



SOCIETY OF ACTUARIES

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Chair's Corner

by Mike McLaughlin

Challenges and Shifting Roles, Part II

In March I was invited to give a presentation at the Chicago Actuarial Association's annual workshop meeting. This CAA workshop meeting tradition dates back many years. The CAA invites speakers selected mainly from among its members and holds an afternoon of meetings with a reception and dinner immediately following. There are three one-hour time slots for the formal program. In each time slot there are seven or perhaps eight concurrent sessions.

My name came up as a potential speaker for two reasons. First, I'm a member of the CAA. Second, they were short of speakers and getting a bit desperate. Anyway, I was asked to talk about Fair Value Reporting.

I prepared my slides and software demonstration a few days ahead of time. I had summary notes of the points I wanted to make, but I didn't write out all the words that I planned to say verbatim. So most of my comments in the presentation were extemporaneous. (At this point a few wise guys who were in the audience are thinking, we know, we know.)

Now there is good and bad in extemporaneous speaking. One good point is that the speaker has the opportunity to comment on ideas as they flow. That's also the bad point. Anyway, I was about three-quarters of the way through the talk when an irrelevant thought flowed in.

The prepared talk covered fair value reporting, a topic of keen interest to many members of our Section — whether and how soon fair value reporting was likely to be required in the United States and internationally, and how it might be implemented. At the time of the "irrelevant" thought, we were dealing with the use of stochastic modeling techniques to determine fair value of insurance liabilities.

Forget the details of that for now. I realized at that moment that much of the discussion was relatively new stuff. It isn't on the syllabus and in fact, it is gleaned in

large part from knowledge originating outside the traditional boundaries of the actuarial profession. Think for a moment about some of the new areas of work that we are all getting more involved in. Cash flow testing isn't so new anymore, but it has led us to a much greater understanding of investments and behavior of assets. Asset-liability management is now part of what most actuaries need to know. Risk management is a fast growing, although imprecisely defined, area of practice. Variable products are fast growing — it's essential to model equity performance to deal with variable product guarantees. Just a few years ago, we simply threw up our hands with equity modeling. Can you recall when we assumed consistent growth rates for common stocks at 9% per annum?

Now we have to model equity indexed contracts too. These are deferred annuity contracts with components of fixed income performance, equity performance, and minimum value guarantees. We know that a single best estimate scenario is flawed for both pricing and reporting purposes. Under the single scenario, no options or guarantees are exercised. So can we give them away for free? Of course not, because the options and guarantees come into play some of the time. We have the knowledge and the tools to deal with ranges of outcomes and we know how to make reasonable estimates of price and reserve.

As a profession we have come pretty far in the last few years. Topics presented at actuarial seminars now include hedge accounting; construction of economic scenario generators; models of policyholder behavior; studies of correlation of global interest rates and equity markets with currency risk; and the financial engineer's view of diversification of insurance risk.

All these new areas may seem unfamiliar and complicated, even a bit threatening at first. But the challenge presents opportunity. My extemporaneous comment to the CAA audience was that there will be an even greater need for our profession in the future than in the past. With or without fair value, we need to price and report on a wide range of products with lots of complicated options and guarantees. Soon, as

the financial services industry continues to consolidate, we will need to work on bank products as well, including installment loans, home equity loans, credit cards, and savings accounts.

Even for current life insurance products reported under U.S. GAAP, the best estimate for financial reporting purposes may no longer be the most likely single scenario. Instead we probably should consider a range of scenarios. Our property-casualty actuarial colleagues are quite comfortable with using ranges for financial reporting purposes. Canadian reporting rules rely on dynamic analysis. What are we Financial Reporting Section members waiting for? Given our knowledge and tools, I sometimes wonder whether we should still be using single scenarios for modeling anything anymore.

This is the kind of work we actuaries need to do. We need to continue to advance our knowledge through research, seminars, meetings, and discussions. We need to use the best tools that are available and build even better ones. We need to talk to other professions and academicians. We can do much of this individually and informally. But there's no question that an organized approach is important, too. The Financial Reporting Section and the Society of Actuaries must play a key role in organizing and shaping the roles we actuaries play.

