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## Passing the Torch: AOF Executives Interview Series

**T**his year, the Actuary of the Future (AOF) Section of the SOA introduced a project called "Passing the Torch." The goal of this new project is to get perspectives on what the top actuarial leaders think about the profession and how they have developed their careers.

In this issue, **Linda Liu, Amanda Jacques** and **Kabeer Jhaveri** had the honor to invite Simon Curtis and Michael Frank to share with us their professional experience and their insightful views on the actuarial profession.

### **PASSING THE TORCH: AN INTERVIEW WITH SIMON CURTIS**

*By Linda Liu and Amanda Jacques*

#### **LINDA:**

How did you get to where you are now? Can you give us a brief run through your career history?

#### **SIMON:**

I graduated in 1981 from the University of Toronto, and it's been over 30 years for me now in the insurance industry. I've spent most of my career at Manulife, although I will be leaving the company at the end of February. Starting as an actuarial student, I've been taking increasingly senior roles within the company. I work mostly in Toronto, but I did work overseas in the United Kingdom for two years and spent a lot of time working on various projects with Manulife's Asia operations. In 2003, I was appointed chief actuary and

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## Council's Corner

By AOF Council

There is an old "Saturday Night Live" skit with Sid Caesar, in which the cast (which included Julia Louis Dreyfus and Eddie Murphy) tries to prove that they are on live (vs. pre-recorded) television. Caesar helps by explaining that the word "now" is "the fastest thing in the universe". It's over before you can even say the word. It was once "going to be" and has become "was". And so the cycle continues now, was, going-to-be. It is not clear whether the cast and Caesar proved they were on live television. They surely try and are plenty funny doing so. What is clear is that "now" is fleeting and the future is here soon, the new "now." By the time you read this, another council year will have begun, and this one, which was a "now" is now a "was".

This past year, we worked with the Society of Actuaries, the Actuarial Foundation, and with other councils to bring you interesting projects and programs. It was an interesting year with a number of our projects and initiatives going global.

Our focus on non-traditional opportunities for actuaries was echoed with a major effort by the SOA<sup>2</sup> to better brand actuaries as more than just insurance professionals, by reaching out to other industry groups to discuss opportunities with them.

Our mentoring program will soon be merged with that of the Actuarial Foundation.<sup>3</sup> We will help them to recruit a cadre of actuarial mentors for U.S.-based actuarial students, while supporting actuarial students elsewhere and job changers who see themselves an Actuary of the Future.

Our third section council intern, Cassie He, has joined her predecessors in knocking our socks off. She successfully ran the Passing the Torch series<sup>4</sup>, helped us keep the dialogue going on LinkedIn<sup>5</sup> and worked on revitalizing the Younger Actuaries Network. We have sponsored successful sessions at the Life and Annuity Symposium, the Health meeting and will have hosted sessions at the Valuation Actuary Symposium and the Annual Meeting. In other words, it has been quite a council year.

However, we couldn't do it without you. As always, section volunteers<sup>6</sup> are our life-blood, suggesting programs and ideas, and getting our projects done right. Getting involved has never been easier. Share your ideas on our LinkedIn page, join our meetings as a friend of the council, help us organize sessions at a meeting, organize a web-cast, or speak at one of our events; the sky's the limit.

We want to hear what you are thinking. Our projects are for your benefit. Share your stories and experiences as actuaries with younger actuaries. Tell us how you are using your actuarial skills in new and different ways. Teach us what you have learned.

The future is here. As you read this sentence, now is ‘was’. Tell us what the Actuary of the Future is going to be!

Sincerely,

Your AOF 2012-2013 Council ☆

#### **ENDNOTES**

<sup>1</sup> <http://www.nbc.com/saturday-night-live/video/cold-opening/n9057/>. Search for “Sid Caesar cold opening” to find the clip.

<sup>2</sup> <http://www.soa.org/Leadership/Current-Initiatives/initiatives-2013.aspx>

<sup>3</sup> This program is in the works. You can contact us at [aof@soa.org](mailto:aof@soa.org) to indicate an interest in participating as a mentor or in organizing local actuaries into a mentoring group.

<sup>4</sup> <http://www.soa.org/Professional-Interests/Actuary-Of-The-Future/aof-passing-the-torch.aspx>

<sup>5</sup> <http://www.linkedin.com/groups/SOA-Actuary-Future-Section-3937414/about>

<sup>6</sup> Join us as a volunteer: <http://www.soa.org/about/volunteer/default.aspx> or email us at [aof@soa.org](mailto:aof@soa.org) to share your interest



*Simon Curtis, B.S., FSA, FCIA, MAAA, is currently president of the Canadian Institute of Actuaries (CIA) and recently joined Munich Re as CFO of the North American Life Operations after a long career at Manulife, most recently as executive vice president, Corporate Development at Manulife Financial, a position he held since 2010 following seven years as the company's chief actuary. He can be reached at [scurtis@munichre.ca](mailto:scurtis@munichre.ca).*

spent seven years in that role. Since 2010, I've worked as an executive vice president, overseeing the corporate development area, which mainly focuses on mergers and acquisitions (M&A) and business decisions.

**AMANDA:**

As an industry leader—executive vice president at Manulife Financial and president of the CIA—you have been involved in a broad span of actuarial work. What do you enjoy most about your actuarial career?

**SIMON:**

I think what I enjoy most in my position is any opportunity that requires creativity. A lot of M&A work is interesting because it needs to be creative. Although M&A projects frequently don't lead to successful results, they almost always provide a chance to think outside the box. What I enjoyed the most in my chief actuary role was its communication aspects. There were a lot of presentations involved, where I would need to explain actuarial and risk concepts to non-technical management and also be a leader of the company, presenting to outside analysts and investors and dealing with regulators. I really appreciate this kind of internal and external communication.

**LINDA:**

What are the main goals you wish to accomplish during your CIA presidency? What is your future outlook for the CIA?

**SIMON:**

Right now I have only four months left, and I am basically two-thirds of the way through my term as president. The main goal I've been trying to accomplish is to make the focus of the profession more outwards, so that we focus more on our external stakeholders rather than internal issues. Another goal is to help prepare the profession better for the future. As a result, we have been looking at our education and accreditation policies and working out how to grow the profession in Canada.

**AMANDA:**

It's great that you touched on accreditation, as I noticed that the CIA has made great efforts to implement the University Accreditation Program (UAP). How do you feel this program benefits the actuarial profession? How does the Society of Actuaries' (SOA's) decision to not recognize UAP exam credits affect the CIA?

**SIMON:**

I think it's inevitable that more core education for our profession will be provided through university training. In my opinion, a lot of the actuarial concepts that people are being asked to learn today will be done best in the university environment. As for the second question, I think ultimately the SOA will move in the direction of recognizing university accreditation. It's just a change of pace issue. It's worth pointing out that the SOA is the only actuarial body in the world that does not recognize university accreditation. As you might know, the U.K. Institute of Actuaries, Institute of Actuaries of Australia, the Casualty Actuarial Society (CAS) and the CIA are all using accreditation.

