



theactuary

the newsletter of the
Society of Actuaries

Add one more risk to those faced by life insurers

by Eric Berg

Life insurers face one more risk—the risk that Wall Street analysts will think the insurers' disclosure is weak.

Back in July, when I delivered a speech to the Society of Actuaries entitled "Bridging the Gap—The Difference Between What's Needed and What's Provided for Analysts and Investors to Assess Risk in Insurance Companies," I meant precisely that. There remains a

huge divide between the information needs of professional investors and of stock market observers like myself, and the information provided by insurers. I won't speak to property/casualty-company disclosure because P&C insurance isn't my area of expertise. But life insurance is my focus, and intellectual honesty dictates that I be blunt: Despite lots of improvement in recent years in the amount and nature of data they make public, life insurers still lag in terms of the information they provide to their owners. This weak disclosure makes it hard to understand—really understand—what's going on at our biggest life insurance enterprises. It's one of several reasons why life insurance stocks still trade at a significant discount to other financial stocks. That valuation gap won't narrow until the disclosure gap narrows.

But enough with the general criticism—permit me to get specific.

Credit quality

Make no mistake. Under prodding from the U.S. Securities and Exchange Commission (SEC), life insurers of all stripes have been improving disclosure regarding the credit quality of their investment portfolios. A good example is MetLife. Last spring, the big New York-based life-and-annuity company began publishing a gross-unrealized-loss aging schedule showing, for bonds and stocks separately, the amount of each of these two broad categories of securities that were trading at less than 80 percent of their par value—and for

how long they've been under water. Around the same time, AFLAC, of Columbus, Ga., outside Atlanta, debuted a related disclosure. The big writer of supplemental medical insurance began publishing a table showing the cost, market value and unrealized gain or loss on AFLAC's largest junk bond holdings (*see MetLife and AFLAC tables on page 4*).

Disclosure falls short

But MetLife and AFLAC are really the exception; most of the other life insurers we analyze provide minimal disclosure on credit quality. The disclosure seems to be complete but it really doesn't go beyond the surface.

Jefferson Pilot (JP), for instance, provides a breakdown of its bonds by rating-agency category. It includes the average quality of its bonds and their rating from the National Association of Insurance Commissioners (NAIC). Reinsurance Group of America (RGA) doesn't discuss its bond portfolio at all. In both instances, we're talking about the disclosures these companies make on the day they release their earnings. That's when disclosure really matters—when investors are analyzing results—not weeks later, when companies file their Form 10Q with the U.S. SEC.

continued on page 4

inside

Editorial: Taking a closer look at enterprise risk management by Phil Bieluch.....2

Letters to the editor.....3

Earnings-at-risk: A case of Sun Life Financial by Ron Harasym.....7

Highlights from the 2003 Stochastic Modeling Symposium by Robert Berendsen.....10

Allstate Life Insurance Company implements ERM by Vinaya Sharma.....12

Back to basics: Actuaries discuss the principles of financial economics of pension accounting.....15

Top 10 articles every health actuary should read.....20

Book review.....24

Actuarial Foundation.....25

CE corner.....26

Research corner.....27

Puzzle.....28



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Taking a closer look at enterprise risk management

by Phil Bieluch

In 2001, the Casualty Actuarial Society (CAS) looked at whether members supported an enterprise risk management (ERM) process within their places of employment. At that review, the CAS employed the following working definition: “ERM is the process by which organizations in all industries assess, control, exploit, finance and monitor risks from all sources for the purpose of increasing the organization’s short and long-term value to its stakeholders. Important elements of this definition include the dual nature of risk (i.e., as both threat to be controlled and opportunity to be exploited), the ultimate objective of value creation and the relevance of the CAS to industries beyond insurance.”

Interest in risk management on the rise

The Board of Directors of the Society of Actuaries at its March 2003 meeting adopted a resolution recognizing that risk management is a rapidly growing special interest area of high importance. There is a Risk Management Section currently being formed within the society to allow members with common interests in this area to join together to further their knowledge. There was a seminar on enterprise risk management jointly sponsored by the CAS and the SOA. The attendance far exceeded anyone’s expectations.

Do members of the Society of Actuaries possess adequate skills to be enterprise risk managers? If not, what is lacking?

Enterprise risk involves the probability and connections among different risks. For a life/health insurance company, these could be mortality and morbidity risks, investment risk, operational risk and strategic risk. Actuaries are trained in identifying risks, analyzing and quantifying risks, assessing risk, reducing risk and monitoring and reviewing risk. Risk analysis is crucial to enterprise risk management.

Articles capture ERM in different lights

This issue of *The Actuary* contains two articles on actuaries’ involvement in enterprise risk management at their respective organizations. Both of these pieces discuss the quantification of risk at each author’s company. They also highlight how each

author was involved in the ERM process. A third article, written by a leading Wall Street analyst, discusses how an external audience values enterprise risk management as a tool in commenting on the relative attractiveness of insurance organizations as investment opportunities.

Sarbanes-Oxley Section 404

Sarbanes-Oxley Section 404, which is effective for U.S. public companies for fiscal years ending after June 15, 2004, mandates an annual evaluation of internal controls and procedures for financial reporting, and requires management to assess and vouch for the effectiveness of these controls. A company’s independent auditor is required to complete a separate report that attests to management’s assessment of the effectiveness of internal controls and procedures for financial reporting.

These requirements are a perfect segue for actuaries to increase their involvement in organizational risk assessment, as actuaries are responsible for calculating most of the liabilities at insurance organizations. Development of controls and documentation of the sources of data and procedures in calculation of these liabilities highlight the skills of the actuaries in assessing risk within their organizations.

Actuaries well suited for the job

I don’t think many actuaries would deny that actuaries are very well suited, possibly the best suited, to be the enterprise risk managers in an insurance organization. However, the real question is: Are we viewed by others to be the best for the job?

Actuaries have been trained not to walk away from risk, but to learn how to analyze, reduce and price the risk. Enterprise risk management provides an opportunity to use these skills to ensure the future viability of organizations. To be viewed as enterprise risk managers, actuaries have to start by looking at themselves this way. We, who have chosen this profession, should not walk away from this opportunity. Instead, we should develop tools to apply our skills more broadly and demonstrate that we are the best suited for the task at hand! 

Will the newly approved “education redesign” ruin the actuarial job market?

I just wanted to offer my opinion on the newly proposed system, whereby students will be granted examination credit for receiving a “B” in an approved university course. This will totally change the quality of actuaries worldwide. How many hours do you think a student spends on studying for a course in University? And then think about how many hours a student spends on studying for an actuarial exam by the SOA to pass?

I can say I’ve received a “B” in a class that I didn’t attend—that’s right, zero classes, and studied 20 hours for the exam. I have also received an “86” in a class I never attended, and BS’d on the final exam. The academic system has many loopholes that many students take advantage of. You do not spend nearly as much time studying for a university course as you do for an actuarial exam (Course 1, 2, 3 or 4).

One effective strategy is printing off last semester’s assignments and midterms and their affiliated solutions before the Web site is cancelled for the next semester, and studying or copying those solutions. This can ensure an 80+ average going into an exam, since content (new assignment questions and midterm questions) rarely change. And that is just from copying or memorizing previous solutions rather than understanding the material.

Also, what discourages a professor from giving their students a “B” instead of a “C” or “D,” knowing that this may give his/her students an advantage in the workplace, or boost the status of their university since more of their students are graduating with more professional actuarial exams as compensation for academic grades.

Academic standards will definitely change for the worse at the schools approved as valid education centers. Students will be graduating with more actuarial exams,

whether deserved or not. This will also lead to an indirect problem—how will employers decipher whether or not the student is a quality individual since actuarial exams will no longer be a deciding criteria, because so many students will have similar exam credits?

In addition, some universities or colleges will have easier programs than others. That said, what prevents an individual from taking a distance course at a renowned easy institution, get their “B,” and then get their equivalent actuarial exam credit?

I know so many students who cheat in university, sweet talk the professors and end up with a 75+ average. But when it comes to the actuarial exams, some of those individuals have failed relentlessly. One individual failed Course 1 four times, then decided to try Course 2, which he also failed. Still with no exams under his belt, he has a surprising academic average of 80+. Another individual bragged about guessing well without studying and passing Course 1, but has taken Course 2 five times and continues to fail. These individuals will get professional credit where it is not due. They think they can pass these exams with minimal effort, since that is what they are accustomed to doing at school. But think again, the professional exams remind them that you cannot. When you eliminate that (the old system), you reduce the quality of professionals entering the marketplace. I even know people who write final university exams for other students—this may increase due to the new system.

I personally feel that this new system will ruin the quality of individuals entering the marketplace, and also saturate the actuarial job market. The actuarial profession is currently a prestigious profession, one that an individual works hard to earn. Soon it will become a high paying profession that almost anyone can enter. It may take street smarts to scam the system, but believe me, street smarts are something anyone can learn (simply by copying what everyone else with street smarts is doing).

If I can scam the university system, anyone can. But I work hard to pass my actuarial exams. I have probably studied 600 hours cumulative on two attempts to pass Course 1, and the same with Course 2.

Those are my thoughts, and do not get me wrong, I am not bitter because I cannot get the equivalence credits. If things do not change, I can benefit from this new system as well. I can always stop writing exams now, relax, and then do the academic route once the system gets implemented. Since signing up for a university course and getting a “B” will be easier and more fun than sitting down now and studying my Actex Manuals for four months, with the chance of failing.

*Kevin Chong
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Stuart Klugman responds

I want to thank the author of this letter for his comments on the Education Redesign. Comments from members and candidates help ensure that the redesign will meet the needs of employers and the profession.

I want to remind the author of this letter that the redesign proposal envisions six examinations for those topics that are core to the work done by actuaries. These examinations will meet our customary high standards and cannot be waived or replaced by college credit. That should be enough to indicate who has the “right stuff.”

While some of the events predicted in the letter may come to pass, the writer has missed the point of the recommended changes. This is clear when he repeatedly refers to everything exclusively in terms of actuarial exams. The proposal envisions a system where education and examination go hand in hand. For the topics that would be validated by experience, candidates can easily grasp the essential concepts in an interactive, classroom-type environment

life insurance

Add one more risk to those faced by life insurers

continued from page 1

METLIFE, INC.

Gross Unrealized Losses Aging Schedule-Fixed Maturities				
Unaudited (dollars in millions)	At March 31, 2003		At December 31, 2002	
	Amount	% of Total	Amount	% of Total
Less than 20%	\$773	61.0%	\$ 925	54.7%
20% or more for less than six months	216	17.0%	531	31.4%
20% or more for six months or greater	279	22.0%	234	13.9%
Total Gross Unrealized Losses	\$1,268	100.0%	\$1,690	100.0%

Gross Unrealized Losses Aging Schedule-Equity Securities				
Unaudited (dollars in millions)	At March 31, 2003		At December 31, 2002	
	Amount	% of Total	Amount	% of Total
Less than 20%	\$ 33	26.6%	\$ 25	30.1%
20% or more for less than six months	91	73.4%	58	69.9%
20% or more for six months or greater	0	0.0%	0	0.0%
Total Gross Unrealized Losses	\$ 124	100.0%	\$ 83	100.0%

In the case of both JP and RGA, we're saying the disclosure could be better. And they are by no means alone. What could JP and RGA—and indeed, many other life companies—do to make their credit-quality disclosures better?