And if we don't, remember there are other providers of professional services. The competition includes MBAs, risk managers, financial engineers, members of academia, and last but not least, the accounting profession. They are not sitting still, my friends. Take a look at the Financial Accounting Standards Board's Web site (www.fasb.org). You will see evidence of a great deal of advanced thinking about a wide range of topics, including present value methods (which was formerly actuarial turf) and of course, fair value reporting.

The issue seems plain to me. There's work to be done. Actuaries are just barely coping with the needs of the insurance industry at a time when it is morphing into a much larger financial services industry. We need more actuarial resources, both in quantity and suitability. We have to get

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and embedded derivative components, the spreadsheet funds the liability with a combination of a zero-coupon bond and an S&P 500 call option, both timed to mature in year five. Together, the bond and the call option fully defease the EIA liability regardless of where the S&P 500 winds up. Since the call option and the embedded derivative mirror each other and the zero-coupon bond and the host policy are both accreted at a constant interest rate, accounting symmetry is attained and smooth earnings emergence can be expected.

However, the aforementioned FAS 97 floor disrupts accounting symmetry in year one, when an equity market downdraft depresses the fair values of both the call option and the embedded derivative by an equal amount. But since the total value of the hybrid instrument (the host policy together with the embedded derivative) is not permitted to pierce the FAS 97 floor, the spreadsheet depicts the loss resulting from the artificially elevated liability level. (See the explanatory calculations at the bottom of Table 1 on the Web site). This year-one loss will then lead to higher future-period earnings, as the flooring adjustment subsequently reverses. This asymmetry may be further exacerbated to the extent that the purchased S&P 500 call option fails to match the characteristics of the embedded derivative contained in the equity-indexed

Table 1

Illustration of GAAP Accounting: 5-Year Point-to-Point Liability						
Deposit	10,000					
Participation Rate	75%					
Zero-Coupon Bond Rate	7.00%					
Capital Markets	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Index Growth		-10%	20%	-10%	20%	20%
Index Level	1,500	1,350	1,620	1,458	1,750	2,104
Implied Volatility	22.0%	22.0%	22.0%	22.0%	22.0%	22.0%
Risk-Free Rate	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
Dividend Rate	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%
Calculation of Black-Scholes Option Values	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Minimum Guarantee (SNFL)	10,433					
Guaranteed Growth in Policy Value	4.33%					
Liability Option Strike	1,587					
Time to Expiry	5	4	3	2	1	0
d1	0.6145	0.2847	0.6190	0.1890	0.7702	
d2	0.1226	-0.1553	0.2380	-0.1221	0.5502	
Black-Scholes Price	384.39	238.94	354.97	182.34	287.40	517.11
Balance Sheet	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Market Value of Option	1,922	1,195	1,775	912	1,437	2,586
Zero-Coupon Bond (HTM)	8,078	8,644	9,249	9,896	10,589	11,330
Total Assets	10,000	9,838	11,023	10,808	12,026	13,915
Market Value of Embedded Dx	1,922	1,195	1,775	912	1,437	2,586
FAS 133 Host	8,078	8,502	8,949	9,418	9,913	10,433
FAS 97 Floor	10,000	10,085	10,171	10,258	10,345	10,433
Total Liabilities	10,000	10,085	10,723	10,330	11,350	13,019
Equity	-	(247)	300	478	676	896
Pre-Tax Income		(247)	547	178	198	221

annuity. In this context, the important valuation considerations discussed above will be key to ensuring a reasonable pattern of EIA earnings emergence.

Anson J. Glacy, Jr., ASA, is senior consulting actuary at Ernst & Young, LLP, in Hartford, CT. He can be reached at jay.glacy@ey.com.

Chairperson's Corner

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bigger, and it's urgent. We can't stay a small, exclusive profession. The exclusivity of our profession does not keep salaries high. All it does is restrict the scope and volume of work performed by actuaries.

Once again, a challenge and opportunity is presenting itself. On past occasions our profession has been too small, too parochial, or perhaps both, to see the

needs of business and society as opportunities to provide valuable services. Once again, the need is there. Now that the "Big Tent" concept and the activities of the SOA's Strategic Planning Committee are familiar to most of our members, our perspective is broader. Once again our profession is being challenged. This time around, I think we're ready.

The next Chairperson's Corner will talk about how your participation can make a difference and how you can get involved.

Mike McLaughlin, ASA, is a partner with Ernst and Young LLP in Chicago, IL.