**LINDA:**

You mentioned previously that you were involved in Asian projects at Manulife and you have also worked abroad in the United Kingdom. How important would you regard your international work experience? Would you encourage actuarial students to pursue a global career? It seems that nowadays actuaries in the industry tend to have various international work experiences.

**SIMON:**

Yes, I would encourage everyone to think about pursuing a global career. Generally, nowadays everything we do is becoming more global. It's almost inevitable that the actuarial work will become more global as well. Even if you work in a specific country, it's more and more likely that the way that the work is done will be guided by international practice as much as the country-specific practice.

**LINDA:**

Just a follow-up question—how do you think your international work experience has helped you grow?

**SIMON:**

I think it gave me more opportunities at Manulife. Anytime you take on an assignment and do well on it, it helps your career. Since so much of the work going forward is likely to involve some international aspects, those who are willing to take those opportunities will have more chances to show what they can do and thus have better career prospects.

**AMANDA:**

We are now seeing more students with four or more exams, good grades and relevant co-op experience not being able to find full-time employment. What are your thoughts on this? Do you feel there's a gap between the supply and demand for entry-level students? How do you think students can differentiate themselves?

**SIMON:**

I would actually really like to see some hard data in this area. We have been hearing anecdotally a lot about this, but it's hard to tell how big of an issue it is becoming or how different the situation is today from a few years ago. I think there have always been some challenges for many graduating students to get jobs, but what has now changed is that more students are putting focus on completing exams while in school so it has become the norm for students to graduate with more exams—but that of itself does not create more jobs. With that being said, in the past likely most of the students who didn't get a

job were the ones who didn't have exams. But right now, proportionally more students are likely to end up with more exams, which is why we start to notice that students with exams cannot land full-time jobs. However, one should keep in mind that getting a job is more than simply having exams. On a side note, it's important to point out that the UAP is not intended for students to get the ASA designation more easily. Instead, the passing standards to get UAP credits have been collaborated to be consistent with the successful level of writing additional exams.

Speaking of how an individual should prepare to get a full-time actuarial job, I think they need to show that they are well-rounded and have some actuarial work experience or other volunteering and group experience in order to get an interview. In the interview itself, your personal characteristics and overall communication skills, rather than your resume, are the most important factors.

**LINDA:**

As an executive vice president, what proportion of your daily work is focused on technical aspects as opposed to managerial?

**SIMON:**

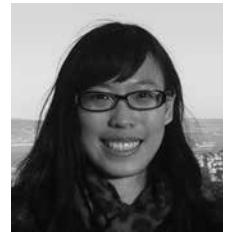
When you get to a senior level, such as executive vice president, most of the time is spent on leadership and managing others. Technical work is likely about only 10 to 20 percent of the daily work, but much of what I review has a lot of technical work embedded.

**AMANDA:**

In your opinion, what distinguishes top performers in an organization?

**SIMON:**

There are a few things—the most important one is the willingness to take on new challenges. There are lots of people who are very cautious about taking challenges and new assignments. I think high achievers tend to take



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on various assignments and risks—when they are given opportunities, they seize them and make the best of them. Because of that, they can get a variety of work experience early in their career. I would suggest every young actuary be open to taking two or three very different roles over the first five to six years of their career.

**LINDA:**

Looking long term, what do you think will be the challenges and opportunities for actuaries in the next five years? Ten years? How do you think we should prepare for these challenges?

**SIMON:**

One of the big challenges will be to transport actuarial skills into new areas. Actuaries are very well-known in the insurance and pension industries, but not beyond that space. We are competing against other professions such as CFAs and financial engineers, whose work is quite similar to what we do. I think our main challenge will be to show that we can use our skills in other areas while maintaining our professional reputation in the areas we are already working in.

In my opinion, what distinguishes us is our professionalism more than technical skills. Our biggest strength is that we are in a strong profession with high entry standards and high ethics, where we train people to be good professionals in every aspect of their lives. We should be more proud of this than our pure technical skills. ☆

## **PASSING THE TORCH: AN INTERVIEW WITH MICHAEL FRANK**

*By Kabeer Jhaveri*

**Kabeer Jhaveri** invited Michael Frank to kindly share with us his professional experience and views on the actuarial profession. Michael is the founder and president of Aquarius Capital. He is a health, accident and life

actuary with 24 years of experience, is an active participant in the insurance industry, and participates on various National Association of Insurance Commissioners (NAIC) and actuarial industry task forces.

**KABEER:**

Michael, can you run us through why you chose actuarial science as a career?

**MICHAEL:**

I found the actuarial profession by accident. I had changed my major several times and decided to be a math major since that was my best subject. In my junior year at the University of Michigan, I enrolled in a course called Business Mathematics and Insurance (Interest Theory) since I thought it would be a good course to take before I went out to the work force. The school assigned me an advisor—Donald Jones, a professor who was also an actuary. I thought that the career was interesting because it gave me an opportunity to use my math and finance background. That summer, I obtained an internship at Mercer, and upon graduation, took a full-time actuarial position at Prudential Life Insurance Company. That year Prudential hired five students from our program.

**KABEER:**

Would you recommend students nowadays pursue a degree in Actuarial Science? Or would you recommend something more generic, such as Statistics or Computer Science?

**MICHAEL:**

A lot of it is going to be very individually based. If you're very interested in the mathematical side and the financial side, actuarial science is not a bad route. When you're a college student, if you eventually decide that you do not want to be an actuary, what you'll learn will still be very transferrable. When I graduated college 25 years ago, few people knew what an actuary was. The training as an actuary will definitely help you in other businesses.



**KABEER:**

What are some of the greatest challenges you've faced as an actuary, and can you share some of your key take-aways from these challenges?

**MICHAEL:**

I think one of the biggest challenges actuaries face is "getting a seat at the table" with their companies' senior management team (specifically to insurance companies), because actuaries are usually known for delivering bad news, i.e., the results aren't as good as one might have expected. A challenge is getting the senior management to "buy in" that the results you are providing are reasonable. You are balancing "are results accurate" and using communication skills to help non-actuaries be comfortable with results. Many times actuaries will need to be good communicators, which they are not known for.

A big challenge that actuaries face is to be able to communicate financial results, good and bad news, and being able to explain it so that senior management can accept it and strategize as a result.

**KABEER:**

If you could go back in time and change one thing with respect to your career, what would it be?

**MICHAEL:**

That's a good question. I don't know. I like this profession, and I think I still would have pursued it. The profession has given me a lot of benefits, and I was able to gravitate toward a direction for my own personal growth without a lot of boundaries. I currently work as a life and health actuary, but my projects have been more than just actuarial science. I'm doing underwriting, brokering and intermediary work, and working with a variety of clients as well as practice management consulting to insurance companies building and reviewing their business plans. I'm not sure what I would change, and I don't know if there's anything I would change.



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I also have had the opportunity to broaden my profession by also working as a teacher. For example, I am an adjunct professor at Columbia University teaching health actuarial science; plus I work as an instructor for the SOA LEARN program, teaching reinsurance to insurance regulators. I recently taught a course on reinsurance in the Dominican Republic, so I have had the opportunity to meet a lot of people in business and have unique experiences that some other professions may not provide.

**KABEER:**

What do you think actuaries in general do well, and where do you think we have room for extra growth?

