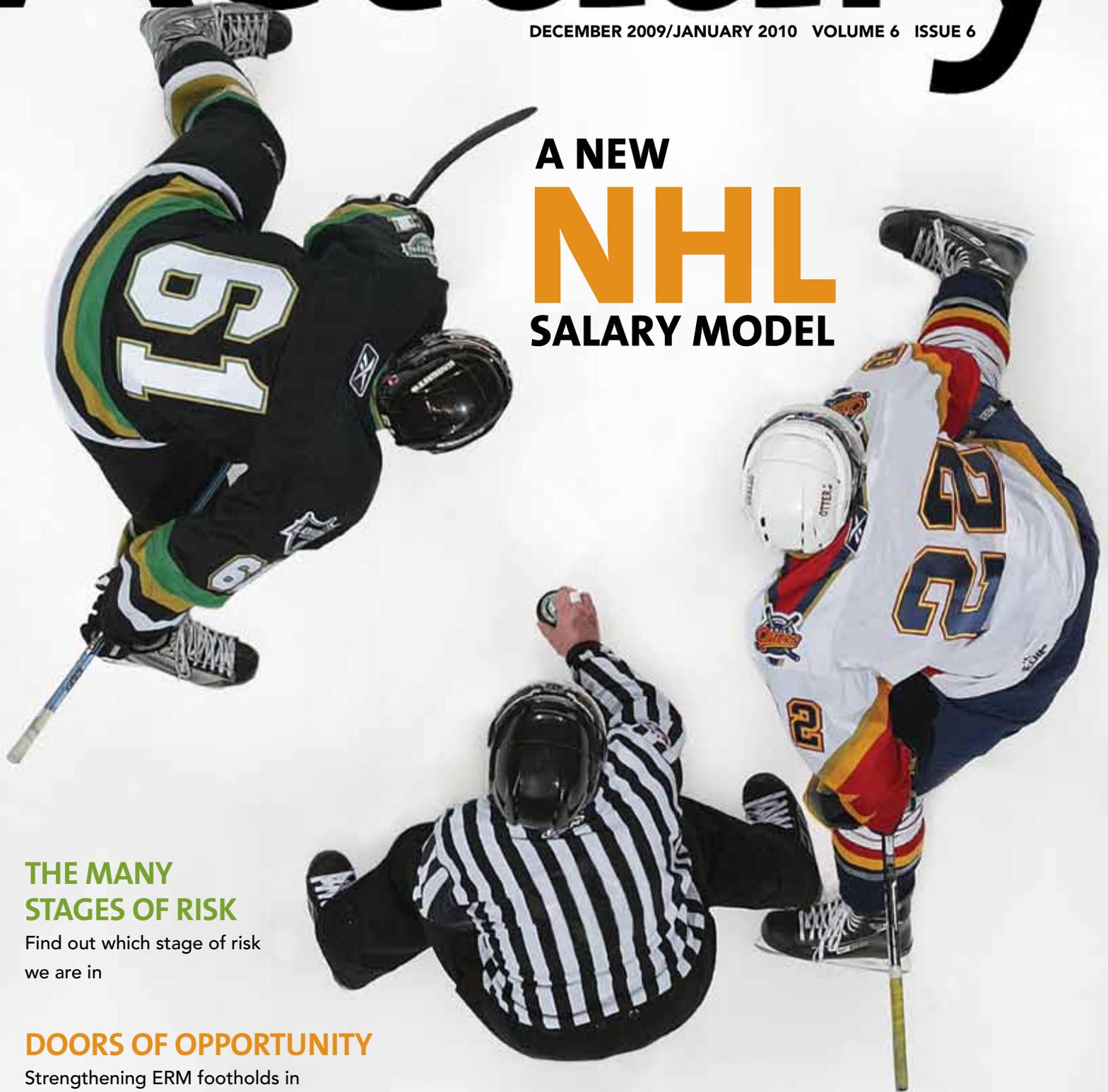


The Actuary

DECEMBER 2009/JANUARY 2010 VOLUME 6 ISSUE 6

A NEW NHL SALARY MODEL

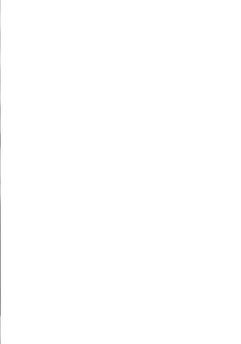
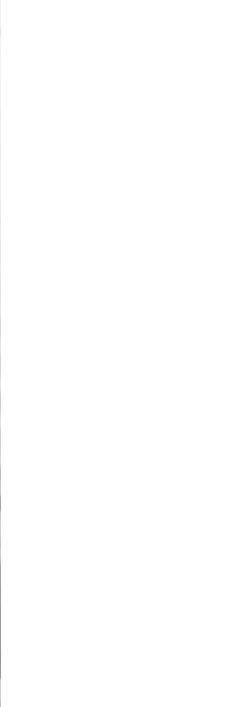
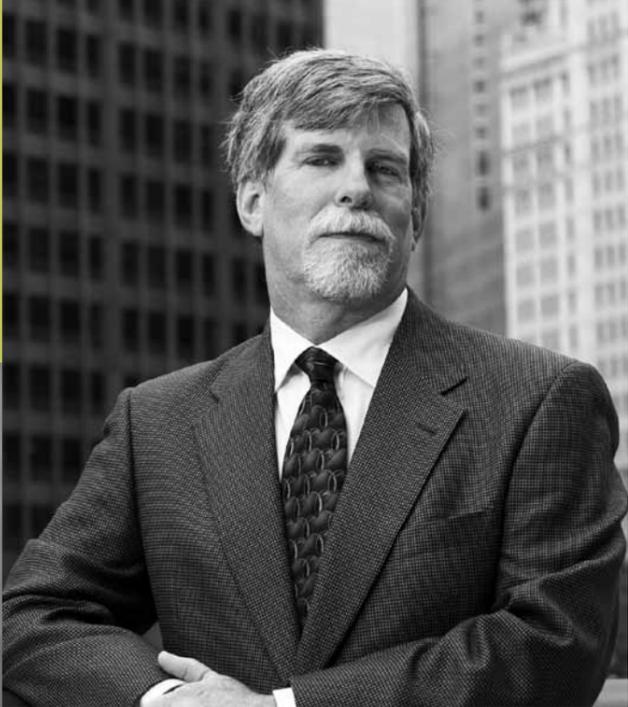


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December 2009/January 2010
issue of *The Actuary*



18

24



COVER STORY

18 A NEW NHL SALARY MODEL
Read about a new and interesting method of using actuarial skills to determine NHL players' salaries.
Luc Berlinguette

FEATURES

14 THE MANY STAGES OF RISK
Here's an explanation of the different stages of risk.
Dave Ingram

**24 DOORS OF OPPORTUNITY
ERM IN THE BROADER
ECONOMIC SECTOR**
The final installment of a series on the evolution of risk management.
Robert Wolf

14



DEPARTMENTS

- 7 EDITORIAL**
- 8 LETTER FROM THE PRESIDENT**
- 11 BOOK REVIEW**
- 13 SOCIETY OF ACTUARIES**
- 30 INTERVIEW**
- 32 THE SOA AT WORK**



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Sue Reitz

Editorial

THROUGH THE SILENCE AND NOISE

BY SUE REITZ

THOSE OF YOU who are parents know this is true. Kids rarely tell you what you want to know when you want to know it. There are times, of course, when it works out, when they tell you meaningful things: all the stuff that made today a great day, or their fears about a friendship that seems to be falling apart, or their opinions about god, politics or the Green Bay Packers. But that really doesn't happen as often as most of us would like. When you want to hear about their day, they'll tell you it was "fine" and then they'll wander off. When you want to relax with a glass of wine and a good book, they want you to listen to a play-by-play analysis of the video game they just finished playing. When you desperately want to know if their weekend plans include anything unsupervised or illegal, they're desperately trying to convince you that the friend's parents you can't seem to get hold of really will be around to monitor some cookie baking and Bambi videos.

When you think about it, communication is tricky. It's hard to believe it's possible to find meaningful information among all the silence and noise and deception flowing around you. And that's just what we're getting from our kids. When you add on all the other relationships we all have in our lives, with their varying levels of importance and closeness and trust, it should be overwhelming. But we're social beings and, actually, we're quite good at communication.

Really, I mean it. We tend to focus on the failures of communication, the times when it leads to conflict or misguided actions. But think about the number of times each day when you either give or receive information and realize that the vast majority of the time we manage to do it "good enough."

Most remarkably, we keep inventing new ways to share information with each other. Face-to-face communication just isn't enough for humanity. Starting with the invention of the alphabet and going on through the printing press, the newspaper, the telegraph, the telephone, the radio, the television, the Internet and text messaging we keep coming up with faster, more efficient ways of adding complexity to the whole communication cycle.

I remember, years ago, when I was an actuarial student, how eager I was to sign up for the new actuarial forum on CompuServe. I worked at a very small company, so I had high hopes that this new medium was going to allow me to learn from and absorb the wisdom of the vast actuarial community. What I found was that the online community was anything but vast and that the actuaries who were online seemed to want to talk about anything except actuarial stuff. There were lengthy discussions on beer, politics, sports and religion. But there was virtually no discussion on merits or lack of merits

of any of the actuarial issues of the time. I was disappointed, but did enjoy the forum as a place to hang out and socialize.

Over the years, through lack of time, I've become more of a bystander than a participant, in the online actuarial community. However, I'd still like to make an observation.