Here's a wish list of what we at Lehman Brothers think would constitute a complete report:

- Tell us the names of your top 10 holdings in your bond portfolio.
- Tell us about concentration risk by disclosing the name of any bond that represents more than, say, 7 percent of an insurer's bond portfolio.
- Tell us about rating-agency upgrades and down grades during the quarter.
- Describe the definition of and size of the life company's watch list.
- Give us a fair value-vs.-cost analysis not just for the whole investment portfolio but also for individual industries.
- Tell us about holdings of troubled companies making headlines.

AFLAC Below-Investment-Grade Holdings (in millions)

	December 31, 2002			June 30, 2003		
	Amortized Cost	Fair Value	Unrealized gains (losses)	Amortized Cost	Fair Value	Unrealized gains (losses)
Ahold Finance	\$ —	\$ —	\$ —	\$ 317	\$ 279	\$ (38)
KLM Royal Dutch Airlines	250	158	(92)	250	196	(54)
Royal and Sun Alliance Insurance	—	—	—	209	186	(23)
Levi Strauss & Co.	117	117	—	117	109	(8)
Cerro Negro Finance	67	40	(27)	67	57	(10)
BIL Asia Group	133	124	(9)	50	47	(3)
AMP Japan	—	—	—	50	50	—
Ikon Inc.	—	—	—	46	42	(4)
LeGrand	86	66	(20)	46	45	(1)
Asahi Finance Limited	42	46	4	42	45	3
PDVSA Finance	32	25	(7)	31	28	(3)
Tennessee Gas Pipeline	40	33	(7)	31	32	1
SB Treasury Company LLC	—	—	—	28	31	3
KDDI	22	21	(1)	22	24	2
Other	2	5	3	27	33	6
Total	\$ 791	\$ 635	\$ (156)	\$ 1,333	\$ 1,204	\$ (129)

Embedded guarantees

Here, too, we must acknowledge that life insurance companies have been striving to improve disclosure regarding guarantees they've offered on variable annuities. By "guarantees," of course, we're referring to the guaranteed minimum death benefits, income benefits and withdrawal benefits that have become all the rage in recent years. Consumers have been lining up to take advantage of these guarantees because they sense that the guarantees may be even better deals than the life insurers realize. After all, when you open a brokerage account at Merrill Lynch, for example, the Merrill broker doesn't guarantee investment performance. How does the life insurance industry get off guaranteeing stock market performance?

However the life insurers are managing this risk, we'd argue that the disclosure about guarantees—while improving—has fallen short. For some time, for instance, Manulife Financial has been publishing a table showing its amount at risk (net of reinsurance) stemming from income benefits and death benefits on Manulife's segregated funds—the Canadian equivalent of variable annuities. Translation: Each quarter, in the

statistical package it publishes to supplement its basic earnings report, Manulife tells us how much it would pay out in total dollar terms if each of its segregated fund customers who had a death benefit or living benefit attached to that contract took advantage of that benefit TODAY.

My beef

There are two problems with this disclosure. First, it's unrealistic. What are the chances, for example, that every policyholder with death benefit guarantees on their annuities died today? Answer: Zip. Secondly, Manulife's disclosure doesn't tell us what we really want to know, which are the assumptions that underlie the company's assessment of its risk, and the risk to earnings the company faces as a result of issuing its guarantees. In other words, investors are less interested in the number—what Manulife's ultimate assessment of risk is. What they want to know is how Manulife arrived at the number, i.e., its methods and assumptions. Above all they want to know the chances that policyholders' cashing in on their guarantees will cause Manulife to report an earnings disappointment. Sadly, Manulife's disclosure doesn't provide this.

On a somewhat positive note

Hartford's disclosure is just a little bit better. It recently became one of the first life companies to report a confidence interval—a dollar range—for 95 percent of the possible outcomes under its death benefit guarantees. Hartford reports this confidence interval in terms of the present value of future death benefits. In such fashion, the big life company gets away from the fantasy that every one of its customers dies at once. (See *Hartford tables on page 6*).

In the end, however, we'd say Hartford's disclosure is only modestly better than Manulife's. We don't get to see any of the assumptions that underlie Hartford's confidence interval, and we therefore don't really know the earnings risk.

How could life companies do a better job? Here's a wish list:

- Tell us the key assumptions—for example, about future stock-market growth and investors' taking advantage of guarantee provisions—that underlie an assessment of risk.

continued on page 6

Manulife Financial

Seg Fund Guarantee Reserves No Reserves Released in Q2						
	As at June 30, 2003			As at March 31, 2003		
	Fund Value Net of Amount Reinsured (C\$ billions)	Amount at Risk Net of Amounts Reinsured (C\$ billions)	Actuarial Liabilities (C\$ millions)	Fund Value Net of Amount Reinsured (C\$ billions)	Amount at Risk Net of Amounts Reinsured (C\$ billions)	Actuarial Liabilities (C\$ millions)
Maturity/Income Benefits	7.6	1.1		7.0	1.5	
Death Benefits	6.7	2.6		6.6	3.3	
Balance	14.3	3.7	569	13.6	4.8	598

- Despite improvement in equity markets, no segregated fund reserves released during the quarter
- Reduction from Q1 due to currency translation
- Impact of retaining reserves at existing levels was \$29 million after tax reduction in earnings
- Future reserve releases to earnings expected if market values rise

life insurance

Add one more risk to those faced by life insurers

continued from page 5

The Hartford Financial Services Group, Inc.

Life Investment Products Supplemental Data-
Guaranteed Minimum Death Benefits [1]

Breakdown of Variable Annuity Account Value by GMDB Type				
	As of March 31, 2003			
	Account Value	Net Amount at Risk	% of NAR Reinsured	Retained NAR
Maximum anniversary value (MAV)				
MAV only	\$ 50,054	\$ 19,506	92%	\$ 1,576
with 5% rollup [2]	2,307	783	89%	90
with Earnings Protection Benefit Rider (EPB)	1,677	264	74%	67
with 5% rollup & EPB	1,090	197	90%	19
Total MAV	55,128	20,750	92%	1,752
Ratchet (5-7 years) [3]	6,901	2,432	0%	2,420
Reset (5-7 years) [4]	1,456	303	24%	231
Return of premium/other [5]	562	102	81%	20
TOTAL	\$ 64,047	\$ 23,587	81%	\$ 4,423

Other Data			
	As of September 30, 2002	As of December 31, 2002	As of March 31, 2003
S&P 500 Index value at end of period	815.28	879.82	848.18
Total account value	\$ 59,618	\$ 64,343	\$ 64,047
Net amount at risk	25,905	22,387	23,587
Retained net amount at risk	4,871	4,063	4,423
GMBD net statutory reserve [6]	366	267	289
Present value of retained guaranteed death benefits	184	159	191
95% Confidence interval of present value of retained guaranteed death benefits	(91-378)	(86-349)	(108-396)
Embedded value of variable annuity in-force business [1]			
Value of in-force	2,258	2,510	2,332
Cost of capital	(248)	(284)	(281)
Total embedded value	\$ 2,010	\$ 2,226	\$ 2,051

[1] Significant Assumptions (a) 9.25% cost of capital, (b) 9% separate account appreciation, (c) 35% effective tax rate. Excludes the value of statutory surplus required to support the in-force business.

[2] Rollup: the death benefit is the greatest of current account value, net premium and premiums (adjusted for withdrawals) accumulated at generally 5% simple interest up to the earlier of age 80 or 100% of adjusted premiums.

[3] Ratchet: the death benefit is the greatest of current account value, net premiums paid and the highest account value on any anniversary before age 85 (adjusted withdrawals).

[4] Reset: the death benefit is the greatest of current account value, net premiums paid and the most recent five-year anniversary account value before age 80 (adjusted for withdrawals).

[5] Return of premium: the death benefit is the greater of current account value and net premiums paid.

[6] No Equivalent GAAP reserve.

- Tell us the assumptions about customers' future asset allocation. It's one thing if a life company assumes that customers with guarantees keep their savings invested in the stock market, an asset allocation that can allow a life company to dig its way out of a hole. It's quite another if a life company assumes it'll never get out of a hole because customers are heavily invested in, say, money-market funds.
- Change attitudes. We've seen too many life companies take the position that because annuity guarantees are complicated, investors won't understand them and therefore the details shouldn't be disclosed. We'd argue that such attitudes only fuel investors' lack of understanding regarding guarantees—and the natural concern about guarantees that has resulted.

Interest rate risk

It's surprising: What with the major advances in recent years in asset-liability management, the amount of information that life insurers have been giving out with respect to this pivotal issue actually seems to have gotten less, not more. We can remember, for instance, how First Colony, once an independent life insurance company, would routinely disclose its exposure to prepayment risk on its bond portfolio by stratifying its mortgage-securities portfolio by coupon. In other words, if First Colony were about to be hit by a wave of prepayments

continued on page 21

Earnings-at-risk: A case study of Sun Life Financial

by Ron Harasym

In 2001, Sun Life Financial began development and implementation of an enterprise-wide Financial Risk Management (FRM) framework using a range of quantitative methods. The objective was to assist management in the consistent identification, monitoring and management of interest rate, equity

protection. By completing its demutualization in 2000, Sun Life Financial became a publicly traded company and open to a different level of scrutiny than in the past. It was considered essential that management have a sound understanding of how capital market factors such as interest rates, equity markets and

capital market movements. Given Sun Life Financial's multinational presence, an international project work group and steering committee were formed. The project working group acts as a mechanism to detail and document the process and assure quality control. After a considerable amount of productive debate, Market Risk Tolerance Limits (MRTLs) and standards were established. The metric chosen was the deviation in planned income, measured on a Canadian generally accepted accounting principles (GAAP) basis, over a one-year time period. These limits indicate the maximum tolerable income sensitivity for a range of certain sample market movements, which business groups (country specific operations) are required to measure against. The limits form a part of the company's board approved consolidated risk management policies. The development of risk tolerance limits is part of a broader risk management framework—measuring

A robust enterprise-wide financial risk management framework requires a fundamental commitment at all levels of management, as well as a realistic time frame to implement.

market and currency exposures that may impact company earnings. Although timing of the project was extremely tight, with approximately one year to implement, all deliverables were achieved on time.

A robust enterprise-wide financial risk management framework requires a fundamental commitment at all levels of management, as well as a realistic time frame to implement. This article shares some of the qualitative observations from the overall process, as opposed to describing in technical detail the stochastic methodology used to achieve this goal. Keep in mind, effective and efficient risk management is not always purely about the numbers.