**MICHAEL:**

Actuaries are good in analysis, and are not afraid to deal with complexity of numbers (financial statements and data), and situations that they present. Where they falter is in the communications area, and in recognizing that not everyone with whom actuaries deal is technically strong enough to understand the work product that actuaries have created, and therefore to see the full value of what an actuary does.

Actuaries are also very supportive to other actuaries in business, which I have rarely seen in other professions. As an example, when I formed my company 11 years

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ago, I received a lot of support and positive feedback from fellow actuaries. The profession encourages volunteerism and continuing education (now a requirement), so you find that the profession encourages educational growth.

**KABEER:**

Is there anything in particular that you think we can do to improve on our communication skills, or in getting to the broader world to know more about actuaries?

**MICHAEL:**

Actuaries have to focus on their communication skills. They have to be able to communicate well in the language they're doing business in, and be able to explain the key aspects of their results. That way, anyone reviewing their work will see the value.

I suggest that actuaries get more involved in public speaking, which could be through volunteerism or joining committees, or do something outside their own norm, such as join Toastmasters or even do something like be in a play or comedy show whereby you are outside your element.

In the class that I taught last year at Columbia, we had exams to test students on their technical ability, but their final exam was having them teach a class for 30 minutes based on the subject matter and research that they did (e.g., 42 students taught a class discussing health care systems in 11 countries). It was a successful process with positive feedback from the students while taking them out of their comfort zones. I would like to see the profession move in that direction.

**KABEER:**

What are some changes that are imminent within the profession, and how do you see these changes impacting the profession?

**MICHAEL:**

One of the changes is the communication skills and the softer skills. Actuaries need to be better communicators. Actuaries also need to recognize that even though we may have the most technical skills, we may not always be the smartest person in the room.

I think one of the biggest challenges the profession faces is the compression in entry-level jobs. I think the profession needs to create more entry-level jobs because five to 10 years from now, we won't have a sufficient number of the next generation of actuaries. When I joined the profession, I worked for a company that hired 20 to 25 new students each year. Now, most companies hire a fraction of that. We have a much smaller demand (still higher than most professions) but a much larger supply. The industry is going to be challenged five to 10 years from now because there won't be enough people to carry on the profession, because the companies are not investing in bringing people in.

**KABEER:**

If you can challenge or change one stereotype or public opinion about the profession, what would it be?

**MICHAEL:**

It would be the communication aspect and the fact that actuaries do not have good communication skills. A close second would be having our profession expand beyond insurance and employee/retirement benefits.

**KABEER:**

And that's something that we have to change.

**MICHAEL:**

We definitely need to change that. We also need to market ourselves as a profession much better, and attract more people interested in being finance majors, rather than immediately being "quants" or Wall Street/investment banking bound.



The industry also needs to create more entry-level positions. I recently attended the career fair hosted by the Actuarial Society of Greater New York (ASNY) and Columbia University. Over 500 college students (various universities through the United States) and career changers attended this event in January. Clearly the demand is high. At the event, 17 employers participated, which is also high. Unfortunately, of the 500+ students, maybe 30 to 50 of them tops will gain employment, meaning that we will see less than a 10 percent job placement ratio. As attractive as this profession is, the ability to obtain employment is a challenge.

**KABEER:**

Basically growing the profession so that it is attractive to new people, and at the same time making sure that there are enough positions for these new people.

**MICHAEL:**

Exactly.

**KABEER:**

In your opinion, what can the SOA do better in the development of ASAs and FSAs?

**MICHAEL:**

A number of things: Number one, they need to have a consistent message, and that consistent message might be, "What is the objective of the organization?" The message somewhat changes each year as a new president takes over the organization. I recognize that being president of a large organization has challenges (I served as president of ASNY in 2011 and one year was a long year), but we need to develop a consistent message with focus on the following: (1) expanding outside insurance; (2) new entrants; and (3) communications.

I think there definitely needs to be an energy and focus on expanding the profession beyond insurance, since actuaries are known for being insurance experts only. The SOA is taking some steps toward that with the ERM

and CERA designation, but I think the profession needs to think much broader than that. One thing is that they need to expand the applicability of actuarial science outside of insurance. Another is that they need to develop a consistent vision so that the future presidents and executive communities can come in and further that growth.

**KABEER:**

And what do you think will create this change? Would it be just to incorporate a few more sections in the exams?

**MICHAEL:**

I think before looking at the exams, they should first settle on a focus and direction, and then create the education.

**KABEER:**

What advice would you give for students still taking the SOA exams right now on balancing work and exams?

**MICHAEL:**

You need to do a good job at work. You need to put the time down to study. Everyone's timeline is very different with regard to how much information they can grasp. I would recommend that try to pass as many as you can, as fast as you can. As you grow older, there may be more personal distractions (e.g., work responsibility, family obligations, and more need for work/life balance that is easier to accomplish when you are young). Many of these distractions make it difficult to pass exams. For example, the more work experience and responsibilities you have, the harder it is to take study time to write (and pass) exams. Then again, many of the students coming into the profession today are much smarter than I was.

**KABEER:**

Out of curiosity, what is the value added to the company for a student to pass an exam while working with the company? Why are companies so willing to invest in helping students pass exams?

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**MICHAEL:**

Generally, the companies want you to reach your credentials, so that you have both the ability to sign financial statements and be very credible. Also, the company may want you to learn about the company on the job while you're working on your exams. It's about building experience relevant to a specific company and having credentials to sign financial statements or make business decisions.

**KABEER:**

What would you be if you weren't an actuary?

**MICHAEL:**

I would probably be working in the investment banking space or be a financial analyst or a quant. ☆



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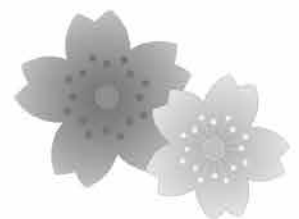
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# From an Airman to an Actuary

By Charles Hahn



Charles Hahn is a junior at Rutgers University majoring in Economics and Statistics and will be graduating in May 2015. He can be reached at [cuhahn@gmail.com](mailto:cuhahn@gmail.com).

Some people know their future career goal from the time they are in kindergarten. However, for me, the journey was not as straightforward.

The typical path to college begins in high school. Students study for the SAT, apply to schools, get accepted, and eventually move into dorms at the beginning of fall semester. I attempted to conform to this societal norm, but I failed. At the time, college simply wasn't where I wanted to be, so I didn't apply myself. As a result, my grades suffered, and I decided not to enroll for a third semester.

With few options available to me, I turned to the one organization I hoped would give me some direction in life. I had seen commercials on television where people talked about how the military taught them commitment and determination; these were two traits I desperately wanted in my own life. So, I enlisted in the U.S. Air Force.

After boot camp, I received technical training to become an aerospace propulsion journeyman (a fancy term for a jet engine mechanic). While it may be hard to imagine, my path to becoming an actuary started here.

As a mechanic, I not only needed to be highly detail oriented, but also understand how those details fit into the bigger picture of the maintenance operation. I worked on what was known as a "gray whale," the KC-135 refueling aircraft. During my time maintaining these aircrafts, I worked in extremely cold, hot, and fast-paced environments while meeting all my deadlines without compromising the mission. I gained leadership skills by mentoring other airmen and teaching them maintenance practices and procedures.

