A NEW
NHL
SALARY MODEL

THE MANY
STAGES OF RISK
Find out which stage of risk we are in

DOORS OF OPPORTUNITY
Strengthening ERM footholds in nonfinancial industries
An Enterprising Approach to Risk.

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

This publication is provided for informational and educational purposes only. The Society of Actuaries makes no representation or guarantee with regard to its content, and disclaims any responsibility or liability in connection with the use or misuse of information provided herein. This publication should not be construed as professional or financial advice. Statements of fact and opinions expressed herein are those of the individual authors and are not necessarily those of the Society of Actuaries or its officers, directors, staff or representatives. The Society of Actuaries does not endorse or make any guarantee with regard to any products, services or procedures mentioned or advertised herein.

The Actuary is free to members of the Society of Actuaries. Nonmember subscriptions: students, $23; others, $43. Please send subscription requests to: Society of Actuaries, P.O. Box 95668, Chicago, IL 60694.

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

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

©2009 Society of Actuaries. All rights reserved. No part of this publication may be reproduced in any form without the express written permission of the Society of Actuaries.

POSTMASTER: Send address changes to The Actuary, 475 N. Martingale Rd., Suite 600, Schaumburg, IL 60173-2226.
by sue reitz

THROUGH THE SILENCE AND NOISE

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 failing 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 i 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.
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 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!

OCCUPATION

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 even more creative.

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. 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 need actuaries to 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 consistently 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 liaison 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, ACFM, 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 a 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.
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 report back to the Board on this topic.

The Board had a lively discussion of this. Some other ideas: Our friends at the CAS use 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 toward, in order to expand our horizons.

I'd like to conclude with a quote from General 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 mclaughlin@soa.org.

New and different ideas have surfaced that deserve consideration.

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 bit 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 Life Insurance Company Expenses is a valuable resource for everyone involved in this important area.

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.

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 Guttermann 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, Tus 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. This chapter introduces expense categories in setting rates. It then 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 language 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.

Life and Annuity SYMPOSIUM

NEW DECADE. NEW DIRECTIONS.

May 17-18, 2010
MARriott TAMPA WATERSIDE
Tampa, FL

WITH LIFE AND ANNUITY SEMINARS ON MAY 19.

First there was the Life Spring Meeting.

Then there was the Product Development Symposium.

Now the SOA is combining these two valuable meetings to bring you the best of both including:

- Two full days of offerings
- Extended seminar lengths
- In-depth coverage of important topics
- More networking opportunities
- An optional third day with seminars
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.

“BSPS 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,” said Bykerk.

“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.

Contact info@ica2010.com with any questions.

Register online at www.ica2010.com/register.php

T +27 (0)21 683 2934 F +27 (0)21 683 0816 E info@ica2010.com

www.ica2010.com
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.

Models 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:
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, unbridled position bears out the carefully hedged position; the uninsured risk bears 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 build 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 flaws. Some unexpected event usually triggers a shift from a Stage 1 to a Stage 2 Environment. Natural or man-made catastrophes or sudden major shifts in markets might be triggers. Capacity that during Stage 1 was seen as a perpetual resource now suddenly 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 opportunistically find the course of action that will save the firm. For the firms that fall, 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 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. What 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 …

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. What losing situations can benefit from workout attention? And which liquid positions can be sold with the least damage? It will probably mean ignoring the calls for a fixed set of rules about risk (that can be immediately arbitraged) and creating something that flexes with the environment.

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

For the risk modeler, that will mean a four-stage model. It might not mean linking them together as is usually done with the twostage 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. 12

Dave Ingram, FSA, CERA, MAAA, is senior vice president Willis Re, Inc. He can be contacted at dave.ingram@willis.com.
A NEW NHL SALARY MODEL

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 go into a blit 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 values-added brought by each player to the franchise according to eight identified components. These economic values 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 revenues 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 be able to collect because the player is now on the team, thus improving rankings, profitability and/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.

A NEW APPROACH: THE ECONOMIC VALUE CONCEPT

This proposal is based on trying to allocate a true economic 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,

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

**SAFETY 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 10 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 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.
DOORS OF OPPORTUNITY
ERM IN THE BROADER ECONOMIC SECTOR

BY ROBERT WOLF
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.

The actuarial role in these nonfinancial sectors is not only evolving in our traditional functions, but also in some new areas where we have the opportunity to expand our actuarial services in the nonfinancial sector. The nonfinancial sectors of our global economy are all highly competitive environments with little or no tolerance for failure.