Nature of the situation

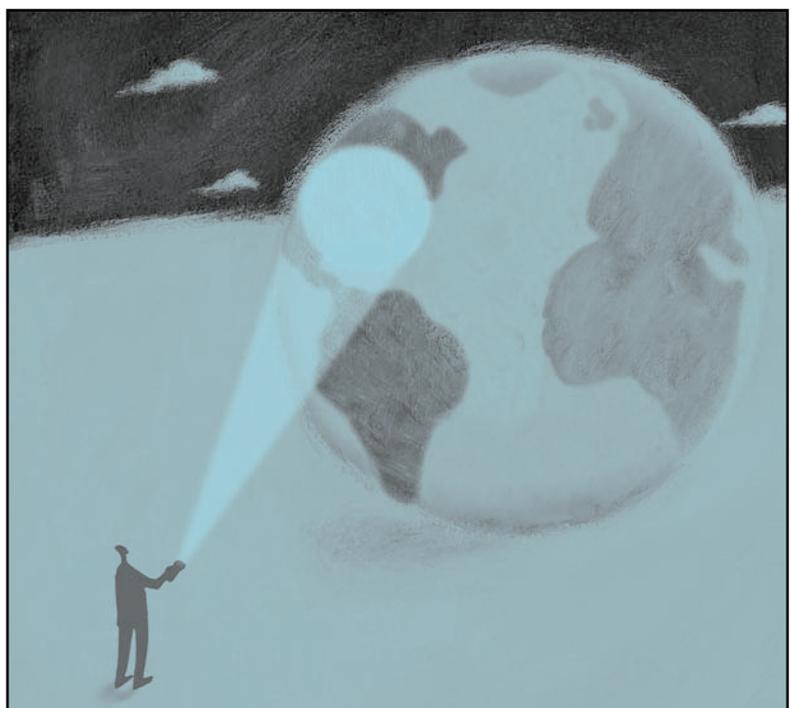
Sun Life Financial is a leading financial services organization headquartered in Toronto, Canada, with business operations in key markets around the world, including Canada, the United States, the United Kingdom, Hong Kong, the Philippines, Japan, Indonesia, India, China and Bermuda. Sun Life Financial offers individuals and corporate customers a diverse range of financial products and services in two principal business areas: wealth management and

currency rates impact earnings in order to have an enhanced understanding of the business and to help develop strategies for dealing with these risks.

Development of market risk tolerance limits

The objective of the FRM project was to quantify the company's income sensitivity and risk tolerance limit to defined

continued on page 8



Earnings-at-risk: A case study of Sun Life Financial

continued from page 7

and monitoring against these limits is necessary to develop the aggregate risk profile of the organization.

Generation of Canadian GAAP income sensitivities

From an overall project perspective, it became evident that a common sense approach had to be adopted or an enormous amount of resources would be consumed with little value being added. To achieve economies of scale with other projects such as Embedded Value (EV) and Dynamic Capital Adequacy Testing (DCAT), it was necessary to build on and leverage from existing platforms and processes. Where possible, additional scenarios are run in conjunction with EV and DCAT work. Nevertheless, the FRM initiative did meet resistance. The business groups needed to see how the process added value in the form of new information.

Application of market risk tolerance limits

All material businesses are expected to measure the sensitivity of their income, on a prospective basis, and report to the corporate risk office. Risks that the company has significant exposure to, such as variable annuity benefit riders in the United States and guaranteed annuity options in the United Kingdom where exposure mitigating hedging programs have been implemented, are quantified and reported on a monthly basis. Other exposures are quantified on a quarterly, semi-annual or annual basis.

While the MRTLs are embedded in the board policies which apply to just the general fund and insurance related operations, asset management companies are also required to measure and report against the limits in order to develop the

aggregate risk profile of the organization. The board policy on the MRTLs does not require that business groups have less exposure to market risk than implied by the limits, but rather that measurements against the limits be made and reported to management and the board. Management may choose to operate with one or more business groups outside the limit, or with the organization as a whole outside the limit, depending on the business strategy and the financial/capital structure of the organization at the time. Reporting to the board and executive office in such circumstances means decisions are made and documented transparently.

Progression to EaR

The quantification of Earnings-at-Risk (EaR) was a natural progression given the Canadian GAAP income sensitivities generated from the MRTL process. Once again, the international project work group and steering committee were charged with the task of formulating the stochastic economic scenario generation process and quantitative methods required to extend the process. The end result is a detailed earnings surface that can be drilled down from the entire company to specific business units in a business group along multiple exposure dimensions.

Benefits of MRTL and EaR

MRTL and EaR are decision support tools, directed at supporting risk-based decision-making by senior management. MRTLs and EaR are considered forward-looking macro models that identify capital market exposure on a consistent company-wide basis and act as early warning systems. The EaR analysis quantifies both the frequency and severity of scenarios and contains a high level of

information density. These measures have provided a new type of information previously not available to management—the quantification of risk diversification on a cross and intra-business group level. People are starting to view these tools less as compliance (and perhaps defensive in nature), and more as offensive tools where competitive advantages can be gained. MRTLs and EaR have been used strategically to direct hedging programs and increased management scrutiny. Finally, the project has produced other benefits that are difficult to assign hard numbers to, such as the development and use of some common stochastic models.

Caveats of MRTL and EaR

It's important to emphasize that MRTLs and EaR are not the ultimate solutions, but are instead additional tools that are available to management. MRTL and EaR are not used to manage the businesses on a micro level, but rather to shape and focus the long-term objectives of the business from a macro perspective. Once an exposure has been identified that is either outside of its respective tolerance limit or is deemed unacceptable from a risk profile perspective, other models are used for tactical asset-liability rebalancing.

Challenges of MRTL and EaR

MRTL and EaR processes do present challenges to the company as a whole. They require complex stochastic modeling that places heavy computational demands within a narrow time frame. MRTL and EaR work also tends to fall on the same persons already committed to working on valuation, EV and DCAT—all at the same time. There were also communication challenges and lessons

financial risk management

learned for the corporate risk office. Over time, the style of communication from the corporate risk office to the executive office and board has been modified accordingly and better focuses on the target audience. Key issues and action plans are extracted and communicated from the wealth of information produced by the MRTL and EaR processes. Of course, for the more technically minded persons, the detailed documentation is always available.

Summary of the tools available to management

A summary of the tools available to management to assess various exposures is provided in Figure 1. A key objective is the reconciliation of the differences between the tools so that there is consistency in messages being communicated.

A summary of the type of scenarios that each methodology employs is presented in Figure 2. The business plan focuses on one detailed scenario—this is represented by the origin and is considered to be the base scenario. MRTL requirements add up to eight additional prescribed interest and equity market scenarios that focus on deviations from the base scenario. EaR requirements add additional scenarios to capture joint interest/equity risk to facilitate construction of an earnings surface.

A sample EaR report table and chart are presented in Figures 3 and 4 (see Figure 4 on page 22.) The statistic shown is the conditional tail expectation (CTE) of the deviation from the expected business plan earnings over a one-year time period where CTE[95 percent] represents the average of those deviations beyond the 95th percentile. A simple addition of the risks would indicate a total exposure of \$440, while the inclusion of diversification benefits leads to a reduced total exposure of \$200. Country D, on a stand-alone basis, has the highest level of risk at \$120 while on a holistic basis, Country D has the lowest

continued on page 22

Figure 1

Tool	Number of Scenarios	Projected Period	Purpose
Business Plan	1 base scenario	1-3 years	<ul style="list-style-type: none"> detailed (precise) projection of base scenario
Market Risk Tolerance Limits	4 interest scenarios 4 equity scenarios	1 year	<ul style="list-style-type: none"> understanding of stylized shocks
Earnings-at-Risk	10,000 fitted scenarios	1 year	<ul style="list-style-type: none"> probabilistic measure of risk and exposure
Dynamic Capital Adequacy Testing	4 + scenarios	5 years	<ul style="list-style-type: none"> severe deterministic stress testing
Embedded Value	1 + scenarios	long-term	<ul style="list-style-type: none"> quantify value of existing and new business

Figure 2

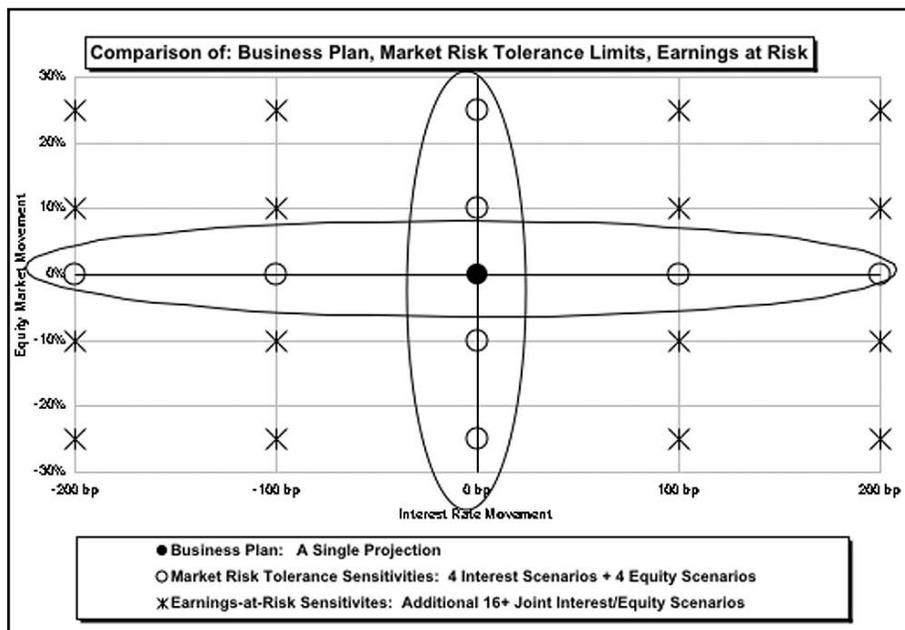


Figure 3—Sample Earnings-at-Risk Report

Risk Originator	Risk Category			Uncorrelated	Correlation	Total EaR
	Interest	Equity	Currency	Total	Effect	
Country A	\$88	\$24	\$0	\$112	(\$22)	\$90
Country B	\$23	\$68	\$14	\$105	(\$18)	\$87
Country C	\$44	\$42	\$17	\$103	(\$5)	\$98
Country D	\$56	\$9	\$55	\$120	(\$35)	\$85
Uncorrelated Total	\$211	\$143	\$86	\$440	(\$80)	\$360
Correlation Effect	(\$140)	(\$51)	(\$5)	(\$196)	\$37	(\$159)
Total EaR	\$71	\$92	\$81	\$244	(\$43)	\$200

Highlights from the 2003 Stochastic Modeling Symposium

by Robert Berendsen

If you weren't in Toronto September 4 and 5, you missed out on the 2003 Stochastic Modeling Symposium. But missing out on the symposium doesn't mean you have to miss out on all the excellent papers that were presented.

It was a great event, organized by the Canadian Institute of Actuaries' Committee on Investment Practice, but with the full support and sponsorship of the Actuarial Foundation and a number of SOA sections and committees, namely the Financial Reporting Section, the Investment Section and the Committee on Finance Research.

The symposium kicked off with a welcoming reception on the evening of September 3, where highlights included a short walk over to the SkyDome—home of Major League Baseball's Blue Jays—to enjoy a ball game where the visiting New

There is a lot each can learn from the other, and these symposia are great forums for these exchanges.

York Yankees had one thing in mind: to avenge their 8-1 loss suffered two nights earlier. To the dismay of some visiting symposium attendees, the final score would be 4-3 in favor of the home team.

The symposium got down to business the next morning and covered a lot of ground over the two days. About 175 attendees from 10 countries gathered in Toronto for the opportunity to see, hear, learn and question the authors of 16

excellent papers, all addressing some aspect of stochastic modeling.