Furthermore, I gained problem solving skills while troubleshooting issues daily. I remember during a red ball (an urgent aircraft service request needed to complete a mission on time) a pilot asked why he could not start one of the engines. I quickly and carefully assessed the

situation, and was able to present the pilot an immediate solution. The pilot had simply forgotten to push a button that allowed air to flow through the engine. After I showed him the quick fix, we both laughed, and I walked away a hero.

So, the television commercials I had seen were right. The military taught me life lessons and skills I would carry through life. Before I joined the Air Force, I had wandered through life somewhat aimlessly, but now I know exactly what I want and I have the dedication to get there.

As soon as my military term ended, I drove from my home station in North Dakota to New Jersey, where I enrolled in classes at Middlesex County College (MCC). This time around, I was a completely different type of student. First, I had a goal of becoming an actuary. Second, I had the soft skills needed to make me successful. Finally, I had passion. I graduated from MCC as the class salutatorian, became a member on the college's Board of Trustees, and transferred to Rutgers University.

Some people ask me if I regret not applying myself when I originally went to college. While I understand why people ask this question, as I could have been further along in my career, I don't look at those years as wasted. Every step I took in life led me to where I am today, pursuing a career I know is suited for me, and in which I will be successful. Yes, it has been a long journey to become an actuary, but I find it exciting and well worth it. ☆

# A Path to Becoming an Actuary

By Mark Spong

**B**ecoming an actuary is not something that happens by accident. The exams do not pass themselves. It is a long journey that requires many careful considerations. When I started, I knew I'd like to end up in a fulfilling, rewarding, and interesting career, but I didn't know the right path for getting there. This is the story of my experience launching a new career in the actuarial field.

After college, I became a high school math teacher. While there were many great aspects of the job, I eventually decided to move on from teaching. I did some soul searching, combed through career websites, and talked to many colleagues. After lots of research, I came to the conclusion that I wanted to be an actuary. Though I did not know what my ideal job in the actuarial community would be, I decided to get serious about acquiring the skills necessary for success.

I started to study for exams in my spare time and considered whether it would be best to jump into a career or go back to graduate school. Many of the skills I acquired in college and while teaching were not the same skills that analysts, consultants or actuaries have. I concluded I was unprepared to make this transition without going back to school. I considered business school, but realized that I might spend two years and massive amounts of money only to end up just as under-qualified. Instead, I focused on schools where I could learn hard skills in statistics, actuarial mathematics, and accounting without adding too much to my student debt. I chose the University of Connecticut, because in addition to having strong departments in those fields, it is also a pipeline to the actuarial community in Hartford, Conn.

Being a student with a purpose is completely different from just being a student. As a teacher, I became acutely aware of the habits of mind that differentiated successful students from unsuccessful ones. Students who were inclined to see value in the subject matter and held a belief in their own ability to learn were immensely more successful. These same students also had a stronger

conceptual foundation and greater procedural fluency. I learned to appreciate the differences between students who were interested in mastering the material versus those who just wanted a grade. Now that I was going back to school to acquire specific knowledge and skills, I approached interacting with professors and studying in a more deliberate manner.

I always kept in mind that my ultimate goal was a career and not just a degree. Unfortunately, going back to school meant that I was gaining more classroom experience instead of workplace experience. This made getting a summer internship a key part of my transition into a new career. My goal was to discover the kind of job that would be a good fit. I wanted exposure to both Life and P&C projects, so I worked as a summer intern in the Risk Consulting and Software sector of Towers Watson. It was humbling to start out at an entry-level position, but working with a diverse group of people with varying levels of experience gave me long-term perspective.

Studying for exams, going back to school, and working with highly capable people has each helped give me a better sense of the commitment it takes to become a successful actuary. Now, my realistic short-term goal is to simply build competency, rather than expertise. Like most people launching a new career, I still don't know where my path will take me, but I am more confident about the journey because I tried to carefully make the best decision at each step along the way. ☆



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# Enterprise Risk Management: Looking Forward

By James Lam



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*Editor's Note: This article is an excerpt from the article "Enterprise Risk Management: Back to the Future," and is republished with permission. The full article is available in the June 2010 issue of the RMA Journal.*

Ten years ago I looked into my crystal ball and made 10 predictions of how risk management will change over the next decade in my book that was excerpted by the October 2003 issue of *Actuary of the Future* Newsletter.

My 2003 book made the following 10 predictions:

1. ERM will become the industry standard for risk management.
2. CROs will become prevalent in risk-intensive businesses.
3. Audit committees will evolve into risk committees.
4. Economic capital will be in; VaR will be out.
5. Risk transfer will be executed at the enterprise level.
6. Advanced technology will have a profound impact on risk management.
7. A measurement standard will emerge for operational risk.
8. Mark-to-market accounting will be the basis of financial reporting.
9. Risk education will be a part of corporate training and college-level finance courses.
10. The salary gap among risk professionals will continue to widen.

Overall, the above predictions are generally consistent with the evolution of ERM practices. Some of the predictions were on target, others less so. (*Editor's Note: Bill Scotti remarked on each of them in his 2012 article "Risk Management Predictions: A Look Back".*)

Rather than assess the accuracy of each prediction, I would like to discuss trends and challenges that lie ahead for ERM. In the aftermath of the global financial crisis, corporate executives and board members—as well as key stakeholders such as regulators, investors, and rating agencies—recognize that the efficacy of ERM must be

improved. What are the key trends and critical challenges for ERM in the next several years? The following are seven areas where I expect to see significant development in ERM practices:

**Board risk governance and reporting.** Perhaps the most powerful but underleveraged component of an ERM program is the role of the board. Boards wield significant influence over policy decisions and management actions. Executive teams go to great lengths to address issues raised by directors. As such, directors can have a significant impact simply by asking tough questions or requesting key risk reports. However, board members must ask themselves a number of fundamental questions in order to fulfill their role in risk oversight:

How should we organize the board to oversee the ERM program and monitor critical risks?

Should we use a risk committee, the full board, or an existing subcommittee?

Does our board have sufficient risk expertise, knowledge, and experience?

What is our board's role in ERM, including such key areas as strategic, financial, and operational risk oversight?

How can we strengthen the independence of the board and risk management (and establish the appropriate reporting relationship between the two)?

How can we improve board reporting to provide concise, effective, and timely information on key risk exposures and trends?

**ERM policy with explicit risk-tolerance levels.** The ERM policy is an important tool for both the board and executive management. The articulation of explicit risk-tolerance levels for critical risks represents an essential element of the ERM policy. Given the importance of the board and management in controlling the overall risk appetite of the organization, there should be sufficient discussion—and even debate—between them before risk-tolerance levels are established. In addition, the





ERM policy should document the organization's ERM framework and processes, the guiding risk principles, the board and management governance structure, key roles and accountabilities, exceptions management and conflict resolution processes, and ongoing monitoring and reporting requirements.