Discussion forums may not be a perfect communication medium—I can understand the reservations of those who are unwilling to spend time there. But what I'm seeing is that mixed in amongst the silence of the nonparticipants and the noise of the participants we're seeing meaningful discussions on the issues, challenges and opportunities facing our profession. ■

Sue Reitz, FSA, MAAA, is assistant vice president for Illinois Mutual Life Insurance Co. She can be contacted at smreitz@illinoismutual.com.

Letter From The President

OPPORTUNITY IS EVERYWHERE

BY MIKE MCLAUGHLIN

The Following is adapted from the acceptance speech Mike McLaughlin, the SOA's 2009 – 2010 president, gave at the 2009 SOA Annual Meeting.

I'D LIKE TO BEGIN by thanking Cecil for his leadership over the past year. He will be moving on to become president-elect of the International Actuarial Association. Cecil, now actuaries worldwide will benefit from your wise guidance. We wish you the best.

I would also like to welcome Don Segal as president-elect of the SOA. Don has served on our Board for several years, and I look forward to working with him in the year to come.

For those of you who don't know me, I'll tell you a little bit about myself. I was born in Jamaica, went to university in Canada, lived in the Bahamas, and moved to Dallas. I currently live in Chicago where I am a principal with Deloitte Consulting. I consider Chicago to be a fantastic city, in spite of the dramatic difference in climates from the Caribbean!

I learned about the profession while I was a bright, young computer programmer at British-American Insurance Company in Kingston, Jamaica. There was a project in which the actuaries needed premiums and reserves for a new 'rate book,' as we called it back then. I was the only person at the company who knew Fortran programming, so I got the assignment.

They sent me commutation tables and formulas, and while coding, I discovered and fixed an error in the formulas that they provided. That impressed my bosses, who suggested I should take the actuarial exams if I liked that kind of work. And that is the short version of how I joined the profession.

My lovely wife, Mary, encouraged me through the long series of exams. She is here today, along with Rachel, one of my two wonderful daughters. There is also a strong contingent of actuaries from the Caribbean Actuarial Association (CAA) attending this meeting. The CAA has been a great source of support and friendship for me over the years, and I am very pleased to see them here in Boston!

OPPORTUNITY

Over my career, I've benefited greatly from our profession, which brings me to why I'm here today. I'm here to talk about opportunity. I see opportunity everywhere! Opportunity for the profession as a whole, and for each of us as individuals.

You've all seen the changes taking place in the traditional markets we serve. In the pension area, we are all aware of the shift from defined benefit to defined contribution plans. This has spurred us to take a new look at funding retirement in the future. In the life insurance industry, capital is scarce, competition is intense, and actuaries need to be ever more creative.

Health care in the United States is still under debate. The focus on health reform is a great opportunity for actuaries to contribute to the discussion.

In addition, the financial turmoil of the last year or so has driven governments, private-sector businesses and institutions to take a deeper look at their financial risks.

These are challenges, yes. But these are the very challenges that we, as actuaries, are equipped to manage. These challenges present a great opportunity for our profession. In fact, the opportunity is so great, actuaries may be in danger of being overwhelmed by it.

Many other professionals are getting involved in finding risk management solutions—and they're doing a good job! We face competition!

We are a relatively small profession, with approximately 48,000 actuaries worldwide, of which there are 21,000 SOA and approximately 5,000 Casualty Actuarial Society (CAS) members. To put our size in perspective, the AICPA, a professional organization of accountants in the United States, has 340,000 members. There are also more than 96,000 CFAs, which is an increase of 47 percent in the past five years. Obviously, these aren't apples-to-apples comparisons, but you get the idea.

THE NEED FOR GROWTH

As a profession, we need to grow to meet the opportunity. At the same time, there must be no compromise of our rigorous standards. You may ask, "If more actuaries are part of the pie, doesn't that leave a smaller piece for me?" And others may say, "Things are good. I have a good job. I'm well compensated. Why should we change anything?" I like to think of the adage, "Growth is the only evidence of life." I don't believe our opportunities are fixed in size, or static in nature. And change is all around us.

Our profession *can* and *should* grow. The business world needs our training in mathematics, financial economics, model construction and risk management. I firmly believe our actuarial skills and knowledge are underutilized. There are broader uses for these skills outside our traditional areas of pensions and insurance. We must expand our influence in broader financial services, work more with other disciplines, and reach across geographic boundaries. There are lessons to be learned from other countries. In Australia and South Africa, for example, actuaries are working for banks and asset managers, with financial product pricing and management.

We should also look at how we can apply actuarial skills to solve problems in other areas such as manufacturing, technology and transportation. For example, you know how complex airfares can be—that could be a great area to apply actuarial pricing skills. Technology products, too, require sophisticated pricing and management techniques. If we can demonstrate the value of our skills, employers will require a greater supply of actuaries to fill those roles.

For another example, consider enterprise risk management (ERM). With ERM, our profession has the opportunity—perhaps the duty—to apply our skills much more broadly than

ever before. ERM is a logical extension of traditional actuarial methods and training. We will manage a wider range of risks, and consider their interactions across an organization in many scenarios. I believe it is the future of our profession. It is important for us now to think of ourselves as actuaries and risk managers.

How are we as actuaries equipped to be leaders in ERM? With our CERA credential. The CERA embodies the set of skills employers and clients need to execute enterprise risk management. And this is true for life, health, pension and property/casualty actuaries. It's true in the United States, in Canada, and around the world. The SOA led the way with the CERA credential and now actuaries worldwide are recognizing its value. This is a huge endorsement of the SOA's leadership and ERM for actuaries.

GLOBAL CERA

Cecil mentioned yesterday that we are working toward offering the CERA as the global ERM credential. This is an ambitious project. We're working with 13 other actuarial organizations.

One of the biggest challenges has been figuring out how to maintain consistency across borders, while upholding the high quality, consistency and rigor of the credential. A credential that varies by country in these important characteristics is not a global credential. We will have a rigorous quality assurance process. There will be no negative impact. In fact, the global CERA will boost the image of actuaries as risk managers. Most of the details have been addressed, and we're close to signing an agreement. Our profession is truly blazing a trail—I haven't yet seen another credential offered by multiple organizations working collaboratively.

COLLABORATION

As I talk to members, one question I hear con-

sistently is, "Why do we need so many actuarial organizations?" People have mentioned the idea of forming one large actuarial organization.

This isn't practical. And, in my opinion, isn't necessary. But rather than maintain the status quo, we could reshape how we manage the profession. I would like to discuss that for a moment. Let me give some examples.

The SOA and CAS already administer certain exams jointly. We have a profession-wide Image Advisory Group, and we work together on the Marketing and Market Development Plan. We also collaborate with the Casualty Actuarial Society and the Canadian Institute of Actuaries on the Climate Change Committee. But we can do more. We must clearly identify the mission of the profession as a whole, and the appropriate role for each organization.

Recently we formed the Actuarial Collaboration Task Force, ACTF, composed of the current presidents of the five U.S.-based organizations. We have defined roles for each body more clearly and will also recommend various organizational changes to reduce overlap and make better use of volunteer resources. We have made great strides, and I know we will be working even better together in the future.

THE FUTURE

Obviously, we can't discuss the future of the profession without talking about the Future Education Methods (FEM) concept. We know FEM has been a hot topic among members.

I've been viewed by some as an FEM supporter. Perhaps that's because I have been in favor of exploring the concept. I've also been told I'm not a strong supporter because I've suggested ways to change the concept.



Mike McLaughlin

Book Review

A Comprehensive Guide to Measuring and Managing Life Insurance Company Expenses

by Sam Gutterman, FSA

Reviewed by Douglas C. Borton, FSA

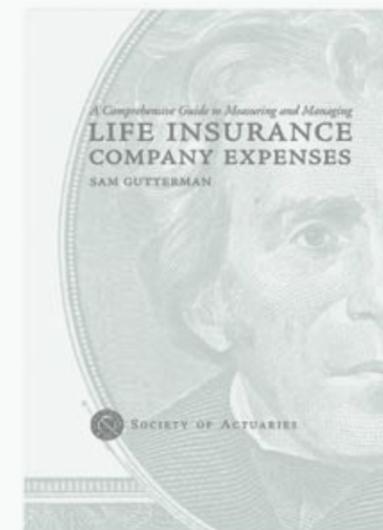
Although expense management is a key controllable component of life insurance-company profitability, until now the subject has been largely ignored in actuarial literature. Therefore, this landmark publication fills an important void for actuaries and other professionals involved in designing and administering insurance products.

The 450-plus page textbook was published by the Society of Actuaries in 2007. It had its beginnings with "Expense and Pricing," which was written in 1997 by Sam Gutterman in response to a call for papers. Over the next decade the original paper was expanded sixfold in size with the assistance of dedicated volunteer editors including Mike Eckman, FSA; Tim Harris, FSA; Tom Herget, FSA; Paul Strong, FSA; and Steve Sorrentino, FSA.

Although designed primarily as a reference book, the first five chapters provide a valuable overview for readers who are not familiar with the subject or who want to brush up on their knowledge.

Expense management and analysis play a role in a variety of life insurance company functions including measuring performance, establishing benchmarks, communicating financial results, estimating future costs and making business decisions.

There is no best way to derive expense assumptions, allocations or projections that apply in every circumstance. However, there may be an optimal approach to implement a particular business strategy. Thus, the



author describes the pros and cons of various techniques.

The business of insurance consists of developing products and services to meet customer and policyholder needs, creating an infrastructure to attract clients, and establishing processes to service these products. The long-range and intangible nature of these offerings makes the insurance business unique.