Like the inaugural 1999 stochastic modeling symposium that was also held in Toronto, this symposium brought together academics and practitioners. In fact, of the 16 papers presented at this year's symposium, eight were from academics and eight were from practitioners. There is a lot each can learn from the other, and these symposia are great forums for these exchanges. And let me tell you, the refreshment breaks were breaks from sitting down, but there were still a lot of ideas being shared. Lots of contacts were rekindled and many new ones were formed.

Clearly, interest in stochastic modeling is high, and why not? We all know that, when built and used carefully, stochastic models can be extremely powerful tools

in shedding light on the potential financial implications of today's increasingly complex insurance and wealth accumulation products. Without stochastic models, one is often left speculating on the possible outcomes.

The Canadian Institute of Actuaries (CIA) and the Office of the Superintendent of Financial Institutions (OSFI) have both realized the power of stochastic modeling. OSFI based the capital requirements for segregated fund

guarantees on the results of stochastic modeling, and, subject to some conditions, permits companies to use their own internal models to set liabilities and capital for these products. OSFI sees stochastic modeling as an important part of a company's risk management infrastructure. The CIA, for its part, moved to encourage the use of stochastic models for the valuation of a wider range of products by including stochastic models as an alternative in the general Canadian Asset Liability Method (CALM) valuation process. On the United States front, stochastic models will soon make a jump into the insurance regulatory system via the proposed RBC C-3 Phase II requirements for variable annuity guarantees.

But I digress—back to the symposium. Papers presented covered topics ranging from choosing appropriate equity and interest rate models, to modeling mortality for heavily skewed mortality cost arrangements such as some reinsurance treaties, to methods for potentially reducing the number of scenarios to run without losing too much accuracy, to understanding the modeling uncertainty or sampling error, to valuing and pricing a range of products and modeling policyholder behavior.

All papers presented had been first subject to the scrutiny of a scientific review committee, also consisting of both academics and practitioners. It would be fair to say that all 16 papers were high quality papers. Nevertheless, the review committee identified a number of papers deserving of special mention. Six papers were honored with

symposium highlights

“Outstanding Paper Awards” and rewarded with \$3,500 cash prizes (thanks again to our sponsors). The winning authors (in alphabetical order) and the paper titles are as follows:

- Andrew Cairns, Heriot-Watt University

A family of term-structure models for long-term risk management and derivative pricing

- Jacques Carriere, University of Alberta

Martingale Valuation of Cash-Flows for Insurance and Interest Models

- Geoff Hancock, Mercer Oliver Wyman and John Manistre, Aegon
- Variance of the CTE Estimator*

- Adam Kolkiewicz and Ken Seng Tan, University of Waterloo

Volatility Risk for Regime-Switching Models

- Alastair Longley-Cook, Tillinghast-Towers Perrin

Efficient Stochastic Modeling Utilizing Representative Scenarios: Application to Equity Risks

- Christian-Marc Panneton, Industrial Alliance

Mean-Reversion in Equity Models in the Context of Actuarial Provisions for Segregated Fund Investment Guarantees.

Now, if you weren't at the symposium and don't know someone who was, you might wonder how you could get your hands on these excellent papers. Well, you're in luck—it's not too late. In fact, all 16 papers that were presented at the symposium are now available on the CIA Web site at http://www.actuaries.ca/meetings/archive_stochasticsympo-



Clockwise from back left: Jason E. Kehrberg (presenting Alastair G. Longley-Cook's paper), Jacques Carriere, Christian-Marc Panneton, Adam W. Kolkiewicz, Ken Seng Tan, B. John Manistre and Geoffrey H. Hancock

[sium_2003_e.html](#). If you would like a nice binder containing all the papers, the CIA has a few remaining, at a cost of CAD \$75, on a first-come, first-served basis. Please call Judy Findley at

next stochastic modeling symposium in 2006. That's good to know if you intend to attend or even submit a paper.

Indeed, I encourage everyone working on a regular basis with stochastic models to

...I'd say that stochastic modeling has changed our lives, is here to stay, and actuaries will find a growing number of useful applications for it in the future.

613.236.8196, ext. 119. And next time, come out and join the crowd, meet people with like interests, learn more than you could from just reading the papers and take a break from the office!

Paraphrasing one of the presenters at the symposium, I'd say that stochastic modeling has changed our lives, is here to stay and actuaries will find a growing number of useful applications for it in the future. In that vein, the Committee on Investment Practice plans to hold the

start thinking about what you would like to write a paper on. If enough of us do that, the next symposium could be even better than the one we just had!

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Allstate Life Insurance Company implements ERM

by Vinaya Sharma

A little over two years ago, I was asked to formalize the Enterprise Risk Management (ERM) process at Allstate Life Insurance Company. While the company has always proactively managed its risks, they wanted a formal program in place, and I was anxious to coordinate a project of this magnitude.

Much like art, if you ask 10 people to define ERM, you will get 10 different answers, and an equal number of ways (if not more) to go about creating an ERM structure.

Why would a company implement ERM in the first place, particularly an insurance company that is supposed to specialize in risk? Several reasons come to mind. ERM can help:

- Provide company-wide scope/assessment to risk analysis.
- Present how a single relevant economic event affects the company.
- Reveal portfolio effects.
- Enhance capital allocation process.
- Clarify roles/responsibilities.

Though these points are certainly noble, a few seem somewhat idealistic. Implementing ERM at Allstate Life would serve as an attempt to put the theory into practice. It is important to note that ERM is not necessarily universal analysis and responsibility of risk; in this case, it is more targeted and focused.

Given Allstate Life's organizational structure, I felt a three-pronged approach toward ERM was the best way to get the most "bang for the buck." The three prongs included:

- Analysis of significant risks.
- Aggregate risks throughout enterprise.
- "Point" team on large events that impact the enterprise.

Analysis of significant risks

The first step in the process was identification of the largest risks that the company faced (and for "quick win" purposes, ones that could be relatively easy to measure). Such exposures as interest rates, credit markets and equity markets would fall into that category.

The next step involved aggregating the exposures throughout the company. For example, Allstate Life has equity exposure through variable annuities, equity indexed annuities, non-affiliated common stock, etc. It is interesting to note that not all of these are equity exposures necessarily managed by one group (e.g., the investment department may manage your stock portfolio). As such, rolling the exposures together is needed to understand the effects of the stock market on the company as a whole, not just as a segment.

After aggregating the exposures, a series of risk-related metrics are necessary to quantify the amount of risk that is being taken. Some examples of risk-related metrics include net amount at risk, value at risk, income, capital or embedded value. The SOA Risk Management Task Force has a risk metrics group that has several other relevant definitions. At Allstate Life, the metrics are relatively standard in definition and thus difficult to misconstrue. Ideally, the metrics must also be understandable to the practitioners (the ones responsible for day-to-day management of risk) so they know what levers can be pulled to decrease (or increase) risk.

Tolerance levels to risk are key as well. A company should consider both internal (senior management, risk managers) and



external factors (such as rating agencies, investment analysts and state insurance departments) when setting tolerance levels. For example, setting a tolerance of insolvency in 10 percent of all scenarios is likely too aggressive. Likewise, zero volatility in generally accepted accounting principles (GAAP) income in any interest rate scenario is probably too conservative. Senior management review is necessary to establish the risk appetite for the company.

Once tolerance levels are established, the measurement must take place! Based on the risk, you must decide not only “how

Senior management review is necessary to establish the risk appetite for the company.

often” to measure the risk, but “how” to measure the risk. Certain risks (such as credit risk) may need to be measured and monitored more frequently than mortality risk. In addition, depending on the risk (and the modeling capabilities available) a stochastic measurement may be more useful than a deterministic approach. However, a deterministic approach normally is easier for senior management to grapple with when understanding risk and establishing baselines.

The last step in the ERM process involved periodically updating the risk profile. A short report that summarizes the risks—and one that is easy on the eyes—will garner more attention than a 20-page report with 40 pages of appendices. The latter may be useful for you in measuring (or managing) the risk, but a succinct report can help drive action by senior management, particularly if the risk profile indicates your company is beyond tolerance (or just as importantly, that your company can afford to take more risk).

Aggregate risks throughout enterprise

While there are several risks (mentioned earlier in this article) that are key to Allstate Life, there are obviously a myriad of other risks that the company has—legal risk, external partner risk, technology risk, operational risk and tax risk are just a few examples of some “softer” risks. Quantifying those risks can be tricky, and rather burdensome. Given the limited availability of time (both mine and others), the most efficient approach toward understanding those other risks was to have a monthly risk meeting with risk liaisons throughout the company.

Those liaisons kept me up to date on the risks (and opportunities) that they dealt with in their areas of Allstate Life.

At first, I felt it necessary to try and quantify those risks. While it could be of value, I found that quantifying risk can be a daunting task and not an efficient use of time. The discussions also forced me to learn terms and vernacular that I do not normally use. For example, metrics related to distribution and marketing, such as sales and brand awareness, helped me speak in a more cogent fashion with those liaisons (metrics such as embedded value and Sharpe ratios do not mean anything to some audiences). Periodically, a report summarizing the notes was made available to senior management.

Last year, Allstate Life held its inaugural Risk Forum. Liaisons from over 20 different areas of the company (along with senior management) met for a day to discuss the top risks and opportunities of each area in the company. It gave several

participants a greater understanding of the Allstate Life business as a whole. The forum was also structured so that each liaison could mark down a risk from someone else that may affect his/her particular area. This would allow the affected area to be involved in the project (or at least informed of progress) as opposed to finding out about it later and having to react to decisions that were made without all stakeholders at the table.

“Point” team on large events that impact the enterprise

This third prong of the ERM process is more reactive in nature. The liaisons I mentioned earlier also have the responsibility to measure and quantify impact of a large event that affects multiple parts of the enterprise. Such events where the team has had to be pulled together include terrorist attacks, SQL/Slammer virus and the Bush tax proposal.

The ability to summarize and synthesize the information provides a single overview of these impacts, which can be particularly useful when dealing with external stakeholders.

The value of ERM

There have been several places where the implementation of an ERM program has shown value to the company:

- Conduit of information—Through my monthly meetings, I have been able to quickly assess whether certain risks or projects to take place may impact others. I can bring those parties together quickly for a more thorough decision-making process, or in several instances, I have been able to identify others in the organization who have done projects similar to the one about to be embarked

continued on page 14

Allstate Life Insurance Company implements ERM

continued from page 13

upon—no need to re-create the wheel, right?

- Aggregation of exposure—A question as innocent as, “What happens to us if the market drops 10 percent?” can now be evaluated inside the ERM framework.
- Increased discipline—This is not implying that discipline did not exist before, but a structured/periodic measurement of risk becomes expected, and can be planned for by other areas.
- Broader understanding/measurement of risk—The more involved others are in risk measurement, the more it becomes a part of the general processes. Communication also becomes more effective as the terminology is more standardized.

Be aware of the potholes

There are several potentially negative aspects of an ERM process that several of the books and monographs do not warn about:

- Senior management buy-in is essential—For your ERM structure to make any inroads, this must be a top-down campaign instead of a grass roots initiative. If you do not have senior management approval and buy-in of what you would like to accomplish, then you are simply spinning your wheels.
- Turf issues—Overlaying an ERM framework on an existing framework requires a delicate balance. A meeting with the day-to-day risk managers is worthwhile to help identify which part of the organization is responsible for each particular step of risk management (e.g., Corporate may be responsible for company level toler-

ance to risk, but line actuaries are responsible for risk analysis, solutions, and implementation). It is important to remember that risk management already existed without a formal ERM process.