**ERM integration.** To optimize the organization's risk/return profile, ERM must be integrated into key business processes. One major challenge is integrating ERM and strategy. A number of studies—by James Lam & Associates (2004), Deloitte Research (2005), and the Corporate Executive Board (2005)—found that strategic risks represented approximately 60% of the root causes of significant declines in public companies' market value, followed by operational risks (approximately 30%) and financial risks (approximately 10%). Therefore, strategic risk management represents a significant opportunity for ERM integration. Another key opportunity is risk-adjusted pricing. All companies take risks to achieve their business objectives, but they can establish the appropriate compensation for those risks only when they price their products and services accord-

PERHAPS THE MOST POWERFUL BUT UNDERLEVERAGED COMPONENT OF AN ERM PROGRAM IS THE ROLE OF THE BOARD. BOARDS WIELD SIGNIFICANT INFLUENCE OVER POLICY DECISIONS AND MANAGEMENT ACTIONS.

ingly. As such, pricing models should be fully adjusted for the cost of risk.

**Risk analytics and dashboards.** The consequences of the global financial crisis revealed some key shortcomings of existing risk analytical models. Commonly used risk models (such as value-at-risk and economic capital) measure risks only within a defined probability level—say, 95% or 99%. However, organizations have learned they must also prepare for “black swans,” or highly improbable but consequential events. In 2008, for example, we witnessed not only the global financial crisis, but also the swine flu pandemic and the election of the first African-American U.S. president. Each of these events could be considered once in a lifetime, yet they all happened in just one year. Going forward, risk analytics

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must be expanded to include stress testing and scenario analysis to capture “tail risk” events. Additionally, risk dashboards should be developed to provide forward-looking risk analysis as well as early-warning indicators.

**Assurance and feedback loops.** How do we know if risk management is working effectively? This is one of the most important questions facing boards, executives, regulators, and risk managers. In the past, the common practice was to evaluate the effectiveness of risk management based on the achievement of key milestones or the lack of policy violations, losses, or surprises. However, qualitative milestones or the absence of negative outcomes should no longer be sufficient. We need to establish performance metrics and feedback loops for risk management. I believe the objective of risk management is to minimize unexpected earnings volatility—in other words, to minimize not the absolute levels of risks or earnings volatility, but unknown sources of risks or earnings volatility. Figure 1 on page 20 shows how earnings volatility analysis can be used as the basis for a feedback loop.<sup>1</sup> In the beginning of the reporting period, the company in this example performed earnings-at-risk analysis and identified several key factors that could result in a \$1 loss per share, compared to an expected \$3 earnings per share. At the end of the reporting period, the company performed earnings attribution analysis and determined the actual earnings drivers. The combination of these analyses provides an objective feedback loop on risk management performance in terms of minimizing the earnings impact of unforeseen factors. In this example, 20% (\$0.40/\$2.00) of actual earnings volatility resulted from unforeseen factors. That is exactly what risk management is meant to minimize. I am not advocating this particular feedback loop for every company, but all firms should establish some feedback loops for risk management.

**Culture and change management.** An organization’s risk culture and how to shape it are often overlooked

in ERM. Yet risk culture can easily overwhelm all of ERM’s good intentions. For example, in a bad risk culture, people will do the wrong things in spite of existing policies and controls. In a typical risk culture, people will do the right things when instructed by policies and controls. In a good risk culture, people will do the right things in the absence of policies and controls. Thus, risk culture is a critical element of ERM because of its profound impact on behavior and the impossibility of establishing policies and controls for every business situation. The risk culture of an organization is not constant, however; it changes with the business environment—for example, new executive leadership, new incentives, or new risk processes and systems. Therefore, organizations should implement change-management programs to build consensus, address conflict resolution, and provide communication and training. Canadian banks, which many consider to be the best-managed financial institutions in the world, pay significant attention to risk culture and change management.

**Risk and executive compensation.** Another key determinant of management behavior is the design of executive compensation systems. A root cause of the excessive risk-taking that led to the global financial crisis was executive compensation that rewarded short-term earnings growth and appreciation of stock prices. Designing incentive programs that reward long-term earnings growth, as well as risk management effectiveness, is a key initiative for many organizations today. These new incentive systems incorporate risk-adjusted return metrics, compliance with risk policies and regulations, longer-term vesting schedules, and clawback provisions in the event of future unexpected losses. ☆

#### END NOTE

<sup>1</sup> See the Full Article in the June 2010 issue of the *RMA Journal*

# Meet the Winners of the 10<sup>th</sup> Speculative Fiction Contest!

## -Interview with Ben Marshall (Best Overall Story)

### Quote from the Story:

“Speed-of-light travel causes the traveler to age more slowly than someone at a fixed location. It is called ‘time dilation’,” he explained. “Time dilation slows down the actual passage of time, not the sensation of the passage of time. And that’s where my postulation had failed to grasp the loose thread.”

### EDITOR:

Ben, thanks for participating in this interview with AoF and congratulations on winning the best overall story again! To start off, can you tell us a bit about yourself and briefly run us through your career history?

### BEN:

I am an actuary, lawyer and minister—trained and licensed in all three professions. My wife and I have five children, ranging in age from eight to 27. I was born in the U.S., but have lived in Canada for nearly half my life, including the past 17 years continuously.

My early career was spent with Confederation Life. I later became the CFO at one of Aegon’s operating divisions, before getting my law degree and practicing law in the insurance sector practice group at Stikeman Elliott, one of the larger firms in Canada. I then spent nine years at Royal Bank, the largest bank in Canada, most recently as a vice president overseeing capital and risk management. I just moved in February to a new role as CFO at a new organization—FaithLife Financial in Waterloo, Ontario, Canada. This was a unique opportunity to direct my career to a cause that inspires me. FaithLife focuses its products and sales approach on Christian financial stewardship, using its excess profits to fund charitable causes.

### EDITOR:

What made you interested in entering this contest? What is your secret of winning? Do you have any advice to share with future contestants?

### BEN:

I began entering the biennial contest in 2005. One of my

cousins had been stricken with cancer two years earlier, and I spent a good deal of time with him prior to his death. We talked about regrets and missed opportunities. We both shared a love of writing, and one of his big regrets was that he had let time slip by without writing. He said something that has stuck with me, and I shared it with friends and family when I did his eulogy: “Writers write.” It serves as an encouragement to me, to all of us, that if there’s something important to you, you’ll spend the time to do it. And I took him up on his advice.

As far as winning and advising others, there are some obvious things that are important, like a creative plot, snappy dialogue, strong character development, a need for tension and resolution, and—to state it negatively—avoidance of laboured narrative. However, I also think it’s important to be passionate about what you write. I find that my most creative moments are when I’m experiencing internally what I write into my characters on the page. I’m not ashamed to admit that I’ve sometimes had a free flow of tears or a shout of exuberance while I write.

### EDITOR:

What inspired you to write “*The Fountain of Youth*”? Did you have any unique experiences? How long did it take for you to write it?