Every entity has a strategic plan, even if it doesn't realize it. The plan must be executed through tactical and operational planning and quantified by a budget. A recent study indicates that the ultimate goal of recouping all expenses is achieved by only 42 percent to 67 percent of insurance companies. The others recover less than 60 percent of their total expenses.

Pricing methodologies vary by company.

- Cost-based pricing is intended to recover expected costs plus a profit. Conditions may result in cost overruns, requiring active expense management.
- Market-based pricing sets the price on the basis of market conditions. Active expense management then determines the level of cost control that must be utilized.
- External constraints such as prices dictated by regulators may force an insurer to decide whether or not to participate in the market. In other cases rules may limit the use of certain expense categories in setting rates. These situations require accurate and timely expense information.

The insurance industry is at the forefront of technological development. New technology is always introduced with the promise that costs will be reduced. As a practical matter, anticipated savings are often not realized, because the new equipment is used to perform additional tasks that are not necessary.

The book covers a broad spectrum of the concepts involved in analyzing and controlling insurance company expenses. It is enhanced by a four-page list of acronyms, a glossary of pertinent terms and an exhaustive bibliography. The readable text is supplemented by informative graphs and tables.

A Comprehensive Guide to Measuring and Managing Insurance Company Expenses is a valuable resource for everyone involved in this important area. ■

Let me say right now, I do not support FEM in its present form. On the other hand, some new and different ideas have surfaced that deserve consideration.

The Board had a lively discussion of this, at the meeting that concluded on Sunday. After considering your comments, the Board has acknowledged your concerns, and has decided not to proceed with FEM in its present form. The Transfer Knowledge Strategic Team will communicate education strategy to the Joint Steering Committee, which has been asked to identify possible alternatives to meet our educational goals, without university course exemptions, as currently proposed. We're asking them to report back to the Board in February 2010. I will also appoint a task force to communicate with our members and employers specifically on this issue. We have heard your voices.

COMMUNICATION

Although it has been controversial, one benefit of the FEM discussion is that it has emphasized the importance of good member communication. Communicating with members has always been of prime importance to the SOA.

The Board and SOA staff are looking at several ways of obtaining feedback. One of the first was the 'Conversation with the 2010 President' that took place earlier this morning. It was great to have a group of you attend this discussion.

Some other ideas: Our friends at the CAS use a member advisory panel, and I think that's a great idea worth exploring. We are also considering more frequent communications from SOA leadership, and using a blog, or Twitter. I want you to know that you are free

to contact your Board, Section leaders and me with any ideas, comments and suggestions you may have.

CONCLUSION

In conclusion, I look forward to an exciting year of improved collaboration, growth—including broader influence in ERM—and opportunity for the actuarial profession. Remember that we are actuaries and risk managers. We must look outward together, in order to expand our horizons.

I'd like to conclude with a quote from General Douglas MacArthur, who once said, "There is no security on this earth. Only opportunity." Thank you. ■

Mike McLaughlin, FSA, CERA, MAAA, FIA, is president of the SOA. He can be contacted at mmclaughlin@soa.org.

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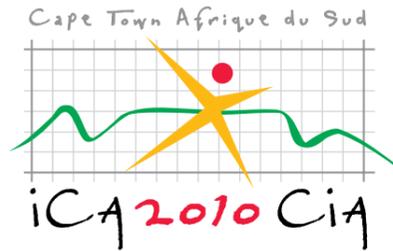
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CHECK PRESENTATION TO REV. GREGORY GROOVER, CHAIRMAN, BOSTON SCHOOL COMMITTEE



GREG HEIDRICH, SOA EXECUTIVE DIRECTOR

AS A PART OF THE SOA'S 60TH ANNIVERSARY CELEBRATION and in keeping with the SOA's mission of education, the SOA donated \$25,000 to the Boston Public Schools (BPS) on Friday, Oct. 23 to help BPS enhance its math programs. These programs will help students throughout BPS to continue to grow their math skills and be successful at higher math levels.

In addition, The Actuarial Foundation donated its *Building Your Future* financial literacy packets to the Boston Latin Academy, with plans to expand the donation to include other schools in the system. *Building Your Future* is designed to help high school students easily grasp the essentials of personal finance and to master the knowledge and practical skills needed to live financially healthy lives.

Then current SOA President Cecil Bykerk and Executive Director Greg Heidrich visited Boston Latin Academy to present the donation to BPS, meet with school administrators and visit with students. Boston Latin Academy is one of BPS' advanced learning schools with a rigorous curriculum and has been recognized by numerous scholarship and awards programs.

"These students and their ability to excel in math are the key to the actuarial profession's future success," said Bykerk. "We sincerely hope that the SOA's contribution will help the Boston Public Schools' math programs and, ultimately, its students reach new heights."

In addition, the SOA provided all of the more than 1,700 students at Boston Latin Academy with flash

drives making it easier for them to effectively manage important papers—like math homework. BPS administrators were very excited and grateful to receive the donation. BPS plans to use the donation in several ways. It will be used to improve technology, which will allow students to participate in certain math education programs. BPS also plans to increase student access to online math programs and train more teachers in a variety of top-notch math programs.

"The SOA is proud to share its anniversary celebration in a way that truly represents an important part of the mission we've been pursuing for the last 60 years—education," stated Bykerk. ■

the many STAGES of RISK

BY DAVE INGRAM

THE AUTHOR OF THIS ARTICLE likens the stages of risk to a sine wave. Read on to find out the definition of each stage.

Modelers usually work with one model of the world and from that model we try to infer the amount of risk. This practice has been looking more and more suspect with the frequency of the events that are either totally outside of the models or at best at a very, very low frequency.

But if there is a major difference between the world and the model, what should you do? Some react to that by making totally outrageous comments about how unlikely the event that just happened was. "We were seeing things that were 25-standard deviation moves, several days in a row," David Viniar, Goldman's chief financial officer, said to the *Financial Times*.

Some modelers have been using a two-stage model, called a regime-switching model, to

better capture the increased volatility that seems to occur during some periods of time. That has increased the ability of the models to stay within 10 standard deviations of reality. It would be even better if there was a way of thinking that could also keep management that close to the real risk environment.

Discussions of the financial crisis have also favored the two-stage approach to the world. In those discussions the two stages are Normal and Dreadful. All of the activity of adjusting regulations is focused upon the idea of making the Dreadful stage much less likely.

But there is an operational problem with trying to fix things with that two-stage view. It paints the risk as a cliff situation. Once you pass the edge, there is nothing that you can do. So keeping away from the edge is the full

extent of preparation. After some time, the edge seems less and less dangerous to approach and firms find that there are more and more profits operating closer and closer to the edge.

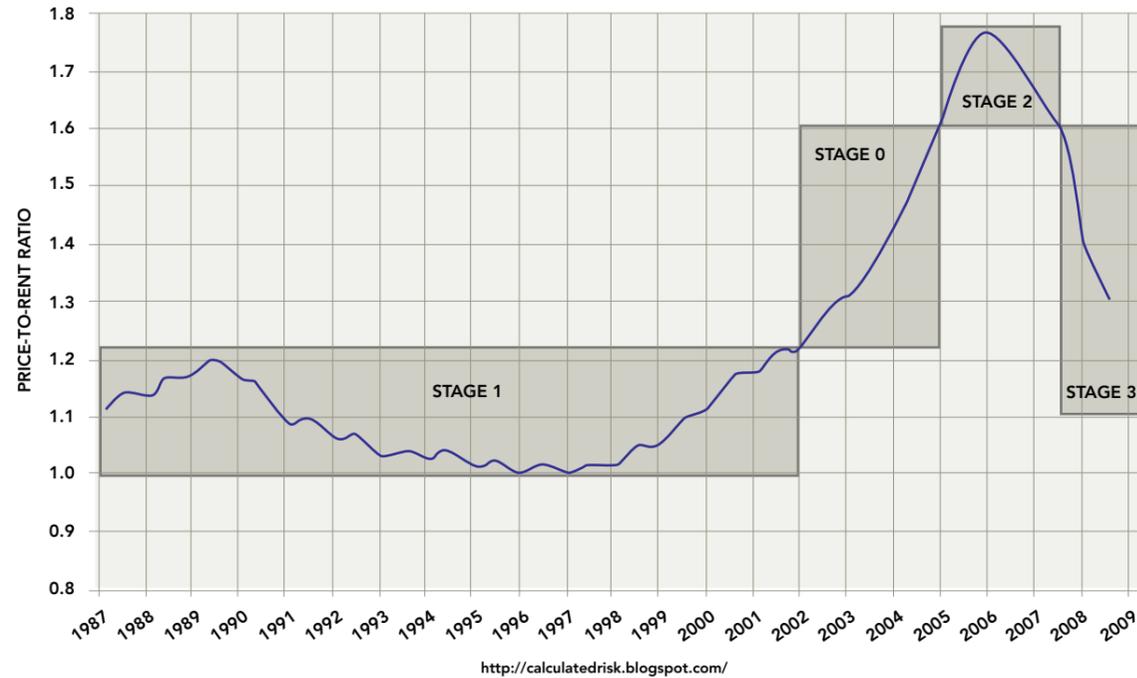
Firms that use this two-stage view of their risks tend not to do anything active in risk management, other than the "be cautious."

But in fact, many people refer to the financial system as going through cycles. Cycles can be broadly represented by sine waves. And a sine wave has four stages: a bottom, top, upward slope and downslope. Now with financial cycles, the duration and amplitude of each of these stages is unknown, but there are four stages.