- Witch hunts —Those not used to dealing with risk can be prone to this thought process. Head this thinking off at the pass by providing the necessary information to all who will be involved in or affected by the process.
- You only know what you are told. It’s hard to manage something you are not aware of—communication is key.
- Risk management is different to different people. As I mentioned earlier, 10 people will have 10 different interpretations of and approaches to ERM.
- Quantifying ERM value can be difficult—In today’s measurement-based world, it is hard to put a value on ERM. Have the monthly discussions saved several people some time and effort? Absolutely, but I admittedly cannot tell you exactly how much. Has the establishment of tolerances and periodic measurement helped

Allstate Life better understand its risk profile? Yes, which can help allocate (or lower) capital held by the company. This, in turn, translates into higher Return on Equity (ROE)s which ultimately reveals itself in higher shareholder value.

This article does not suggest that this is the one and only way to go about implementing an ERM process, but it is the way we generally put it in place at Allstate Life. Thoughts, questions or comments are greatly appreciated. ☰

Vinaya Sharma, FSA, MAAA, is an actuary with Allstate Life Insurance Company in Northbrook, Ill. He recently attained the Professional Risk Manager designation from PRMIA and can be reached at vsharmal@allstate.com.

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Back to basics

Actuaries discuss the principles of financial economics of pension accounting

Financial economics, when applied to actuarial science, calls into question some basic principles. Many actuarial principles are based on understanding of the stock market and pension plans with which financial economists would disagree.

To get a more comprehensive understanding of the principles that play an integral role with financial economics, *The Actuary* spoke to four actuaries who are subject matter experts in their field:

- Jon Exley is a senior consultant with Mercer Investment Consulting based in Leeds, UK. He can be reached at Jon.Exley@mercer.com.
- Paul Gewirtz is a partner in the human capital division at Ernst & Young LLP in Cleveland, Ohio. He can be reached at paul.gewirtz@ey.com.
- Dimitry Mindlin is vice president of Wilshire Associates, Inc. in Santa Monica, Calif. He can be reached at dmindlin@wilshire.com.
- Mark Ruloff is vice president of Wintech in Greenwich, Conn. He can be reached at MRuloff@winklevoss.com.

One principle that comes into play is whether a liability value, which incorporates projected benefits and uses a long-term discount rate that is tied to the expected return on assets, is a relevant measure of the pension obligation.

The Actuary: Do you agree that this liability measure is the best way to look at a pension fund?

Exley: No. This calculation does not result in a number that has any economic meaning. It is not a “value” in dollars that can be compared with dollars in other aspects of a business or

Many actuarial principles are based on understanding of the stock market and pension plans with which financial economists would disagree.

with dollars used in everyday life. First, the liabilities attached to future salary increases with respect to accrued pensions are not a liability today in the same way as future salary increases of current employees are not a liability today. Secondly, the liability value should be determined by establishing the price of a matching portfolio of bonds (nominal and inflation linked). It is blindingly obvious that the value of \$100 of bonds has the same value as \$100 of equities in a portfolio (i.e., \$100

in real everyday dollars); so why should the value of the liabilities be less if we switch the assets from bonds worth \$100 to equities worth \$100?

Gewirtz: We need agreement on what is meant by “projected benefits.” In the usual Statement of Financial Accounting Standards No. 87 (FAS 87) meaning—

where it includes projected future salaries—it’s really hard to view a measure based on this as a “liability” or even as an “obligation,” at least as we see it in the United States.

Using a discount rate based on the plan’s long-term rate of return on its assets depends on the purpose for which the measure will be used. I think that financial economics (FE) suggests choosing a

continued on page 16



pension accounting

Back to basics

continued from page 15

risk-free rate that represents a bond-type security with the same cash flow characteristics as the plan's benefit structure. This is not at all easy in practice. There are few, if any, bonds that meet the "availability and comparability" test for most Defined Benefit (DB) plans. So a simplifying compromise will have to suffice.

Mindlin: I don't believe there is such a thing as "the best way to look at the pension fund." The projected benefit based liability is the asset value the plan

as it is the one of primary importance to all parties—the employer, participants, shareholders and the Pension Benefit Guaranty Corporation (PBGC).

The Actuary: If a liability based on projected benefits is imperfect, what would be a better measure of liability?

Exley: I would start with the cost of buying out the accrued liabilities with an insurance company. If shareholders of a specialist insurance provider require this premium to take on the liabilities, then

others. Each liability measure has its purpose and "constituency." Some accounting and minimum contribution rules require "termination" liabilities. As far as those rules are concerned, nothing is better than Accumulated Benefit Obligation (ABO) and current liabilities.

Ruloff: The recent prolonged market downturn has shown us that there is a risk that these plans will not be ongoing, even for companies once thought to be strong. The most important liability measure is one that measures the risk to participants, shareholders and the PBGC (other companies and possibly taxpayers). That liability is the market cost of the benefits earned to date and it should be used for calculating disclosures, accounting expense and a minimum required contribution.

The most important liability measure is one that measures the risk to participants, shareholders and the PBGC (other companies and possibly taxpayers).

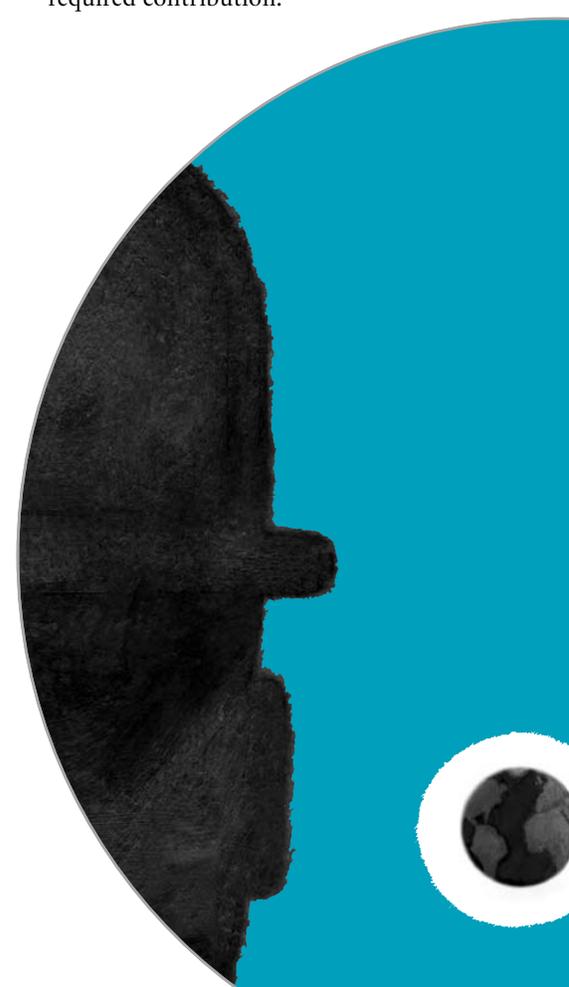
should have if everything has gone right. In other words, this is the scheduled amount of money the plan should have by now. This liability should not be used for any other purpose; for instance, it is not designed to stand for the "true economic value" of the plan.

Ruloff: A liability that uses projected benefits and expected return on assets is one management might find useful for developing a contribution policy for an ongoing plan, but I do not think it is the best way to look at a pension fund. This liability does not reflect the benefits which have been given to the employees to date, and the present value is based on the actuary's judgment rather than reflecting today's market prices. The best way to look at a pension fund is the market value of the termination liability

it is difficult to see why the shareholders of a non-insurance company should write the same business on behalf of its employees for substantially less—unless it is some sort of workers' charity.

Gewirtz: A better liability measure will depend on whether the result will be used for IRS funding requirements, FAS expensing and disclosure requirements, developing a management-chosen target funding requirement or understanding management's options in converting from a DB to a Defined Contribution (DC) plan. The point is each of these different needs may well require a different liability definition and a different assumption basis.

Mindlin: I don't think there is a liability measure that is always superior to the



The Actuary: Would a liability based on projected benefits be flawed under all circumstances? Are there advantages to using a long-term liability measure?

Exley: You would always want to use the economic measure for any calculation of economic substance. Deciding on the cost of a compensation package or looking at the liabilities of a company to decide whether to buy or sell it are good illustrations of this.

Gewirtz: I definitely see a place for long-term liability measures as I've previously indicated.

Mindlin: The projected benefit based liability has several important roles to play. In addition to being equal to the scheduled amount of assets, this liability is required in gain/loss and full funding limit calculations. As long as there are advantages in compliance with the law, there are advantages in using the projected benefit based liability.

Ruloff: A liability based on projected benefits using a discount rate tied to expected return on assets is one possible item an employer might use for developing a more stable contribution policy in excess of any minimum required contri-

As long as there are advantages in compliance with the law, there are advantages in using the projected benefit based liability.

bution level. However, a minimum required contribution should be based on a plan termination liability using current market rates.

Another principle in the financial economics arguments is that traditional smoothing has no place. Smoothing, in this discussion, encompasses two different things: developing actuarial asset values (for use in calculating expense or contributions), and amortization of changes in liability due to plan changes and/or gains and losses.

The Actuary: What are the arguments for removing asset smoothing from actuarial calculations? Do you believe asset smoothing has any merit in our calculations?

Exley: For economic values, I see no point whatsoever in smoothing. It's like building a sophisticated machine and then smashing it with a sledgehammer. The sophisticated valuation calculations tell you the economic value today. I don't see how pretending that a value is actually less or more than it is—by using a value calculated yesterday or three years ago—helps anyone.

Gewirtz: I think that asset smoothing has merit in long-term forecasting of future funding and expensing requirements. I also think an argument supporting continued asset smoothing can be made—based on pragmatism—

for IRS funding requirements. If asset smoothing is not allowed, I think plan sponsors will move out of equities and into bonds in their attempt to control contribution volatility. The three-year slide in equity values has shown how little tolerance management has for such contribution volatility. Of course, the same can be said for pension expensing.

Mindlin: There's no question financial reporting should be transparent and marked-to-market. The contribution calculation methodology is a different matter. Usually, a pension contribution is taken away from the "core" operations of the plan sponsor. Unreasonably required high contribution has a potential to inflict severe damage on the plan sponsor. Let's ask ourselves a couple of questions. Is extreme volatility of contributions undesirable? If the answer is "no," kill the asset smoothing. If the answer is "yes," the next question is: Should we have tools to control that volatility? If the answer is "no," kill the asset smoothing. If the answer is "yes," the asset smoothing may be considered as an alternative tool. To me, the main advantage of the asset smoothing is its convenience and transparency as related to the contribution volatility control.

continued on page 18

Back to basics

continued from page 17

Ruloff: One thing we must remember is that this is not a debate that will play out solely within the actuarial community. This debate is going to play out in the public. There is a need to restore faith in the financial markets. To do this, accounting information must be transparent, marking assets and liabilities to market and recognizing gains and losses immediately. Anything that shifts gains and losses from one year to another is not transparent accounting. Asset smoothing and amortization have no merit in accounting information. In developing a desired employer contribution pattern above any minimum required contribution, a smoothed value has merit.