### BEN:

Several of my past stories arose out of unique experiences. My first SOA-winning story, “For Three Transgressions and for Four” was inspired by the death of my mother, coupled with my first-hand view of the dark side of the U.S. health care system’s treatment of the elderly. “The Fountain of Youth”, my recently winning story, was not inspired by a unique event, but rather was a product of some of my musings on (and frustrations with) the interplay between medical technology developments and the profit motive. Once the basic ideas crystallized in my mind, it took a few weeks to write and edit, working on it a few hours at a time once every two or three days.



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**EDITOR:**

Have you always had a love for writing? What do you like to write about? Are you writing any new stories?

**BEN:**

I've loved writing since I took a creative writing course in the 10<sup>th</sup> grade. My teacher was named Dell Wanda Gorman. She gave me the only "B" I received in high school, which kept me from being the class valedictorian. But it was easily my favourite class throughout my high school years. And I wound up winning the school's short story contest (with blind judging) in 10<sup>th</sup>, 11<sup>th</sup> and 12<sup>th</sup> grades—a record that still stands 30+ years later.

I like to write about moral dilemmas and human nature. I like to challenge while entertaining the reader. I've learned in my ministerial experience that people learn concepts and embrace change much more readily through a well-told story than through a dogmatic diatribe. You see that clearly in the gospel accounts of Jesus' parables, too.

I'm currently working on a story about a lawyer's misguided intervention in the lives of a couple experiencing marital discord. I know where I'm going with it, but like all my stories, it takes on a life of its own while I'm writing it. The finished product is always chock-full of things I didn't anticipate when I started. My next big writing project after that is to write a novel based loosely on my research of cryonics and on my musings about its moral and spiritual implications.

**EDITOR:**

Why did you choose an actuarial career? What is an alternative career route for you?

**BEN:**

I chose the actuarial profession somewhat late. I had been planning to be a high school math teacher. I enjoy teaching to this day. However, I found while doing my practice teaching that many students don't want to learn, and are only in the math classes because they're required.

So during one of my breaks I looked up math careers on the microfiche at the guidance office, and at the top of the alphabetized list—you guessed it—was "actuary."

You'll note from the earlier question that alternative career routes abound for me. I have practiced law and served in ministerial roles (as a volunteer). As trite as it sounds, if I had no bills to pay, I'd probably be a writer as a vocation. As it is, it's a fun avocation.

**EDITOR:**

To those who have not read (and have read) your story, could you share with us what message are you trying to send? What do you want people to remember?

**BEN:**

**SPOILER ALERT!** My description of "The Fountain of Youth" to close friends and family goes something like this: "It's a treatise on the greed that drives the development (and potentially the suppression) of medical technology, wrapped in an exploration of genuine faith in the face of impending death, while treading heavily on the issue of gender biases, all in a light-hearted, yet believable montage of events and conversations." It's the first time that I've developed so many characters (at least 14 distinct ones) in such a short amount of space (less than 8,000 words or roughly 25 pages).

**EDITOR:**

What is your favorite book, and why?

**BEN:**

I read a lot of novels, roughly one every week or so for the past ten years. There are many very good authors, but I've found the consistency of quality varies from one book to another with every author. My most consistently enjoyable author is Harlan Coben, but my favorite book has to be *The Testament* by John Grisham. It's compelling because it exhibits all the qualities of good writing I stated earlier (creative plot, snappy dialogue, strong character development, tension and resolution, and avoidance of laboured narrative), plus it's a journey

of redemption for the seemingly unworthy protagonist. If I could get everyone to read one work of fiction that would transform the way that they view the world, it would be *The Testament*.

IF I COULD GET EVERYONE TO READ ONE WORK OF FICTION THAT WOULD TRANSFORM THE WAY THAT THEY VIEW THE WORLD, IT WOULD BE *THE TESTAMENT*.

**EDITOR:**

What have you done with your prize money?

**BEN:**

I don't like to waste money, so to feed my voracious appetite for reading, I primarily use the public library. However, I had a list of books not available at the library, but nonetheless of great interest to me because of who wrote them. So I used my prize money to purchase some of those books. My sense is that a core component of development as a writer is internalized through reading. If you would like to read Ben's story "The Fountain of Youth" or other entries to the contest, you can find them at <http://www.soa.org/Professional-Interests/speculative-fiction-contest.aspx> ☆

# Predictive Analytics: 'You've got to dig it, to dig it.'

What Theolonious Monk can teach us about getting into predictive analytics.

By Michael Muhanna



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*Editor's Note: This article is a reprint from the same article in June 2013 issue of Future Fellows and is republished with permission.*

**T**he quote in the title of this article was a piece of advice found scribbled in the notebook of one of Theolonious Monk's protégés. Monk, an eccentric jazz pianist, was famous for disseminating wisdom about jazz, art, and life through oddly-phrased mantras. Nonsensical at first blush, these words have become increasingly relevant to me as I navigate the actuarial exams and venture into the world of predictive analytics.

Regular readers of actuarial publications have surely taken note of the recent prominence of articles about predictive analytics. Two key takeaways from these articles have been clear: predictive analytics is hot and you better learn more about it if you want to stay ahead of the curve. So how do lowly young actuarial students build their chops as predictive modellers before they actually work in that space? To answer that question, we look to Monk. One way to learn to *dig it* is to find the people who are doing the most relevant and interesting work in that field, study the way they think and write, and then try to emulate their work.

In the case of Monk's protégé, he was instructed to explore Parker, Ellington, Armstrong, and others. For our purposes, we should look to professionals who design innovative predictive models and, more importantly, find effective ways to communicate their findings to a large audience. A great example of someone who fits the bill is *New York Times* blogger and nerd extraordinaire Nate Silver.

First making his mark in the world of baseball analytics, Silver has now become most famous for his statistical analysis and predictive models of presidential and congressional races. The popularity of his blog, *FiveThirtyEight*, skyrocketed during the 2012 election season, resulting in the release of his bestselling book, "The Signal and the Noise," and countless TV interviews and appearances.

Silver's success could just be chalked up to him being a good modeller. He intuitively understands the situation he is trying to model. He is an avid baseball fan, which might be one reason why PECOTA (the system he developed to forecast player performance) is still used today in organizations across the Major League.

But perhaps Silver's biggest strength is his ability to effectively communicate his analyses to a broad audience. While he accurately predicted the electoral outcome of every state in the 2012 presidential race (and 49 out of 50 in 2008), he was able to do so in an understandable way, presenting his complex models both graphically and verbally without watering down their content, such that *FiveThirtyEight* became one of the most visited pages on the *New York Times* site. That, I think, is the more impressive feat. Nate Silver is to predictive analytics what Malcolm Gladwell is to social sciences; two analytical minds writing about complex problems and making them both accessible and interesting to the casual observer.

As you prepare for a career in predictive modelling, you should make a concerted effort to read the work of writers like Nate Silver and emulate their writing styles in your own work. Note that Gladwell and Silver are only two of the many of great writers working in this space who are worth studying. Find their books and articles on predictive modelling, engage in self-study, and then utilize those skills on whatever data is available to you. Ultimately, if you are interested in learning more about predictive analytics, make sure you that you follow Monk's advice: learn from the best people doing what you want to do. ☆



# Could the Oracle of Delphi Foresee the Outcome of this Delphi Study?

By Steven Chin

## BACKGROUND

Recently, the *Wall Street Journal* announced the actuarial profession as the best job in 2013. This is a great testimony to how the public views our profession. As the actuarial profession becomes increasingly recognizable, we have an opportunity to not only offer insight into the profession, but also ensure development and growth amongst actuaries.