In macro terms, the environment for any risk can be seen to have four main stages:

Stages of Risk

PRICE-TO-RENT RATIO, Q1 1997 = 1.0
NATIONAL CASE-SHILLER HOME PRICE INDEX AND OWNER EQUIVALENT RENT



STAGE 0 – Low Risk Environment. It does not seem to matter how much risk is taken on during this stage. Every decision to take an additional risk pays off handsomely. Over and over again the naked, unhedged position beats out the carefully hedged position; the uninsured risk beats the insured risk. During this environment, people slowly drift away from being concerned about risk and risk management because they are looking at others who are not concerned with risk who are making a lot of money. Capacity for risk taking does not seem to be an issue and some will take much more risk than could possibly be prudent in any other environment.

STAGE 1 – Normal Risk Environment. This is when the long-term averages seem to hold up well. Investors and insurers experience mostly gains, but with enough losses to

maintain focus on appropriate risk management. Volatility is in the normal range, so hedging and reinsurance programs have the expected impact. Risk management seems to be designed for this environment—because it is. Capacity for risk taking is carefully matched up to risks, but taking risks up to capacity is usually seen to be the best course in this environment. Capacity is usually defined in terms of something like a one-in-200-year loss, but no one really expects to experience a loss of that size. That just wouldn't be normal.

STAGE 2 – High Risk Environment. Suddenly, things get really RISKY. Almost any course of action presents potentially fatal threats. Some unexpected event usually triggers a shift from a Stage 1 to a Stage 2 Environment. Natural or man-made catastro-

phes or sudden major shifts in markets might be triggers. Capacity that during Stage 1 was seen as a perpetual resource now suddenly seems like it may or may not be sufficient. Suddenly people are extremely concerned with how risks are (and were) managed.

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phes or sudden major shifts in markets might be triggers. Capacity that during Stage 1 was seen as a perpetual resource now suddenly seems like it may or may not be sufficient. Suddenly people are extremely concerned with how risks are (and were) managed.

STAGE 3 – High Loss Environment. Many of those risks have turned into LOSSES. Survival of the institution (and potentially the entire financial system) is uncertain. The market senses that many previously respected firms will not make it through this period and that suspicion drastically slows business activity. Risk management focus needs to be on helping to

opportunistically find the course of action that will save the firm. For the firms that fail, risk management efforts shift to workout.

The graph above gives a good picture of how the stages work. Stage 1 was in effect for 15 years. There were moderate swings up and down during Stage 1, but nothing severe. Then, the market came to think that there was almost no risk and entered into Stage 0 during 2002. This ramping up of risk taking led to a Stage 2 Environment during 2005. Then in 2007, that transitioned into Stage 3 when everything came crashing down.

And where was risk management? Those who were doing their risk management “by the book” were busy analyzing their risks with their single-stage risk models. That is because the book version of risk

management is written for the Stage 1 Environment and uses Stage 1 thinking. Risks are expected to fit into neat formulas that represent the historical experience for each risk. Regulatory systems such as Basel 2 and Solvency 2 are firmly rooted in Stage 1 thinking and experience. Prior episodes of Stage 2 and Stage 3 environments may be incorporated into these views, not as something unexpected and uncontrollable, but as things that in retrospect are completely explainable.

So for future risk management to be effective there are two choices. The first choice is to hope that the regulators and central banks and the new systemic risk regulator do their jobs better and that henceforth we always stay in a Stage 1 Environment. And that is the choice that many seem to be working towards. The second choice is for risk management to recognize that we will have all four stages in the future and make plans for how to manage risk in all four environments.

The first choice, which seems to be the direction that the governments are taking, is just another version of the “it’s different this time” thinking that is common during Stage 0 Environments. Or maybe it represents a Stage 1 type of thinking that because, in retrospect, we can explain the past difficulties—we have tamed risk.

The other choice is going to be more costly and will require much more far-sighted thinking. It requires recognizing that the possibility of future shifts from one stage to another for new reasons exists at all times. It means thinking through possible approaches to risk and risk management during all stages instead of working with a Stage 1 ERM system that is abandoned or ignored during Stage 0 and inadequate during Stages 2 and 3.

It will probably mean ignoring the calls for a fixed set of rules about risk (that can be immediately arbitrated) and creating something that flexes with the environment.

WITH THIS NEW EMPHASIS FOR RISK MANAGEMENT, THE MOST IMPORTANT SKILL BECOMES OUTWARD AND FORWARD LOOKING ...

During Stage 0, the system needs to flex to allow more, but not unlimited, risk taking. During Stage 2, risk taking needs to shrink, but not disappear. But Stage 2 risk management needs to focus on the possibility that Stage 3 may happen at any time. So the risk taking needs to be carefully reviewed during Stage 2 for liquidity, and illiquid risks need to be avoided and unwound as quickly as possible. Stage 3 risk management then focuses completely on triage. Which losing situations can benefit from workout attention? And which liquid positions can be sold with the least damage?

With this new emphasis for risk management, the most important skill becomes outward and forward looking to understand where the environment is and where it is moving. Previously, much of risk management attention has been directed inwardly towards evaluation of the risks on the books and looking backwards to historical experience to do that.

If the role of identifying potential shifts in stages is accepted as a major role for risk managers, then in addition to preparing reports looking inward about the risks of the firm, risk managers and firms will need to prepare four sets of risk management plans and keep them up to date. Seem onerous? Think of what a football coach and team go through. They do not just have

two sets of plays—offense and defense—they have a dozen or more sets of plays for both offense and defense for the very different stages of the game. Somehow, we

have settled for asking much less from our business and risk managers than we do from our football coaches.

For the risk modeler, that will mean a four-stage model. It might not mean linking them together as is usually done with the two-stage regime-switching models. It may mean creating models of each stage that then are all used to evaluate different products and programs. Management may still want to favor Stage 1 in their decision making, but keep the information about how things might perform in the Stage 2 and Stage 3 models in mind and be ready to change course when there are signs of entering those situations.

In 1928, Frank Knight divided the future into Risk and Uncertainty. The risk can be easily modeled. The uncertainty cannot. But guess which one pays off? The single-stage model tried to pretend that Knightian Uncertainty no longer existed—that those with the best models could be paid well for risk taking. Then uncertainty appeared and took back all of their earnings. This four-stage approach admits that uncertainty will always be with us and provides a realistic and tractable way to face it. ▣

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למה שזה א סאלרִי מודל

BY LUC BERLINGUETTE

HERE'S A NEW AND INTERESTING METHOD of using actuarial skills that could put an old way of determining professional athletes' salaries on ice.

As a longtime sports fan, I always wondered why presumably serious people could in a blink of an eye determine how much to pay a pro athlete. I have seen many generations of players and how, over time, the influence of a few individuals has changed the picture in determining the financial value of a player illustrated by his salary. As an actuary, I have always thought a more rational and/or scientific approach could be used to do so. This article, derived from the paper I presented for the Entrepreneurial Actuaries Section contest held last summer, explains how I would deal with the problem of determining a pro athlete salary with a new model. The model is based on determining an economic value for each athlete and could help replace the existing method which is based principally on salary comparisons between players with similar statistics. The economic value is based on the value-added brought by each player to the franchise according to eight identified components. These economic values will help team executives in determining players' salaries in light of their financial impacts. Even though this article relates to the NHL, I think the same approach, with some adjustments, could be applied to other professional sports.



THE RABELAIS APPROACH AND ITS CONSEQUENCES

Historically, due mainly to player agents and a lack of viable financial tools, determining how much an organization should pay one of its players has too often been based

on irrational factors like a comparison of similar players. The problem with this kind of emotional behavior is that these other players have also been evaluated based on previous comparisons. With this chain of comparisons, one erroneous link will lead to an important derailment of the evaluation process. Such a comparison process has been historically severely impaired by franchise owners willing to buy a championship or general managers overestimating a player.

Given that since the 2005 labor dispute the NHL operates under a salary cap and floor concept, it is clear that every team could benefit from a tool that would help them allocate salaries based on the real economic value of each player. Salaries represent nearly 60 percent of total operating costs and complex parameters like the North American economy and the currency value for Canadian teams call for a better method than the emotional one currently being used. This should be beneficial to the league on a long-term basis.

Contract negotiations have become increasingly difficult due mainly to agents and the NHLPA (National Hockey League Players' Association) that were able in the past to play the comparison game in such a way that teams now need to respond with rational arguments to make sure that the negotiation process is fair. The NHL is a multi-billion-dollar industry and to determine nearly

FOOTNOTES:

¹ This is a French expression based on a Rabelais story on how a flock of sheep could be lost when they all follow the first one falling into the ocean.

60 percent of its costs by looking at what the neighbor does seems to me as foolish as acting like a Panurge sheep.¹

Managing nearly three-fifths of your operating costs freely without any concrete data regarding the financial benefits coming from a player is obviously risky, but without any tools helping to address the problem, we can hardly blame pro teams for operating like they do now. The cost of a given salary is clear, but what about the benefits? Any organization operating in such a way that it cannot explain how one of the two components in a cost/benefit analysis is determined, is managing its business dangerously. Many teams already operate at a loss which should give us a hint that more sophisticated tools are needed. To continue spending most of the budget in such a guessing way could lead the NHL into major trouble since teams in financial distress create problems like bankruptcy, relocation, league supervision, poor league image and lack of parity. These are the kind of problems that could even put the NHL's existence in jeopardy.