One observation that has been made: If we adopt an accounting standard that requires the immediate recognition on the

The ability of free capital markets to respond to change is far greater than seems to be appreciated.

balance sheet of the net unfunded liability of the plan, that will create volatility in the measurement of accounting cost. The only way the employer can control the volatility, under this measurement, is to invest all plan assets in bonds.

The Actuary: Is investing plan assets all in bonds a good thing or a bad thing? What are the arguments against investing in equities for pension funds?

Exley: Investing in bonds is definitely a good thing. It is difficult to think of any arguments for investing a plan in equi-

ties. The arguments for bonds are universally favorable. Apart from taxation, there is the benefit of reduced agency costs and reduced risks to the core business activity, all of which reduce costs of capital and potentially make us all wealthier overall. However, I despair at the supposition that the world's greatest market economy could not accommodate such a reorganization over time through the market mechanism. The ability of free capital markets to respond to change is far greater than seems to be appreciated.

Gewirtz: In the short-to-medium term, there will likely be large swings in the value of equities and bonds as plans shift between them. The shift to bonds, if it happens, would require specific types whose duration closely matches the plan's liability characteristics. If the shift

is on a wide scale, will there be enough bonds of the right type available to do this? Will interest rates fall dramatically as demand increases for these bonds? Is this a mixed blessing? Will companies respond to the demand by issuing more bonds and less stock, thereby leveraging themselves even more?

The arguments against investing in equities are that:

- Their cash flows and duration cannot match pension liabilities; and,

- There is no proof that the expected rate of return will outpace that of bonds, even though investors do demand a risk premium for investing in them.

Mindlin: It is neither good nor bad, but an expression of the plan sponsor's risk tolerance on the pension side. If the plan sponsor wishes to eliminate all the risks in the pension plan at any cost, then buying a Treasury matching bond portfolio is the only way to go. If such a portfolio is available and the sponsor is willing to pay for it, then I suppose it is "a good thing." However, the sponsor may discover that some risk is unavoidable, because, for example, Treasury bonds are not long enough for a complete dedication. Once the risk budget is in place, the sponsor may discover that equities have a potential to provide safer benefits for the plan's beneficiaries within the same risk budget. If the sponsor still insists on having 100 percent bond allocation, then it is acting against the best interests of the plan's beneficiaries. I suppose it is "a bad thing."

The main argument against investing equities is "equities are not safe." Well, absolutely safe asset classes do not exist. The right question to ask is if an asset class has risk, return and diversification characteristics beneficial to this particular fund. If the answer is "yes," then we determine the optimal allocation and invest in this asset class even if it is risky.

Ruloff: First note that the volatility of the net unfunded liability has always existed. Immediate recognition would just be disclosing the information in the

financial statements to the public rather than keeping it to insiders or those few who are smart enough to use the information in the footnotes. Let me also mention that this information could be reported separately for those wanting to breakout the running of the pension plan from other operations.

Plan sponsors who invested in equities in an attempt to obtain an equity risk premium to get lower future contributions or to grant benefit increases can still do so, but will also have the responsibility of justifying that risk to the shareholders and participants. If the risk shown by transparent accounting is not acceptable to the parties involved, then removing the asset liability mismatch is appropriate. This may mean investing in all bonds or perhaps purchasing the annuities.

The Actuary: What stands in the way of the United States and Canada adopting FE principles, such as current accounting rules, market expectations of the level of pension cost and minimum/maximum funding rules for example?

Exley: I think management attitudes towards the benefits of equity investment would change dramatically if the expected return on assets was removed from the profit and loss (P&L), and if smoothing was removed from the balance sheet as proposed by the new international accounting standard. My guess is that if the PBGC moved its premium calculations to a proper economic basis then that would also have a major impact—and indeed remove the need for many existing rules as there would be no incentive to under fund.

Gewirtz: I think that the theory of FE is more readily understandable than is the unknown impact of the application of FE theory to pension practice. Admittedly, I find the theory very attrac-

There is a certain amount of inertia in the process of changing the rules that govern financial statements.

tive. I sometimes even wonder why it shouldn't be adopted right now. But I also think that accounting and regulatory decision makers should wisely slow the process down to be sure they have vetted all the questions and issues involved in adopting this. Do it right the first time around.

Mindlin: There is a certain amount of inertia in the process of changing the rules that govern financial statements. That may not necessarily be a bad thing.

Ruloff: Any strengthening of the accounting rules may be fought against by some corporations or others who do not wish to disclose the year to year volatility in defined benefit plans. I believe the Financial Accounting Standards Board (FASB) will adopt accounting rules similar to those in place in the United Kingdom and suggested by the International Accounting Standards Board (IASB). The FASB must press on as rebuilding trust in the financial systems is more important than any argument against it. I hope the actuarial community will recognize the importance of this, embrace it and be ready for it.

On the funding side, the debate is between the immediate cash flow limitations expressed by corporate management against the potential, and often hidden, risk to plan participants, shareholders and taxpayers. Because of

the current economic environment, that risk is coming to light as we see reductions in shareholders equity, participants losing benefits and a multi-billion dollar deficit for the PBGC. Sooner or later the

minimum funding rules will have to change or the PBGC will be put into a larger and larger deficit which itself would eventually cause the end of defined benefit plans. Therefore, to help defined benefit plans survive, we need a change in the minimum required contribution but will also need more flexibility in the maximum contribution level than is currently available.

The Actuary: What do you see as the role of the defined benefit pension system in a transparent, financial economics world?

Exley: The system should provide defined benefit pensions for employees without disrupting the business operations of the sponsor or wasting valuable management time. If employees want these benefits then the company can provide them (although the alternative of delivering the benefits through an insurance company should be considered). If employees don't want the benefits and prefer cash, then I would pay them cash. I don't see the actuarial profession as a lobby group to preserve defined benefits if employees prefer cash and I certainly don't think we should adjust our advice on costing in any way so as to encourage defined benefit provision. We should accept market economics and live with the consequences.

continued on page 23

Top 10 articles every health actuary should read

The Health Benefit Systems Practice Area Communications Committee wants to develop a list of the “Top 10 articles every health actuary should read,” a list of articles that all health actuaries would find particularly useful in their work. This list would be designed to provide a broader view of the health care system and give readers a better sense of the work being done in health services research and by health economists.

An outgrowth of the area’s recently completed Troubled Healthcare Literature Review Project (see <http://www.soa.org/sections/literature.htm>), the list will be culled from a review of the articles already summarized in the Literature Review, as well as other sources such as college or university graduate class reading lists.

The committee is looking for volunteers to join them as they work in teams of two to review articles and determine those worthy of appearing in the “Top 10” list. If you are interested in contributing to this effort by reviewing or submitting articles, or suggesting articles for review, please contact committee member Rob Bachler at Rbachler@amre.com or Maryellen Beach, SOA senior project manager, at mbeach@soa.org.

New health listservs—get connected!

Visit http://www.soa.org/sections/health_benefit_list.html and get connected! The Health Section and the Health Benefits Systems Practice Area have teamed up to bring SOA members several new listservs defined primarily by product line. (Listservs are e-mail discussion groups where members exchange messages about a particular topic. With

listservs, subscribers receive all the messages posted. For more on how listservs work, visit <http://www.soa.org/list/guidelines.html>).

The five new health listservs replace the previous Health Section listserv and are designed to provide forums focused on specific industry issues including:

- **Large group medical:** Designed to share challenges, information and thoughts with actuaries whose current or future work is related to large group medical lines of business. Subject areas will include, but are not limited to, provider contracting challenges, medical trend analysis, trends in product development and disease management programs.
- **Individual and small group medical:** Designed to share challenges, information and thoughts with actuaries whose current or future work is related to individual and/or small group medical lines of business. Subject areas will include, but are not limited to, updates on state regulations relative to the individual or small group market, marketing trends and association versus individual forms.
- **U.S. health care policy:** Designed to share information and opinions with other actuaries interested in U.S. health care policy issues. Subject areas will include, but are not limited to, proposed legislation and opportunities for increasing the visibility of the actuarial profession in policy debates.
- **Employee benefits:** Designed to share challenges, information and thoughts with actuaries serving as employee benefits consultants. Subject areas

will include, but are not limited to, defined contribution plans and retiree medical issues.

- **Performance assessment:** Designed to share challenges, information and thoughts with actuaries interested in, or whose current work relates to, performance assessment. Subject areas may include criteria definition, methods of measurement and cost effectiveness analyses.

The new listservs will include items posted for discussion via the Health Section Council and member coordinators. They will all be moderated to prevent spam and irrelevant postings. To join one of the new listservs, visit the SOA Web site at http://www.soa.org/sections/health_benefit_list.html.

A recent survey of the Health Section indicated that many members had utilized SOA listservs in the past. However, most preferred the idea of a more targeted approach to minimize the e-mails received to more pertinent, valuable information. The topics for the new listservs were selected based on survey responses and may be added to or altered in the future, depending on member feedback. If you have comments on the new listservs, we want to hear from you! Please send your feedback to mbeach@soa.org. 

Add one more risk to those faced by life insurers
continued from page 6

Nationwide Financial Services, Inc.

Key Ratios/Statistics					
Average Account Values					
General account	\$ 6,072.8	\$ 6,712.5	\$ 6,942.9	\$ 7,709.7	\$ 10,793.7
Separate account	25,563.9	31,939.7	38,016.1	33,560.7	30,091.0
Total average individual annuity account values	\$ 31,636.7	\$ 38,652.2	\$ 44,959.0	\$ 41,270.4	\$ 40,884.7
Earned rate	7.77%	7.58%	7.92%	7.62%	6.84%
Credited rate	5.89%	5.74%	5.73%	5.75%	4.93%
Interest spread on average general account values	1.88%	1.84%	2.19%	1.87%	1.91%

related to its mortgage-securities portfolio because the mortgages carried unusually high interest rates, you'd know it. The disclosure helped you know.

Today, of course, First Colony is owned by General Electric and that once helpful disclosure has also gone by the boards. Meanwhile, other big life companies are providing interest rate disclosure that can be described only as superficial.

Many other life companies—Nationwide, for example—each quarter tells us the spread, or net interest margin, being earned on its fixed annuities and on the fixed option of its variable annuities. But is this what investors really want to know? We'd say Nationwide's disclosure merely scratches the surface. What investors want to know is where investment yields and crediting rates are headed, not where these two key drivers of life insurer

performance were in the past. Investors are constantly looking out the windshield, not in the rearview mirror. And so we'd say a much better job of disclosure would include the outlook for investment yields and crediting rates—as well as a discussion of the related nuances, such as the life company's exposure to prepayment risk and extension risk on residential mortgage securities and callable bonds. Then, too, meaningful disclosure on interest-rate risk would include at least some discussion of the life company's exposure to policy surrenders.

Sadly, all too often, investors are not getting any of this.

The big one: enterprise risk management

On this topic, too, we must admit that we are surprised. Life insurers say they have made huge advances in recent years in understanding the risks that their organizations face as a whole. We

know that some risks faced by an organization offset each other because of covariance concepts and that some risks are more qualitative in nature than the risks that we normally face. Good examples would be reputational risk and business interruption risk owing to, say, an electrical blackout. All of these types of unconventional risks are increasingly being considered by and measured by the "holistic" risk personnel called chief risk officers.