While career surveys like that of the *Wall Street Journal* inform us that the actuarial profession is great, this is something we actuaries already know. However, the profession needs forward-thinking insight to help propel actuaries into untraditional practice areas and enrich actuaries professionally.

In 2009, the Blue Ocean Strategies Working Group conducted a study entitled, “Blue Ocean Strategies in Technology for Business Acquisition by the Life Insurance Industry.” The Forecasting and Futurism Section implemented a Delphi technique for this study. This technique is named after the famous Oracle of Delphi, who was believed to foresee the future.

In the fall of 2012, Hezhong (Mark) Ma led the launch of a new Delphi Study to determine what the actuarial community desires in their career. The results of the study could then be used by the Society of Actuaries (SOA) and the Actuary of the Future (AOF) Section to provide opportunities to all actuaries.

## ORGANIZATION

The Project Oversight Group (POG) would be in charge of the methodology and project supervision. The Working Group (WG) would be responsible for conducting the survey, organizing responses, and preparing the draft report.

| Working Group (WG) | Project Oversight Group (POG) |
|--------------------|-------------------------------|
| Hezhong (Mark) Ma* | Ben Wolzenski*                |
| Joel Ramos         | Brian Grossmiller             |
| Evan Borisenko     | Jeff Johnson                  |
| Mike Lindstrom     | Hezhong (Mark) Ma             |
| David Snell        |                               |
| Steven Chin        |                               |

\* indicates group leader

## METHOD OF THE SURVEY

This Delphi Study began with the careful construction of 13-15 questions from the WG and POG for round one. These open-ended questions were constructed to allow participants from all practices to express their opinions on the current state of the SOA, the actuarial profession, and non-traditional opportunities. In round two, all members of the WG and POG were asked to comment, assess, and rank each of the questions. These responses were consolidated anonymously and discussed during bi-weekly Tuesday meetings.

As these meetings progressed, it became evident that a particular word choice in the phrasing of a question could lead to a multitude of responses. This was not apparent at first, but all the members of the Delphi Study took a position and argued or defended each question. This took place over a span of six months, but in the end, the group came up with nine questions.

## SAMPLE QUESTION:

Actuaries have proven expertise in modeling financial income and obligations for insurance companies. Yet, we have barely penetrated the worlds of banking, manufacturing, and health services. On the contrary, over the



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## AS THE ACTUARIAL PROFESSION BECOMES INCREASINGLY RECOGNIZABLE, WE HAVE AN OPPORTUNITY TO NOT ONLY OFFER INSIGHT INTO THE PROFESSION, BUT ALSO ENSURE DEVELOPMENT AND GROWTH AMONGST ACTUARIES.

last few decades, other professionals with similar quantitative analysis skills are increasingly members of the Corporate suite in large insurance companies. How can the actuary differentiate herself or himself from other financial management professionals? What could the AOF section, or the SOA, do over the next few years to help actuaries differentiate themselves as candidates for the Corporate suite positions?

The next step in the Delphi Study was identifying the participants. What audience would be most suitable for this study? With the combination of the Actuary of the Future Section and Forecasting and Futurism Section, there were 1,500 distinct members to whom we could possibly send our survey. As a group, a no-go decision would be used if we received less than 40 responses or less than ten from the second round. The process of reviewing all these responses was expected to take a significant amount of time and effort. This work would be split amongst the WG.

### ROADBLOCK

With every event in life comes an avenue of difficulty. Prior to conducting this Delphi Study, the SOA sponsored multiple surveys on actuarial career topics. These surveys identified issues the actuarial profession is facing. Growing our fields of practice is a necessary solution in the future. However, no survey provided the viable solutions for these issues. Based on the success of the Delphi Study, we believed the method could continue to be successful for this work.

With the rise of technology, we have information at the tip of our fingers. Millions of surveys exist, but even

with this rise of technology, we cannot always find them. Unfortunately we were unaware of another SOA initiative—Non Traditional Roles for Actuaries in Financial Services. In February of 2013 the initiative released a white paper similar to what we had envisioned for our Delphi Study. After reading the white paper produced by the Non-Traditional Task Force, the general consensus of our Delphi Team was the paper did an excellent job in covering the skills and abilities needed to enter into a non-traditional field. A more concise report was also produced by the IPSOS and this further illustrated that our Delphi Study needed to change its point of attack.

### REGROUPING

The group focus shifted to targeting international actuaries and younger professionals; this was our glimmer of hope. However, we debated on how effective we would be recruiting international actuaries and younger professionals for our study, considering there were studies in place to analyze international opportunities, and the network for entry-level actuaries is limited. In the end, the group weighted its options and decided not to proceed with the Delphi Study.

### CONCLUSION

Early in every research study, there must be concision and clarity as to what are realistic goals, proposed methods, and desired results. Sometimes our expectations do not match up to our desired results. We can only learn from own mistakes and keep pushing forward. This Delphi Study was a wonderful learning experience in how to conduct a successful research study, as well as how difficult the process can be.

“I’ve failed over and over again in my life and that is why I succeed.”

~Michael Jordan~ ☆

# The Health Care Journey Continues

By Michael L. Frank

This is a follow up to an article “A Global Perspective of the Health Insurance Market” written in 2012. After completing our second year as Professors at Columbia University in the Masters in Actuarial Science program (the course was taught by principals at Aquarius Capital, Michael Frank and Don Rusconi), we continued the journey from the first year’s class. The course provided an overview of the health care insurance industry, including products, delivery systems, health care reform, reinsurance and capital markets with focus in the U.S. and international markets.

As part of the course, students were given traditional actuarial projects in pricing, reserving and underwriting, as well as other projects and coursework to understand sales, provider contracting, disease management/wellness programs, claims management and finance. The course was an intensive program on the health insurance industry with the objective of providing detailed training as a health actuary while increasing the students’ chances of reaching C-Suite roles (e.g., CEO, CFO, COO).

Rather than using a textbook to teach the course, the class material was on PowerPoint (more than 1,000 slides) and more than 200 recent health industry articles. The objective was to help students hit the ground running on their first job. Students also benefited by expanding their resume through research and experience, which is critical in a difficult job market.

Students worked independently, as well as in teams, and made presentations that often took them out of their comfort zones, exposing them to public speaking, project management, networking, and team building. Students were given homework assignments and readings to critique as part of their regular class work. We wanted to make sure that the course also covered a professionalism component, so material included the review of actuarial standards of practice, traditional health actuarial projects, and other professionalism issues.

The 2013 course was similar to the one in 2012, except for the expansion of four key areas, which are as follows:

- Study of international health care systems (ten new countries);
- Impact of health care reform, known as the Patient Protection and Affordable Care Act (PPACA);
- Retiree health systems in the U.S., including research in retiree health valuations (e.g., GASB45);
- Reinsurance.