A NEW APPROACH: THE ECONOMIC VALUE CONCEPT

This proposal is based on trying to allocate a true financial value to each player within an organization. It identifies eight components that, once actualized with actuarial assumptions regarding the usual contingencies and a given set of industry assumptions, will help determine a player's salary. Other components could be added if necessary. In determining the assumptions, some parameters,

as described below, would have to be taken into account. These components are:

Direct additional ticket sales revenues (S)

These revenues would be additional revenues provided by an increase in ticket sales due to the inclusion of the player in the roster. If the team is in a "sold out" situation, the following question must be answered: "By how much could we increase the price of our tickets without losing our sold out situation with this player on our team?" If the team is not in a sold out situation, the question becomes: "How many more tickets could we sell by including this player on our roster?"

Ancillary revenues from additional ticket sales (A)

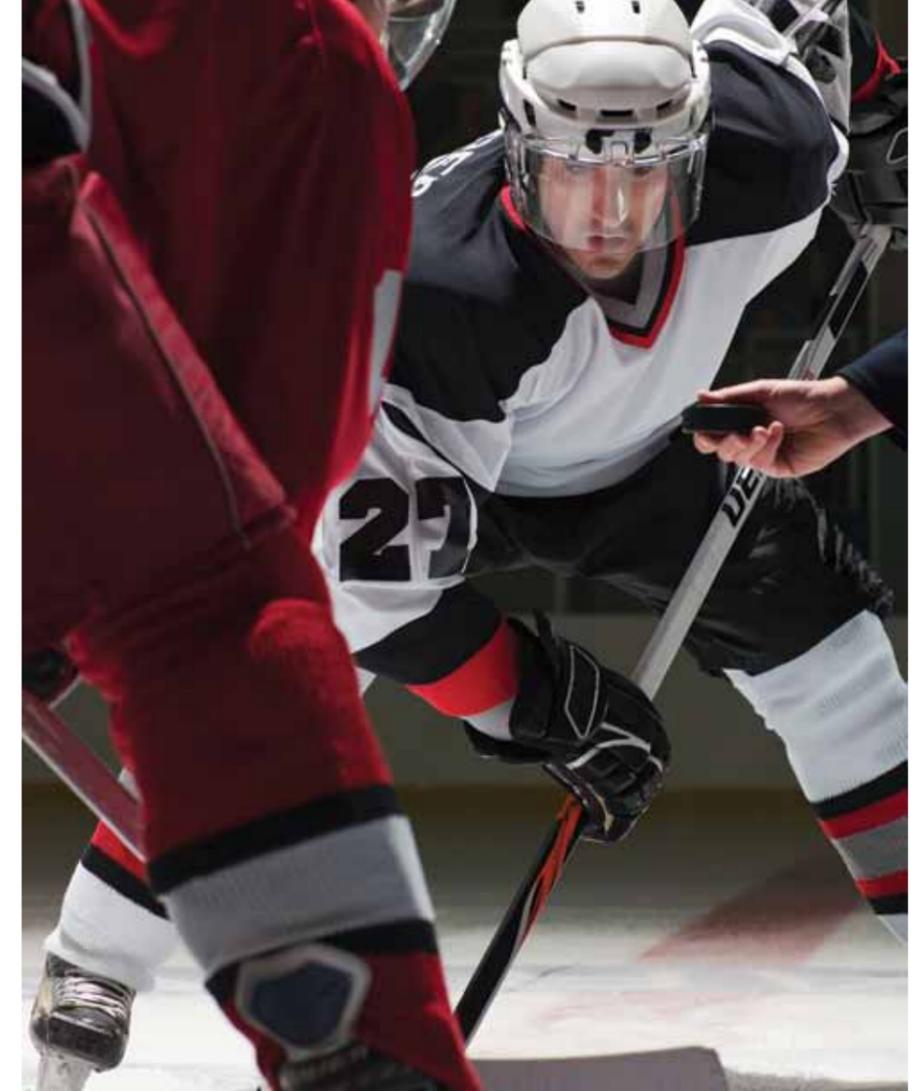
These revenues would come from additional revenues for each new customer. They include parking fees, food and beverages. Existing statistics regarding how much each fan spends on average for these, say \$X per event or Y percent of the ticket revenues, would be used. The model allows increasing the value of X or Y if adding the player improves significantly the team's performance and past experience shows that values of X and Y then increase.

Marketing revenues (M)

These revenues would come from additional derivative products sales made following the player acquisition. Included in this component is additional sponsorship with the player on the team or compensation coming from a public or commercial entity that would benefit from signing the player.

Additional broadcasting revenues (B)

This is calculated by actualizing the difference in local television and radio broadcasting revenues with or without the player presence on the roster. Similar national contract differentials would not be taken into account here, but within the component (L).



Performance value (P)

Basically, this component is the additional postseason revenues that the team would be able to collect because the player is now part of the team. This is highly subjective and management judgment plays a crucial role for this. The model needs to use parameters such as player relative caliber (including talent, leadership, attitude, injury proneness and experience), complementarity and chemistry, player position and total revenues brought by additional postseason games.

Franchise value (F)

Hiring a player could generate an increase in franchise value. This increase could come from two sources: firstly, if the salary paid is lower than the economic value; secondly,

if adding the player produces an impact on the competitiveness and/or the image of the team, thus improving rankings, profitability or notoriety.

Player market value (D)

When a player is hired, he has a market value and this should be assessed and translated in terms of dollars. If the contract is signed over a period of years, we have to estimate the market value of the player at the end of this period taking into account that the player could then be a free agent. The difference (positive or negative) between the two values should be used in determining the economic value. This is like an amortization cost.

Figure 1: Athlete: X

ACTUALIZED ECONOMIC VALUES		DERIVED SALARY	
Contract	Tickets	Ancillary	Marketing
1 Year	8,497,170 \$	1 Year	9,330,323 \$
2 Year	15,282,911 \$	2 Year	8,404,846 \$
3 Year	21,354,677 \$	3 Year	7,833,862 \$
4 Year	24,087,576 \$	4 Year	6,654,874 \$
5 Year	28,016,025 \$	5 Year	6,197,018 \$



Figure 2: Athlete name: X

Contract Duration	Tickets	Ancillary	Broadcasting		Marketing	Performance	Depreciation	Notoriety	Total
			Television	Radio					
1 Year	4,014,727 \$	281,013 \$	99,554 \$	39,845 \$	196,745 \$	2,581,715 \$	148,918 \$	1,134,633 \$	8,497,170 \$
2 Year	7,678,373 \$	537,486 \$	186,242 \$	75,415 \$	367,763 \$	4,920,561 \$	(630,438) \$	2,147,509 \$	15,282,911 \$
3 Year	11,019,655 \$	771,376 \$	263,641 \$	107,174 \$	516,339 \$	7,038,840 \$	(1,414,212) \$	3,051,863 \$	21,354,677 \$
4 Year	14,060,792 \$	984,255 \$	332,236 \$	135,530 \$	645,321 \$	8,956,404 \$	(4,886,285) \$	3,859,322 \$	24,087,576 \$
5 Year	16,829,385 \$	1,178,057 \$	389,133 \$	159,151 \$	757,204 \$	10,691,317 \$	(6,568,491) \$	4,580,268 \$	28,016,025 \$

Figure 3: Assumptions

	At Signature	Year 1	Year 2	Year 3	Year 4	Year 5
Cost of time		12%	12%	12%	12%	12%
Increase in ticket price with player		5.00 \$	5.00 \$	5.25 \$	5.51 \$	5.79 \$
Death probability (1 out of)		3000	3000	2950	2900	2850
Probability of disability off sport (1 out of)		80	80	80	80	80
Minor injury probability (1 out of)		20	20	20	20	15
Major injury probability with risk of retirement		0%	3%	5%	8%	10%
Ratio ancillary/tickets		7%	7%	7%	7%	7%
Ratio postseason price/regular season price		125%	125%	125%	125%	125%
Ratio player salary/value		100%	100%	100%	100%	100%
Minimum salary		300,000 \$	300,000 \$	300,000 \$	300,000 \$	300,000 \$
Number of seats		20000	20000	20000	20000	20000
Increase in TV rights		100,000 \$	100,000 \$	100,000 \$	100,000 \$	100,000 \$
Increase in radio rights		40,000 \$	40,000 \$	40,000 \$	40,000 \$	40,000 \$
Increase in marketing and other products		200,000 \$	200,000 \$	200,000 \$	200,000 \$	200,000 \$
Number of additional postseason games		4	4	4	4	4
TV rights per additional postseason games		250,000 \$	250,000 \$	— \$	250,000 \$	250,000 \$
Radio rights per additional postseason games		50,000 \$	50,000 \$	— \$	50,000 \$	50,000 \$
Mkg and other products per add. postseason game		50,000 \$	50,000 \$	— \$	50,000 \$	50,000 \$
Player surrender value	15,000,000 \$	16,000,000 \$	15,000,000 \$	14,000,000 \$	13,000,000 \$	12,000,000 \$
Player's age	23	24	25	26	27	28

League value (L)

This value would be given only as an exception to outstanding athletes generating an increase in total league revenues. This component should be supported by every team in the league. Additional revenues over the league should be considered. The league would determine the percentage of this value that would be returned to the player.

As explained above, for each component, we have to determine assumptions to be used in the actuarial formulas. These assumptions and the ensuing computations will be influenced by the following parameters.