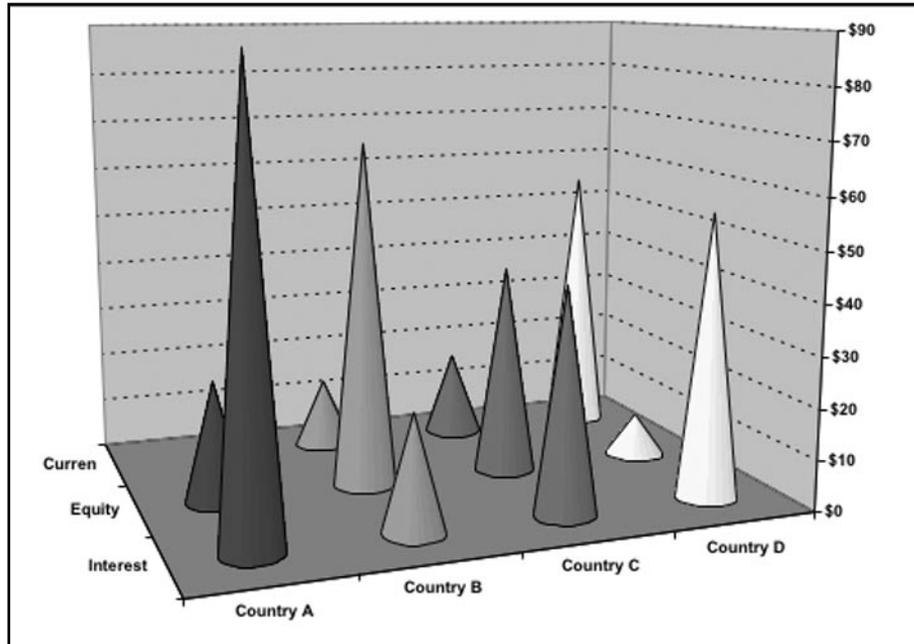
Yet, for all the efforts to consider risk in total, we hear very little detail about enterprise risk management. Companies talk about enterprise risk management all the time, routinely including value-at-risk tables in their SEC form 10Ks. But that's all Wall Street gets—a lot of talk and a couple of charts once a year. If a company has a chief risk officer, it would be very helpful for this individual to have a better discourse with analysts on Wall Street. As of now, chief risk officers are, for the most part, virtually locked up, holed away from the rest of their senior management peers who make the regular appearances at company events. ☹️

Eric Berg is managing director at Lehman Brothers in New York. He can be reached at eberg@lehman.com. Eric Berg covers MetLife, AFLAC, Jefferson Pilot, Manulife Financial, Hartford and Nationwide. Lehman Brothers has an investment banking relationship with MetLife. Lehman Brothers owns 1 percent or more of Manulife Financial.

Earnings-at-risk: A case study of Sun Life Financial

continued from page 9

Figure 4—Sample Earnings-at-Risk Cone Chart



level of risk at \$85. Interest rate risk appears to be the greatest risk factor at \$211 while from a combined perspective, interest rate risk is the smallest of the quantified risk factors at \$71. All in all, the quantification of exposure and

risk diversification on a cross and intra-business group level plus extensive drill down capability provide a new and different perspective that was not previously available.

ERM moving forward

Enterprise Risk Management (ERM) at Sun Life Financial is continually evolving. The focus now is to integrate the concept of risk tolerance limits and the concept of risk budgeting into the long-term planning process. This will lead to greater linkage between decisions made in front/operational lines and the resultant impact on risk exposure. Next steps include the addition of credit, insurance and operational risk exposures into the company-wide framework in conjunction with the broader risk management framework that is also under development. This will lead to additional challenges, as some of these risks are more qualitative in scope and concept. Nevertheless, we must keep in mind that effective and efficient risk management is not always just purely about the numbers. ☺

Ron Harasym, FCIA, FSA, MBA, CFA, is assistant vice president, financial risk management, of Sun Life Financial in Canada. He can be reached at Ron.Harasym@sunlife.com.

Letters

continued from page 3

while it is not critical that they demonstrate their mastery of the formulae, their derivation and their application.

Finally, the writer underestimates employers and professors. In most fields, employers have had to make hiring decisions without a battery of formal tests. In fact, most every non-actuarial employee in an insurance company was hired on the basis of a transcript and an interview. Furthermore, employers of actuaries can still rely on the first exam. As for professors, there is no particular incentive to give a break to budding actuaries. Actually, most of the courses that would be part of

the proposal would not be taught by actuaries, but by professors of finance, economics and statistics.

Employers have demanded that we shorten travel time and restrict high-level attention to subjects that are central to actuarial knowledge and practice. I believe the proposal does an admirable job of meeting those goals.

The Preliminary and Actuarial Education Working Groups invite all the SOA members and candidates to comment on the 2003 Report to the Membership on the Education Redesign. It is available at

www.soa.org/eande/report_membership03.pdf. Comments should be submitted by e-mail to EQ2005@soa.org or by mail to the attention of the Core Studies & Global Initiatives Department of the Society of Actuaries. While the initial deadline for comments was September 23, late comments will still be reviewed and considered.

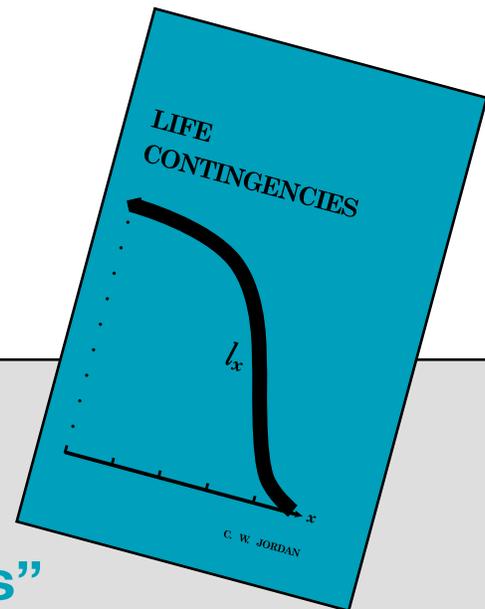
Stuart Klugman is the SOA Vice President for Education and chairs the Preliminary Education Working Group. He can be reached at Stuart.Klugman@drake.edu. ☺

Back to basics*continued from page 19*

Gewirtz: For at least the past 15 years, defined benefit plans have had to hold their own against the financial and other challenges levied against them in comparison to DC plans. Usually, the DB plan will win if management sees DB as a better fit with their company's workforce demographics, compensation and reward philosophy, and financial flexibility preferences. Because of this, I don't think that FE, by itself, will undo the prominence that these DB/DC selection criteria play.

Mindlin: A sensible defined benefit system has a potential to offer secure post-retirement income as well as a competent asset management for a large number of beneficiaries. A flexible and prudently regulated pension system can provide an efficient human resource management tool valuable to both beneficiaries and shareholders.

Ruloff: The risks of sponsoring a defined benefit pension system will be shown clearly under transparent accounting. Minimum funding will eventually reflect the market risk to the participants and the PBGC. These changes may call into question the desirability of the defined benefit pension system. If we want to help defined benefit pension plans survive, we need to lobby for an increase in the maximum tax deductible limit and for a simplified minimum and maximum limit. We also need to help plan sponsors address volatility and risk through asset allocation. ☺



The original “Life Contingencies” available again

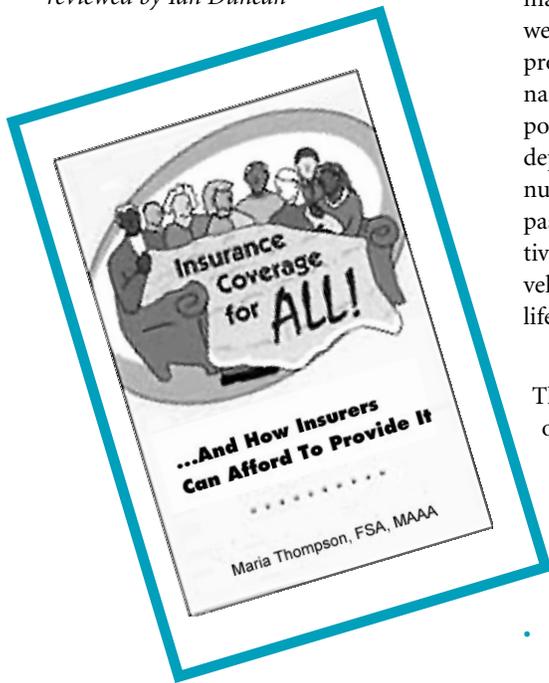
The Society of Actuaries announces that “Life Contingencies” by C.W. Jordan is available again.

Though not representative of the latest presentation of actuarial mathematics as found on the basic education syllabus, the Jordan text remains an excellent introductory guidebook on basic actuarial mathematics for new students and non-actuarial professionals. Many actuaries continue to use it for reference. It is also listed as a suggested text for the EA1-A exam. The SOA thanks the Pension Section Council for its efforts in bringing about its re-publication.

For ordering information, visit the Bookstore/Publication page of the SOA Web site at: <http://www.soa.org/bookstore/index.asp> or contact the Books and Publications Department at bhaynes@soa.org, 847.706.3526 or fax 847.273.8526. ☺

But will they buy?

reviewed by Ian Duncan



by Maria Thomson, FSA, MAAA
Actex Publications Inc., 2003

Maria Thomson, FSA, MAAA, has done the industry a service with her new book, “Insurance Coverage for ALL...and How Insurers Can Afford to Provide It.” Inside this thin book (88 pages, including notes, so you can finish it at a sitting) is a fatter book longing to be written. But it is a stimulating read, raising a number of different issues, and it should lead to some lively debate, and, I hope, further analysis.

Thomson’s basic philosophy is that insurance is a GOOD THING, and therefore we should all have more of it. She does an excellent job of reminding us about the lines of insurance where penetration is low, and where more coverage would be beneficial, e.g., to her target population—roughly, middle class employed people, coverage such as disability income. The “need for insurance coverage” concept is one that could benefit from further analysis: All people are not equal, and the need for type and amount of coverage appro-

priate for different profiles of the population differ by age, family composition, marital status, stage of life, resources and wealth, access to social and government programs and level of risk tolerance, to name a few. The relative aging of the population, the decrease in the child dependency ratio, the increase in the number of two-earner families over the past 20 years and the increase in alternative and more attractive investment vehicles makes it hardly surprising that life insurance ownership has fallen.

Thomson’s thesis for this decrease in ownership can be summarized as follows:

- Insurance companies have abandoned the middle-class market to focus on the affluent.
- Most people have inadequate insurance for their needs.
- Selling in the traditional model is becoming cost-prohibitive.
- Traditional underwriting is slow and expensive, making buying difficult.

This leads to her recommendations for the industry:

- Develop more simple products.
- Focus on faster and more streamlined issue processes.
- Develop alternative channels such as work-site marketing and bancassurance.

The discussion of the rise and fall of the debit market was, for me, one of the more interesting sections of this book. The puzzling issue, however, is why the debit insurance market died, rather than evolving to a form of distribution like the Avon, Longaberger or Tupperware models. I would have liked to read more about the bancassurance market, which has arguably not taken off in the United States. Thomson tells us it has been successful in Europe. It has been tried in Canada, and

some Canadian experience would be helpful.