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 nonfinancial 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, transitioning 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 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/AACSB Joint Risk Management Section and led by Larry Rohlin, partner at PriceWaterhouseCoopers.

This study analyzes the high profile failures of recent times (Jenius, 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 profiled 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 an analysis of these high profile failures, 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 frustrated the ability for firms to prevent trackers or executives from harming the company for individualistic opportunity or gain. It also did not prevent accountants from getting 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 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 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.
Treadway Commission’s Committee of Sponsoring Organizations (COSO) ERM is the 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.

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. The article on Enterprise Risk Management provides an overview of the concept, including its definitions, history, and potential applications.

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.

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.

Nexthegov.com ERM is an integrated or holistic approach to understanding and managing all the risks an organization faces. Its primary purpose is to improve the quality of decision making throughout an organization.

The Society of Actuaries (SOA)/Casualty Actuarial Society (CAS) ERM is the process by which, 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.

The Partial Convergence of Definitions

2. Not knowing where the ERM effort should be housed within a firm.

3. Not knowing how to show ERM as creating value.

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 ‘bottom-up’ 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 15 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: Sam 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 treat 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 stronghold 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 (ERMII) 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 2010 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.

Robert Wolf, ASA, FCA, CERA, MAAA, is staff fellow Risk Management for the Society of Actuaries. He can be contacted at mwolf@soa.org.
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 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 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.

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 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.
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 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.

The SOA At Work

SOA REACHING OUT TO ACADEMIA

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 de 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 evaluation 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 to visit universities. This combined program brought together the expertise of both teams and resulted in additional visits in 2009. For more information on the University Outreach program, please visit www.soa.org/universityoutreach.

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? Do you know someone who might be 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 deadlines, 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.

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 interest 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.

— SOA Executive Director Greg Heidrich
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.

New Professional Development E-Courses
Take advantage of these additional opportunities to grow your knowledge on a variety of important and valuable subjects, while earning continuing professional development (CPD) credit, from the convenience of your computer.

The new e-courses topics include:
- decision making and communication
- enterprise risk management
- financial economics
- financial reporting and operational risk
- fundamentals of actuarial practice
- health systems overview
- investment strategy
- pricing, reserving and forecasting
- regulation and taxation
- social insurance.

Learn more and register today at www.soa.org.

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.

CORPORATE SPONSOR

EVENT PARTNERS

EXHIBITORS

Actex Publications
Actuarial Careers, Inc.
The Actuarial Foundation
Actuarial Resources Corporation
Aetna
Algorithmics
American Academy of Actuaries
Andover Research, Ltd.
Barrie & Hibbert Limited
Canada Life Reinsurance
Claim Analytics
Conference of Consulting Actuaries
CSC Financial Services Sector
Darwin Rhodes
Deloitte Consulting LLP
DW Simpson - Global Actuarial Recruitment
Ernst & Young
Fasaco Associates
Gen Re LifeHealth
Generali USA Life Reinsurance Company
GGS Axis
Guggenheim Life and Annuity Company
Hanover Life Reinsurance Company of America
IBM Insurance Outsourcing Services
The Infinite Actuary
Innovative Reinsurance Group
Insight Decision Solutions
InSource Consulting
Interactive Data
The Jacobson Group
Lever & Ellis, Inc.
MIB Solutions, Inc.
Microsoft
Milliman, Inc.
Munich American Reassurance Company
Optimum Re Insurance Company
Paces, Inc.
PolySystems, Inc.
Prime Advisors, Inc.
Prudential Financial Insurance Company
Pryor Associates
Quantitative Risk Management
Reinsurance Management Associates
RGA Reinsurance Company
SCOR Global Life US Re Insurance Company
SMART Business Advisory & Consulting, LLC
SS&C Technologies, Inc.
Stewart Search Advisors
SunGard
Timmerberg & Associates, Inc.
Towers Perrin
Transamerica Reinsurance
Tufts Health Plan
United Health Group
Valeri Consulting Inc.
Verali Health, Inc.
Watson Wyatt Worldwide
Wilton Re

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.

OnWallStreet.com Features SOA Co-Sponsored Research
The site mentioned 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.
• THREE RETURNING TRACKS: Asset Classes, Finance and Investment Risk Management and Investment Strategy

• TWO FULL DAYS of unlimited networking opportunities, hot topics and knowledgeable speakers

• ONE PROGRAM committed to investment professionals moving into the next decade

Visit www.investmentsymposium.org to learn more.