- **Age** should be considered when evaluating contingencies risks like mortality, disability and injuries. It would have a significant impact on most of the eight components.
- **Charisma**, if applicable, could influence principally component (M) and to a lesser degree other components.
- **Complementarity, Chemistry, Leadership and Reliability** would influence significantly component (P) and to a lesser degree the other components.
- **Player behavior outside the rink, Energy and Resilience** would affect all components.
- **Experience** would affect mostly (P) and (D)
- **Performance** would be the most significant parameter affecting all components.
- **Injury proneness** would influence the disability assumptions.



SALARY CALCULATION

This would be done according to the following steps:

- 1) Determine the contract length.** This must be fulfilled before any salary calculation. If the team wants to test multiple durations, the model allows it by replicating the calculation using multiple durations.
- 2) Determine the economic value percentage.** A decision has to be made regarding the percentage of the total economic value that the team wants to credit to the athlete. This percentage could be over 100 percent due to market considerations, but at least management would then be aware of it in its payroll management.
- 3) Calculate the economic value.** This is where the model comes into play. Team management determines the assumptions and the model calculates the economic value as the sum of the first seven components. The league value component, if necessary, would be calculated separately since it would be divided between all teams.
- 4) Salary calculation.** This final step is performed according to values determined in the first three steps, making sure to take into account other factors like minimum salary and any salary cap and floor constraints.

Formulas for determining the different values could be viewed while reading the original paper. A practical illustration (including main assumptions) regarding economic

value and salary calculation for player X with no (L) value is included in Figures 1–3.



CONCLUSION

This model is by no means a panacea to the problem of determining a player's salary. It is basically a tool for helping to allocate a given budget between 23 players. The key part of the whole process would still remain the responsibility of team management: determining the assumptions. The results would help the management to not only determine each player's salary, but also prepare an arbitration case and/or evaluation for a potential trade regarding a given player depending on his ratio (current salary vs. real economic value). By running different tests, it would become obvious that the economic value differs widely from one player to another and that franchise players well-deserve their actual salaries while players classified as "grinders" or "energy players" are generally overpaid. Any informed hockey fan (and certainly general managers) already suspected or knew it, but the introduction of the economic value tool would bring an actuarial light to the situation by substituting demonstrations for impressions. **A**

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DOORS OF

OPPORTUNITY

ERM IN THE BROADER ECONOMIC SECTOR

BY ROBERT WOLF

THIS IS THE FINAL INSTALLMENT of a six-part series on the Evolution of Risk Management. The previous articles are available on www.soa.org, publications, *The Actuary* magazine.

In scouting for flights for family vacations, I generally have used my favorite airline Web sites' scheduling tools. Looking into the vast arrays and series of times, dates and airports, I would plop in arrival and departure dates for certain trips and then gauge their trends over time. I would monitor fares from Chicago to my favorite locations to see which weekends a family getaway was economically feasible as compared to others. It was just amazing how prices changed from one week to the next—sometimes daily.

In reading a recent article on how airlines manage the complex flight pricing plans, it occurred to me how the dynamics truly relate to how we actuaries price our insurance coverages. United Airlines develops its global flight schedule and pricing schematic in an extensively complex grid that is perpetually dynamic. The grid considers risks underlying connections, airline partners, customer demand, supply of planes, the markets, gas prices, potential revenues, potential losses and so on to assess risks and opportunities of charging the most reasonable price possible given all these factors. Oh, and they also have to figure out what their competitor airlines are doing too, for competitive reasons. Price wars sometimes remind me of the property/casualty industry's underwriting cycle—lower prices, get market share, bait, then switch.

It occurred to me that this process very much resembles what pricing actuaries do today. This is especially true with the predictive modeling tools we are using in incorporating an unlimited vector of risk components in the interest of determining a competitive pricing

scheme. If your credit report stinks, your auto rates are higher. No direct causal relationship, but rather a correlation of behavior. If you let your credit report go, chances are you are a careless driver, etc. Hey, we do this in insurance. We can do this for the airlines too. Maybe both industries can learn and grow from each other. In our evolving roles in the enterprise risk management evolution, this very much resembles our roles in our traditional sectors we serve in the insurance industry. We're advising on competitive prices, considering the many risk variables that go into the price. These considerations include the likelihood and propensity of underwritten risks to be subject to potential fortuitous contingent events such as the likelihood, frequency and severity of accidents, deaths, lawsuits, sickness, etc., the resultant expected and variable costs relative to the volatility of the financial markets, the demands of consumers (insurance buyers) and risk bearers (shareholders). Clearly, our profession has integrated the skill sets of mathematics, statistics, logic, value-based management, economics, legal and behavioral finance, the business of insurance and philosophy to evolve our skill sets in our traditional venues. We are now in a great position to apply these evolved skill sets into new venues, including our predestined frontier into the non-financial sectors of the broader economy.

WE ARE ALREADY THERE

It can be argued that we are already there. We already have at least one foot in various nonfinancial industries today. We have and continue to consult on employee health and retirement benefits for clients in the nonfinan-

cial sector. Actuaries have and continue to work with risk professionals, insurance brokers and traditional risk managers in the airline, food, energy and other industries in managing their property and casualty risks via insurance, alternative markets and self-insurance. Over the past decade, the actuarial role in these areas has evolved within the greater enterprise risk discipline as we have evolved in our skill sets, transcending into determining optimum insurance structures, advising on alternative risk retention/transfer strategies and recommending alternative market products given a customer's risk and reward appetite. Although we have had one foot in these economic sectors, we have a grand opportunity today to begin getting that other foot in. That is, we now have the opportunity to expand our actuarial skill set in the greater economic sector as key contributors to strategic business planning with integration into profit and risk optimization that extends beyond the work we already do in these business sectors today.

In Part one of this article series, I cited the Mercer Management Study that analyzed the causes of significant stock price drops amongst the Fortune 1000 companies in the booming '90s. The causes were generally due to multiple reasons and stemming from events mostly falling under strategic and/or operational risk categories. This was affirmed in a current yet-to-be completed study sponsored by the SOA/CAS/CIA Joint Risk Management Section and led by Larry Rubin, partner at PricewaterhouseCoopers.

This study analyzes the high profile failures of recent times (Enron, WorldCom, etc.) since

the Mercer Management Study as they relate to best practices in risk management (or lack thereof). The goal of this research project is to test hypotheses and validate arguments for enterprise risk management (ERM) best practices from lessons learned in these high profile failures. As indicated preliminarily in this study and as presented in a recent session at the SOA '09 Annual Meeting in Boston, "A Case Study of Case Studies," one or more of four common themes seem to emerge as a common denominator in virtually all of these failures, again all generally falling under the categories of strategic and operational risks. They are:

1. **Business model failure:** The failure of developing and carrying through on sound strategic planning that prevents the firm from surviving and thriving in a highly competitive environment.
2. **Lack of proper risk metrics in place in analyzing the true element of risks undertaken to achieve company goals:** This is consistent to the lessons learned from the financial crises in which incentive compensation schemes were not appropriately tied to the desired performance of company executives. In other words, there were no general controls in place to stymie excessive risk taking to achieve company goals. In some cases, where there were any considerations of risk metrics, they were not prudently in place. In some cases no risk metrics were even considered.
3. **Lack of a truly independent internal audit function:** This lack of true independence has harmed the ability for firms to prevent traders or executives from harming the company for

individualist opportunity or gain. It also did not prevent accountants from gaming certain accounting conventions to shape up an otherwise shaky balance sheet. Similarly and consistent with the lessons learned from the financial crises, there are many instances where the authority to make decisions did not tie to accountability for decisions made.

4. **Inadequate asset/liability management:** In essence this translates to using short-term assets to fund long-term obligations, resulting in higher long-term liquidity risk. Clearly asset/liability management is a prudent discipline needed beyond the financial services sector. As a profession, we can take our best practices from our traditional domain to that in the nonfinancial sector as well. Bottom line, whether we

THE NONFINANCIAL SECTORS ... ARE REALISTICALLY MANAGED NO DIFFERENTLY THAN THE ... FINANCIAL SECTORS. ...

are working in the financial services sector, or the nonfinancial sector, all projects and strategies require adequate means to be funded, and ultimately cash will eventually be required, when it is needed.

These common themes identified in the analysis of these high profile failures, in general terms, arguably compare to the causes of insurance company failures of the past. As a profession, we are quite familiar with them up close, we learned from our mistakes and have implemented best practices. As we have been developing and applying ERM principles in the current broader financial services sectors that we serve today, such as solvency management, we can apply the same strategies that have

worked into these new venues in the general economy.

I believe we can all recognize that all risks, whether in the financial or nonfinancial sectors of the overall economy, will eventually be manifested on the financial statements as a threat to cashflow in some form or another. It is this very notion of "Following the Cash" and its corresponding uncertainties that we as a profession can continue to pioneer per our actuarial philosophy to the broader business sectors of the economy.

OUR ULTIMATE FRONTIER

The nonfinancial sectors of our global economy are realistically managed no differently than the management of our financial sectors that we currently serve prominently. Pick a sector, any sector, and there is a general goal

in producing a viable product or service, and selling it at a profitable and competitive price, given the many risk and opportunity considerations in a firm's strategic business plan. In which stage is ERM operating in these opportunistic sectors? In general, with some exceptions, they are lagging far behind that of the financial services industry.