## STUDY OF INTERNATIONAL HEALTH CARE SYSTEMS (TEN NEW COUNTRIES)

Columbia University’s actuarial program has students from a variety of countries. Thirty seven of the 40 students in the 2013 class were international students. As a result, the course was designed to study international health care systems, in addition to the U.S. health care system. In the 2012 course, 11 countries were selected by students—Australia, Brazil, Canada, France, Germany, India, Japan, Singapore, South Korea, Sweden, and U.K. This year’s course incorporated ten new countries including Austria, Bermuda, Mexico, Netherlands, New Zealand, South Africa, Spain, Switzerland, Turkey, and



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United Arab Emirates. Students were divided into teams of three or four, and were instructed to research their selected countries' health care system. As part of the course, each team provided both research papers and PowerPoint presentations.

As part of the course, students teach a class for approximately 30 minutes on their specific country's insurance system, reinsurance, regulations, health care reform, market penetration, and roles of actuaries in those countries. Students also networked—with assistance from the professors in the course—with actuaries and insurance professionals in other countries to expand their research. One beneficial result of the class is that some students were able to obtain internships and employment post-graduation of the class through the contacts developed as part of their international project work.

#### **IMPACT OF HEALTH CARE REFORM (PPACA)**

With health care reform becoming a day-to-day issue for health actuaries, as well as many individuals and corporations within and outside of the insurance industry, it was important for the course to address health care reform and its impact in the market (e.g., insurance companies, health care providers, corporations, municipalities). Students were assigned research projects around health care reform, and the results of this research were incorporated into the class. The 2012 course reflected the use of poll surveys to gauge the influence of health care reform on the consumer.

In 2013 course, additional time was devoted to the implementation and timeline on PPACA. Some of the areas studied in detail included:

- Impact on commercial (fully insured vs. self-funded) and government programs (e.g., Medicare, Medicaid, etc.);
- Strategies pursued by insurance companies and HMOs, including marketing, pricing strategy and operations;

- Impact of accountable care organizations (ACOs), as a result of health care reform;
- Impact of health care reform on other organizations serving the insurance industry including insurance brokers, third-party administrators, preferred provider organizations, disease management/wellness companies, technology companies, reinsurers, and private equity;
- Strategies around “pay or play” for corporations, as well as exploring implementation of health insurance exchanges by insurance regulators and health plans;
- Other areas including claims audits, provider billing and wellness initiatives.

#### **RETIREE HEALTH SYSTEMS AND GASB45**

Significant class time was spent understanding the Medicare system and health insurance programs available to retirees. Students were exposed to all types of Medicare plans, including Medicare Advantage and Medicare Supplement arrangements. The course was expanded to health students to help them learn about retiree health valuation methods for other post-employment benefits (OPEB), including FAS106 (single employers), SOP92-6 (multiemployer), and GASB45 (municipalities).

In addition to learning about traditional actuarial formulas around retiree health valuations, students were involved in research projects to understand methods used in the market, and summarize results to ascertain trends and benchmarks (averages). We wanted students to get a sense of the output results from a valuation program, since many actuarial firms are utilizing this software, which may be a “black box” to many students and practicing actuaries.

The research involved students gathering valuation reports, which reflected reports prepared by 35 different actuarial firms, reflecting municipalities in 40 states. In aggregate, results were compiled for 114 municipalities

with results compiled so that students were able to learn the following:

- Types of retiree benefits offered by municipalities nationwide;
- Types of assumptions and methodologies used by outside actuarial firms (e.g., 35 different organizations);
- Patterns of results so students can obtain insights on what they should expect in results (e.g., benchmarks, ratios, etc.);
- Most common report elements provided by practicing actuaries.

Some highlights identified as a result of students' research are as follows:

- **Actuarial Cost Methods:** 69.3 percent of all valuations reviewed reflected a selected actuarial cost method of projected unit credit, which is the most common valuation method used for GASB45. The second most common method was Entry Age Normal, which was used 24.6 percent of the time.
- **Discount Rates:** Discount rates varied widely, with rates as low as 3 percent and as high as 8.5 percent. Students were able to see a high range of discount rates used by actuaries, as well as assumptions made for funded and unfunded retiree benefits programs. 28.1 percent of all municipalities evaluated had funded some portion of its retiree health benefits.
- **Health care Inflation (Trend) Rates:** Similar to discount rates, students were able to see a wide range of health care inflation rates used with the average first year discount rate being 8.5 percent and the ultimate trend rate assumption averaging approximately 5 percent (average was 4.92 percent).
- **Mortality Tables:** 69 percent of all valuations reviewed were based on the RP-2000 mortality table, while 71.9 percent of all valuations reviewed reflected some component of mortality improvement.

**ONE BENEFICIAL RESULT OF THE CLASS IS THAT SOME STUDENTS WERE ABLE TO OBTAIN INTERNSHIPS AND EMPLOYMENT POST-GRADUATION OF THE CLASS THROUGH THE CONTACTS DEVELOPED AS PART OF THEIR INTERNATIONAL PROJECT WORK.**

- Fifty-one percent of the reports had splits for actives vs. retirees for both employee counts and unfunded accrued liability. For those reports splitting actives vs. retirees, active lives reflected 72.6 percent of the total employee count and 58.1 percent of the unfunded accrued liability.

Other trends were also identified by students and reviewed in the course. Results were also illustrated for the class in aggregate, so that students can see trends and relationships between unfunded accrued liability, annual required contribution (ARC), pay-as-you-go amounts, and net OPEB obligations. Students were also able to see different formatting of reports and how results were presented to the end user. The overall goal for the research was to help students be more consultative with results and be able to audit output for reasonableness when calculations are generated out of the actuarial "black box" (valuation program).

#### **REINSURANCE**

For the second straight year, the course also included reinsurance. With an ever-changing reinsurance market, we wanted to provide insight to actuaries on health reinsurance, as well as reinsurance for other product lines (e.g., life insurance, annuities, accident products, catastrophic coverages, property casualty products). The course includes an overview of the history of reinsurance, along with providing an overview of the market (e.g., study of various countries, top reinsurers by line of business).

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Topics included actuarial, underwriting, claims, auditing, treaties, retrocession, captives, and financial reporting as part of the course. Back in the fall of 2012, we had developed a three-day reinsurance course held in the Dominican Republic, and we incorporated material from that course into the Columbia University program.

#### **FALL 2013**

In September 2013, the third class commenced with a total of 55 new students. As part of the class, research projects were expanded from the prior classes and include the following: (1) research on health insurance exchanges in nine states reflecting a combination of state and federally run exchanges; (2) study and evaluation of six publicly traded HMOs; (3) evaluation of four additional healthcare systems—Italy, Israel, Greece and Thailand. We have also incorporated discussions on medical tourism and advancements in healthcare technology.

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We also want to thank the various actuaries and insurance professionals that assisted the students in research. Their participation was very valuable for the course and we hope other actuaries will participate in the future.

Most importantly, a special thanks to the Columbia University graduate students that ventured on this unchartered course called, "A Global Perspective of the Health Insurance Market." Many of those students have gone on to graduate the program and have provided positive feedback on how the course helped them transition seamlessly into their new position. To learn more about the program, visit <http://ce.columbia.edu/Actuarial-Science>. ☆



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