The discussion of product development focusing on needs of the target population is a useful one that deserves expansion. One of the interesting consequences of focusing on need as the basis of product design is that you end up with rather messy products that do not fit easily into existing “buckets.”

When it comes to finding ways to provide broader coverage for a large number of households, we should not overlook group insurance. According to Thomson, about 52 percent of households own group life insurance, slightly more than own individual life insurance (Table 2.2, p. 14). The percentage of households covered by group life is higher, if you exclude those over 65 (as a proxy for retired workers) and those living in single households (as a proxy for “need”), who together constituted about 34 percent of all households according to the 1990 census. Despite its size and relative importance, the group life insurance (and affinity group) market is the “Cinderella” of the industry, too often ignored by those who come from a more traditional background.

With regard to underwriting and issue, group life already meets some of the important criteria that Thomson recommends for the industry (“a well-screened policy issued instantly”, p. 9): group life is widely available; the products are simple; and the underwriting and issue process is simple and fast. Most employees (and dependents, in those plans that cover dependents) are covered immediately for the guaranteed-issue limit, provided the employee meets the actively-at-work test (or the dependent non-confinement rule, in the case of dependents). Rates are reasonably competitive with those of individually underwritten products, for the same reasons that Thomson discusses in her modeling of the cost and benefit of underwriting. Workers who do not have access through an employer-sponsored

David Garrick Halmstad Prize awarded to Martin Schweizer

Congratulations to Professor Dr. Martin Schweizer, who was awarded the David Garrick Halmstad Prize for his paper, "From actuarial to financial valuation principles," *Insurance, Mathematics and Economics* 28, 31-47. The paper was published in 2001.

"The news about the Halmstad Prize comes as a most pleasant surprise," said Schweizer, a professor of mathematics at the Swiss Federal Institute of Technology Zurich in Switzerland. "I feel greatly honored and am very happy about this."

A total of five papers were considered in the final round of judging by The Actuarial Foundation AERF Committee. The Committee noted that the competition was excellent and that it was difficult to pick just one winner.



Professor Dr. Martin Schweizer

The other four contenders and their paper titles follow:

- Knut Aase, "A Markov model for the pricing of catastrophe insurance futures and spreads," *Journal of Risk and Insurance* 68, 25-50
- Phelim Boyle, Adam Kolkiewicz and Ken Seng Tan, "Valuation of the reset options embedded in some equity-linked insurance products," *North American Actuarial Journal*, 2001, Vol. 5, No. 3, 1-18
- Junichi Imai and Phelim Boyle, "Dynamic fund protection," *North American Actuarial Journal*, 2001, Vol. 5, No. 3, 31-49
- Thomas Moller, "On transformations of actuarial valuation principles," *Insurance, Mathematics and Economics*, 28, 281-303

The David Garrick Halmstad Prize is given annually for actuarial research in memory of David Halmstad, an associate of the Society of Actuaries, for his significant contributions to actuarial science and research. Funds for the committee were contributed by Mr. Halmstad's friends and colleagues. 📖

Book Review

continued from page 24

plan can often find competitive coverage through unions or trade associations.

So why is group insurance the "Cinderella" coverage? Possibly, because it relies on employers for marketing, and employers have more pressing benefits issues on their minds. Or maybe it's because the companies that sell group insurance do not do a good job of promoting the product, either to the employer (first sale) or to the employee (second sale). Or perhaps it's due to the fact that there has been limited product development in group life, although there have been some significant innovations in the last few years:

- Group Universal Life.
- Interest continuation accounts (bank accounts for beneficiaries).
- Acceleration of benefits on terminal or critical illness.
- Portability/direct-billing on termination of employment.

Though there are topics I would like to see addressed in more detail, Thomson has written a useful and thought-provoking book, which I recommend to all traditional and non-traditional actuaries. 📖

Ian Duncan, FSA, FIA, FCIA, MAAA, is a partner at Lotter Actuarial Partners in New York. He practices in the areas of data mining for insurance product development, risk prediction and marketing. He can be reached at iduncan@lotteract.com.

Duncan's complete review of Thomson's book can be found on page 6 of the September issue of *NEWSDIRECT* found on the SOA Web site at www.soa.org/library/sectionnews/nontradmktg/NDN0309.pdf

Get your copy of "Insurance Coverage for ALL! ...And How Insurers Can Afford To Provide It" (\$45 plus shipping and handling). Visit www.actexamdriver.com or call 800.282.2839.

If you build it, they will come. Have you been there yet?

The Internet continues to bring new and exciting learning opportunities to the billions of people who log on to their computers each day. The SOA is keeping pace with this ever-growing technology by offering pension actuaries access to dozens of Web-based and audio-tape learning assets.

Basic and Continuing Education Training Resources—the new portal on the block

If you haven't visited the SOA Web site lately, you should. Operational since September, the new Basic and Continuing Education Training Resources portal lists various company online training programs. Go to www.soa.org and click on

It is our responsibility at the SOA to provide a variety of learning alternatives that meet these evolving and growing needs of our 17,000 members and the thousands of students and constituents.

“Basic and Continuing Education Internet Training” to view company names and brief course descriptions. This is a great educational offering for the busy actuarial professional whose travel time to on-site training is limited. It's a great value too for companies who have on-line training programs and would like to have these

programs reach the largest and most qualified audience of actuaries in the world.

SOA distance learning provides virtual access to quality continuing education

Don't overlook the benefits—SOA pension section members and enrolled actuaries have virtual access to quality, cost-effective continuing education. SOA is offering pension actuaries access to dozens of Web-based and audiotape learning assets for one, low annual fee. These programs can be used to meet Joint Board requirements for core and non-core continuing education credits and save you hundreds of dollars.

SOA realizes that there is no substitute for “live” instruction or the valuable face-to-face contact at annual meetings, but audiotapes and Web-based training (WBT) are excellent alternatives for

professionals who just can't get away from the office. Since the SOA has a variety of subjects in its distance learning archives, pension actuaries can find programs well suited to their specific area of practice. Using distance-learning tools to supplement “live” continuing education lets you create a highly relevant and cost-effective

course of study that suits your individual needs.

Educational needs are always changing

“The educational needs of people in the actuarial profession are subject to time and financial pressures,” said John Riley, SOA managing director of continuing education. “It is our responsibility at the SOA to provide a variety of learning alternatives that meet these evolving and growing needs of our 17,000 members and the thousands of students and constituents. It is our goal to be the first choice provider of education, offering new and innovative opportunities to access diverse and high quality training programs.”

To view Web course titles and descriptions, click on www.soa.org and go to “Basic and Continuing Education Internet Training” under resources. Then scroll down and click on “Virtual Campus.” To see 2001-2003 audiotape titles, go to “Meetings/Seminars” from the home page and scroll down to “Enrolled Actuary.”

In addition to the distance learning subscription for pension members and enrolled actuaries, there are similar programs for actuaries involved in the professional development phase of their basic education and also for actuaries who sign statements of actuarial opinion. If you have questions about these or would like a subscription application, contact John Riley at 847.706.3543 or e-mail him at Jriley@soa.org.

Correction

In the October 2003 issue of *The Actuary*, a name was omitted in the article “2003-2004 SOA election results.” William R. Horbatt joins Thomas E. Leonard, Anna Louie and Ronald L. Poon-Affat on the International Section Council.

Committee on Life Insurance Company Expenses

The SOA's Committee on Life Insurance Company Expenses (CLICE) completed its first inter-company study of expenses for individual life and annuity business. The report presents unit cost calculations for various product and distribution channels based on 2001 expense data collected from 26 companies. The report and accompanying exhibits can be found at http://www.soa.org/research/individual_life.html. A request for 2002 data for the next study has also been distributed. Please see the SOA Web site for more details.

Retirement update

The SOA is currently engaged in a project to develop a new pension plan turnover table. The construction of this new table is being conducted in two phases: Phase I - Development of Turnover Database and Phase II - Construction of the Turnover Table. Phase I of the project has been completed and Phase II is in the process of being finalized. The Phase I report is available on the SOA Web site at http://www.soa.org/research/pension_turnover.pdf.

Finance update

Sheldon Lin's "Monograph on Stochastic Calculus and Differential Equations," sponsored by the Committee on Finance Research, is now complete. The text focuses on the conceptual and computational aspects of stochastic calculus and can be utilized as both an educational tool and a reference for practicing actuaries. Details on publication and distribution will be released when available.

Health update

An ongoing effort of the Health Practice Area has been to optimize the future involvement of actuaries in the health care reform debate. As part of this effort, the Committee on Health Benefits System Research and Health Section co-sponsored a literature review on the current

state of the health care system in the United States. The literature review, conducted by a team from Indiana University, is divided into nine health care system-related topics. The complete literature review can be found at <http://www.soa.org/sections/literature.htm>.

Prescription drug coverage

Reden and Anders has concluded a study examining the current and future costs of providing prescription drug coverage for Medicare enrollees—a topic that has been the subject of recent front-page headlines. The report, "Projected Cost Analysis of Potential Medicare Pharmacy Plan Designs," compares costs for 30 representative benefit plans and identifies the factors affecting these costs now and in the future. A congressional briefing on this topic was held by the American Academy of Actuaries (AAA) and the SOA on July 21, 2003 in Washington D.C. and was well attended. The complete report and links to the briefing can be found at http://www.soa.org/research/medicare_pharmacy.html.

Medical management interventions

A contract has been signed with Ian Duncan to complete the health section sponsored research project, "Evaluating the Results of Medical Management Interventions: Comparative Analysis of Different Outcome Measures." The research examines different methods to measure and quantify the financial effect of medical management interventions used by health plans.

Data needed for international experience study

The SOA is launching an international experience study that intends to measure individual life insurance key performance indicators such as mortality and persistency on a country-by-country basis. While traditionally the SOA has published

similar experience studies of life insurance sold in the United States, the focus of the study is individual life insurance experience of policies sold internationally. It is anticipated that international actuaries will use study results for pricing purposes, business planning purposes and performance benchmarking.

Mortality data

Results of a pilot study examining persistency and actual to expected mortality data for Mexico, South Korea and Taiwan will be released soon. Planning has already begun for a more comprehensive study involving additional key performance indicators and countries. If you or your company would like to participate in the study, please contact Bill Horbatt at Whorbatt@aol.com or Mike Gabon at mike.gabon@scottishannuity.com, co-chairs of the SOA's international experience study committee. Or contact Jack Luff at jluff@soa.org or Ronora Stryker at rstryker@soa.org, SOA staff research actuaries.

The Edward A. Lew Award

Bruce Jones, University of Western Ontario, and recipient of the 2000 Edward A Lew Award, completed the "Development of Educational Material Related to Actuarial Modeling" project. There are plans to incorporate the finished project into the Course 7 syllabus.

39th and 40th Actuarial Research Conferences

Mark your calendars for the 39th and 40th Actuarial Research Conferences (ARC). The 39th ARC is scheduled for August 5–7, 2004 at the University of Iowa in Iowa City. The 40th ARC will take place at the Instituto Tecnológico Autónomo de México (ITAM) in Mexico City on August 11–13, 2005. Additional details will be published as they become available. ☺