In my experiences, there have been three primary reasons that ERM implementation in nonfinancial sectors of the economy has lagged behind the financial services industry. They are as follows:

1. Lack of a coherent definition, and more importantly, an understanding of the philosophy of what ERM is all about.

Partial Convergence of Definitions

<p>Society of Actuaries (SOA)/Casualty Actuarial Society (CAS) ERM is the process by which organizations in all industries assess, control, exploit, finance and monitor risks from all sources for the purpose of increasing the organizations' short- and long-term value to their stakeholders. www.soa.org/www.casact.org</p>	<p>Treadway Commission's Committee of Sponsoring Organizations (COSO) ERM is a process, effected by an entity's board of directors, management and other personnel, applied in strategy-setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to within its risk appetite to provide reasonable assurance regarding the achievement of entity objectives. www.coso.org</p>
<p>Institute of Internal Auditors (IIA) ERM is a structured and coordinated entity wide governance approach to identify, quantify, respond to and monitor the consequences of potential events. www.theiia.org</p>	<p>Wikipedia ERM in business includes the methods and processes used by organizations to manage risks and seize opportunities related to the achievement of their objectives. www.wikipedia.org</p>
<p>Nextgov.com ERM is an integrated or holistic approach to understand and manage all the risks an organization faces. Its primary purpose is to improve the quality of decision-making throughout an organization. www.nextgov.com</p>	<p>University of North Carolina-Chapel Hill ERM is a coordinated approach to assessing and responding to all risks that affect the achievement of the University's strategic and financial objectives, including both upside and downside risks. www.unc.edu</p>

am seeing a partial convergence of the definitions, although I still believe the adopted definition of both the Society of Actuaries and Casualty Actuarial Society is best. Our definition relates to the process, an entity, the steps, the holistic integration and the goal of an ERM philosophy, all in one sentence. Risk is opportunity. Creating value is the goal.

Although I believe most of the definitions out there are converging, I don't believe the philosophies and understanding are converging just yet. This is where we, as a profession, can serve this need well.

Another challenge has been the lack of clarity of how such a discipline should be implemented in a firm. Generally, firms that decide to develop an ERM infrastructure do so by starting first with a handful of dedicated resources in the firm. Perhaps as an add-on to the internal audit function and a "check-the-box, OK-we-are-compliant" approach, after a couple of years a chief risk officer may be appointed with the eventual integration of business unit managers brought into the strategic "risk and opportunity" thinking. Ultimately, in the final phase, there would be full "top-down" integration, which incorporates planning and performance, with board oversight over the entire ERM discipline within the firm. For firms that have gotten to this stage, this has been a slow process with a long learning curve, encompassing anywhere from five to 10 years' time.

One of the major challenges in the slow maturity in implementing ERM in the non-financial sectors is the lack of uniform understanding of how ERM brings value to a firm. Several actuaries in our profession already are serving this purpose. Sim Segal, U.S. Leader of ERM Services for Watson Wyatt &



Company, is one of the recognized pioneers in our profession in applying the actuarial principles of ERM into new venues, including that of the non-financial sectors of the economy. Segal attributes his success to a value-based approach to ERM, which is a marriage between ERM and value-based management. ERM is the process of identifying, measuring, managing and disclosing risks. Value-based management is the process of identifying value drivers and managing them to increase firm value. Linking the two brings both sides of the risk-return equation together, which is what business leaders need to make decisions. Without this linkage, it is difficult to make the business case for recommendations coming out of the ERM program ... just as it is difficult to trust results coming out of the value-based management program without robustly considering volatility around expectations.

CLOSING

We, as a profession, have a tremendous opportunity here. The actuarial profession is poised to provide and expand its evolutionary actuarial skill set and philosophy into new venues. Expanding from our current strongholds of insurance, investments, pensions, health

care and broader financial services, we have an opportunity to move our expertise into the broader economy (e.g., airline industry, energy, food processing, sports, technology). We have already made such strides.

At the July American Academy of Actuaries Financial Summit, a consortium of more than 60 Academy leaders challenged our profession to a commitment in the development of a generalized actuarial model to address the foundation of what a sound financial security system ought to be. Such a foundation would incorporate risk systems plus the incorporation of incentives and accountability of such a system. This past August, the Enterprise Risk Management Institute International (ERM-II) research summit, supported by both the SOA and the CAS, went even further and proposed the development of philosophies and research needed to fulfill our destiny and obligation to not only develop a foundation of the financial systems, but also how such a system should and could interact with the general economy, which this article addresses.

Capitalism is the very foundation of our economy. This foundation has been rocked

due to the cloudy aspects of the fair value of prices. We, as a profession, have the ability to help right the ship and provide a call for clarity. We have a societal obligation and opportunity to use the actuarial foundation of ethics and a broad skill set to make better decisions that consider both risks and rewards. Risk is Opportunity. In our collective voice, we are in a grand position to shape the regulation of systemic risk within the general economy.

We're in the year 2009 today. Compare where we are today from, say, 1999. By the year 2019, I foresee actuaries serving as chief risk officers, risk managers and risk professionals at United Airlines, ConAgra Food and Marriott Hotels. We have the right expertise for this. We have much to say. There is momentum. Let's keep going. Our possibilities and opportunities are endless, our future is illustrious. As one famous German philosopher once said, "The best way to predict the future is to invent it." – Immanuel Kant. ■

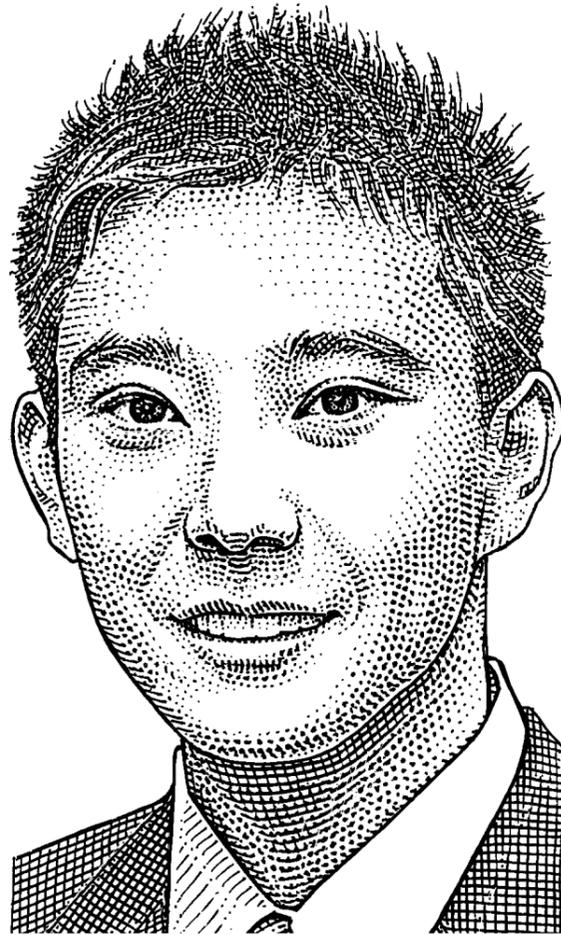
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2. Not knowing where the ERM effort should be housed within a firm.
3. Not knowing how to show ERM as creating value.

The Risk and Insurance Management Society (RIMS), founded in 1950 with a current membership of more than 4,000 entities and more than 10,500 risk professionals, has recently developed the concept of an ERM Maturity Curve, very comparable to how I have identified the three stages of ERM in its evolution

in the various sectors in previous articles in this series. In the RIMS State of ERM Report of 2008, it reports that true implementation of ERM is very slow. It also cites evidence of a beneficial interest in developing an ERM culture in firms in that there is a significant correlation between companies that score higher on RIMS risk maturity assessment and higher credit ratings.

It seems that every profession, sector and even individual came up with another definition of what indeed ERM really is. Arguably, I



Interview

THE YOUNGEST ACTUARY EVER (SO FAR!)

BY SOCIETY OF ACTUARIES

ANDREW LIN became an FSA 17 days before his 21st birthday. As a result, he is the youngest ever FSA to date. Read his story and how he plans to make a difference in the actuarial industry.

Q: Did you have career plans before deciding on an actuarial career? If so, what were they?

A: I always wanted to find something that's interesting and challenging, where I can apply my quantitative and analytical skills. The actuarial career seemed to be a good choice, but I wasn't really sure that I wanted to become an actuary when I started taking the exams. I just had some free time and I thought the material from the exams would be helpful to me in the future, regardless of what I would end up doing. After two internships, one in life insur-

ance and one in annuities, I found that I really enjoyed that type of work, so I decided that is what I would do after college.

Q: How did you become interested in an actuarial career?

A: My uncle is an actuary, and he told me about the actuarial career back in high school. I always liked math and economics,

so I started taking the exams even though I didn't know I wanted to become an actuary. As I took more exams and learned more about the profession, I became more and more interested. The two internships during college helped me determine that was what I wanted to do after I graduated.

Q: What part of an actuarial career interests you most?

A: Risk management and investment. To me this seems like the most dynamic and quantitative field, and it's the FSA track I took and the area that I'm currently working in (annuity hedging). After the financial crisis, I think there's more opportunity than ever for people who are trained to manage financial risks, especially for younger people like myself. I am eager to apply my skills and talent to make a difference in this area.

Q: How long did it take you to complete the SOA exams?

A: It took me four years to complete the exams. I started in the beginning of my senior year of high school (Exam P). I took an exam every sitting after that; never took two exams in a sitting, but also never failed any. I finished my last exam at the end of 2008, then went back to finish the FAP final assessment and do the FSA modules. I didn't feel the need to rush through the exams, but I have always had the habit of learning extra things on my own, and the exam material truly interested me. Passing the exams was just kind of a bonus for me.

Q: Describe your experience with the SOA exams process. What is your opinion of it?

A: I enjoyed the challenge from the exams, and I enjoyed learning and reading through

the material. I used the suggested textbooks for all the exams rather than the study manuals because I believed it would be beneficial for me. I think it's definitely paid off now as it helped me truly understand the concepts and remember what I learned. I can't say there wasn't a time when I felt tired and frustrated in the exam process, but it takes dedication to be successful in any field.

Q: Did the SOA exams prepare you well for future employment?

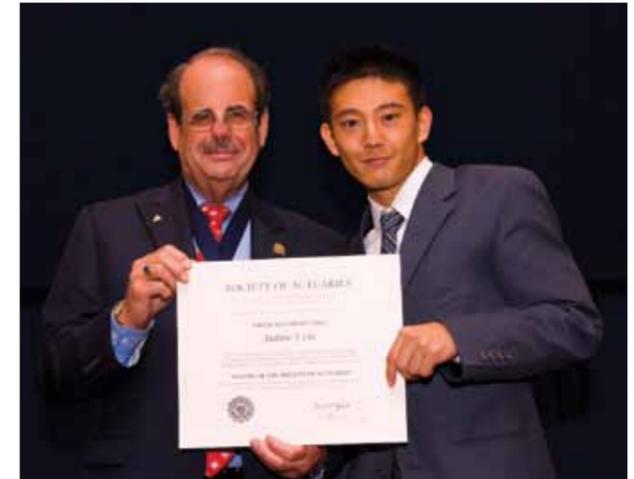
A: I can't really say how well the exams prepared me for my future employment, but as for now, what I learned from preparing for the exams is helping me tremendously. Even though I am still doing mostly analyst type of work, I am able to see the big picture with the knowledge I gained from the exams, so I have a better idea of what I am doing and how the things I do help my team and the company.

Q: Prior to completing the SOA exams, were you aware you'd be the youngest ever FSA?

A: I wasn't aware of that until late last year. I knew I would be one of the youngest, but since I knew there were a lot of very bright individuals in this field and I was just taking the exams one at a time, I didn't expect to break the record.

Q: What do you think about being the youngest ever FSA?

A: I am very proud of the achievement, but I know getting the FSA designation is only



Cecil Bykerk, SOA president at the time, presents Andrew Lin with the FSA certificate.

the beginning of my actuarial career. I want to continue to learn and develop, and I hope I will continue to have the opportunities to use my talents and apply what I have learned in the future.

Q: How do you plan to make an impact on the actuarial field?

A: There is a lot I want to do, but I'm not yet certain how to start. I have always felt that the actuarial field has remained uncharted territory—I wouldn't have known about it if my uncle wasn't an actuary. I think making people more informed about the career is necessary to attract talent to this field. So that's one aspect I would like to change; too little information is circulating about the actuarial field. In addition to that, after the recent financial crisis, there are some great opportunities for the actuarial profession to expand and contribute. I strive to become a leader in my field of expertise and help not only the profession, but society as a whole. I am also considering volunteering for the SOA. I am interested in knowing anything that I can do to help the profession. ▣

The SOA At Work

SOA REACHING OUT TO ACADEMIA

THIS MONTH'S SOA at Work column describes two aspects of an important new SOA initiative. Over the past two years, the SOA's Board of Directors has identified a need to strengthen the academic base of the actuarial profession. They've understood that for any profession to thrive—to attract new members and retain its relevance in a competitive world—requires a strong academic base for cutting-edge research and teaching the next generation. The Board has also recognized the need to build strong relationships between the academic world and the profession.



To that end, I want to mention the SOA's University Outreach initiative. Through this program SOA members and staff visited universities across the United States and Canada to talk with students and faculty about the actuarial profession, opportunities available to students, and ways the SOA can help students join the profession. At every visit, we've found a receptive audience that's excited about the profession and eager to learn how they can join it. We've gotten this reaction at schools with strong existing actuarial science programs and at schools that have never had such a program. We also come away from the visits with new ideas for how we can work with the schools, with a sense of what students find most exciting about the profession, and confidence that the future of the profession is in good hands as long as we can continue attracting students of the very high caliber we meet.

We also have a reminder in the column this month about the SOA's new Ph.D. stipend program, aimed at encouraging promising candidates to pursue a career in teaching and research in actuarial science. We hope that by helping to fund graduate level study, we can begin to build the future academic base of the profession. This is a long-term goal, but one well worth pursuing for the future of the profession. **A**

— SOA Executive Director Greg Heidrich

UNIVERSITY OUTREACH PROGRAM CONTINUES TO GROW

The University Outreach program is estimated to have reached more than 1,500 students, advisors and faculty members to date at colleges and universities across the United States and Canada. The team visited more than 15 colleges and universities in 2009. Some of the schools included University of Texas at Austin, University of Chicago, Georgia State University, Pennsylvania State University, Spelman College, Temple University, University of Connecticut, Université Laval, Concordia University, Université du Québec à Montréal, Université de Montréal, University of Toronto and Columbia University. Attendance exceeded expected numbers and participants expressed appreciation about the opportunity to learn about the actuarial profession, with 96 percent of program evalua-

tion respondents saying the information was valuable.

As background, this outreach began in 2007 when SOA education staff visited universities with traditional actuarial programs. These visits were designed to provide information on the actuarial profession to potential and current actuarial students. In 2008, Education's university visit program expanded to include collaboration with the SOA Communications and Marketing staff and offered the opportunity for a practicing actuary, often an alumnus, to participate in the visit. This combined program brought together the expertise of both teams and resulted in additional visits in 2008. For more information on the University Outreach program, please visit www.riskisopportunity.net. **A**

SOA OFFERING DOCTORAL STIPENDS

Do the ivy halls beckon? Are you thinking about supplementing your actuarial credential with a doctorate? Do you know a talented student who is currently thinking about getting a Ph.D. and an actuarial credential? The SOA offers stipends for students interested in pursuing a Ph.D. and an actuarial credential (or for those already holding an actuarial credential interested in pursuing a Ph.D.). Last year we

had 50 applicants for five stipend awards. This year five new stipend awards will be available. For more information, including the application, requirements and deadline, go to www.soa.org and click on education and university/college resources. You can also find out more by checking out the article in the August/September 2009 issue of *The Actuary*. **A**

JOINING A PROFESSIONAL INTEREST SECTION JUST GOT EASIER

You can now join one of the 19 SOA-sponsored professional interest programs with the click of a button right from your computer. Section membership is now available online at www.soa.org. Just click on professional interests, about professional interests and join a Section. The professional inter-

est groups, known as Sections, have been formed around common issues related to an area of practice or special interest. Members of the SOA and fellow industry professionals can join one or more Sections, which encourage and facilitate career and personal development. **A**

SOA EDUCATIONAL OPPORTUNITIES

ECONOMIC SCENARIO GENERATION FOR FINANCIAL INSTITUTIONS

Dec. 8
Webcast

DENTAL TREND: DRILL DOWN YOUR TREND THROUGH PRODUCT AND NETWORK

Dec. 8
Webcast

REFOCUS

Feb 28–March 3
Las Vegas, NV

INVESTMENT SYMPOSIUM

March 22–23
New York, NY

RETIREMENT INDUSTRY CONFERENCE

April 11–13
Washington, D.C.

ERM SYMPOSIUM

April 12–14
Chicago, IL

THE LIFE INSURANCE CONFERENCE

April 13–15
Washington, D.C.

LIFE AND ANNUITY SYMPOSIUM AND SEMINARS

May 17–19
Tampa, FL

View all Professional Development opportunities by visiting www.soa.org and clicking on event calendar.

NEW PROFESSIONAL DEVELOPMENT WEB PAGES ON SOA.ORG

The SOA recently unveiled the new Professional Development (formerly Meetings & Events) Web pages on *SOA.org* to better meet member needs. The reorganized Web pages clearly display the range of career-enhancing events, meetings and other opportunities available for professional development. These pages provide a more intuitive resource where members can access information quickly and efficiently. **A**

THE ACTUARIAL PROFESSION IN THE NEWS

BusinessWeek Cites SOA Publication *BusinessWeek* used a quote from an SOA publication in an article which describes how policymakers are looking at ways to mitigate the effects of market cycles and ensure that retirees don't outlive their savings.

US News & World Report Features SOA Research The publication cited SOA research in an article about retirees becoming more conservative and frugal.

Financial Times Quotes FSA The *Times* interviewed Rudy Karsan for an article on technology in the future.

OnWallStreet.com Features SOA Co-Sponsored Research The site mentioned research by the SOA, LIMRA and the International Foundation for Retirement Education in a piece on retirees' worries about finances.

National Underwriter Cites SOA Research The publication posted an article based on a survey by SOA, LIMRA and the International Foundation for Retirement Education in a piece on retirees' worries about finances.

To view all of these articles, visit www.imageoftheactuary.org and click on Actuaries in the News. **A**



SOA⁰⁹
ANNUAL MEETING & EXHIBIT

THE SOCIETY OF ACTUARIES WOULD LIKE TO ACKNOWLEDGE AND THANK THE SOA 09 ANNUAL MEETING & EXHIBIT CORPORATE SPONSOR, EVENT PARTNERS AND EXHIBITORS FOR THEIR SUPPORT, LEADERSHIP AND COMMITMENT TO THE ACTUARIAL PROFESSION.

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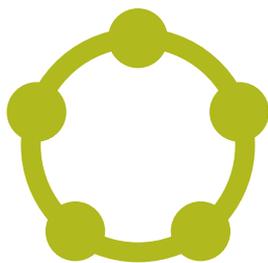
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