The Newsletter of the Society of Actuaries

The Actuary

Vol. 34, No. 3
March 2000

Convergence and integration

New techniques arise as financial world changes

by Prakash A. Shimpi

Most corporate managers are familiar with conventional capital resources such as equity and debt. However, new techniques have been developed that can be more responsive to corporate risk and capital management needs. These techniques have emerged not only because corporations demanded better solutions, but also because the suppliers of such solutions have changed.

With increasing deregulation in the financial services sector, the activities of such suppliers — including banks, insurers, and reinsurers — are beginning to converge. This has led to a convergence in the types of products and solutions they offer. Further, the insurance industry is expanding the limits of insurability to embrace risks conventionally hedged in the capital markets and is looking for ways to cover previously uninsurable or difficult to insure risks. This article provides a broad overview of market convergence and the development of integrated solutions.

Market convergence

The conventional markets for risk capital are fragmented. Certain risks are covered only in the insurance market. Others are covered only in the securities market. Others are neither insurable nor hedgeable and have to be retained by the corporation. Some risks may be covered equally in both markets. For example, credit risk protection can be structured through both the insurance market and the securities market. At the same time, there are elements of credit risk that are uninsurable.

Banks, insurers,and reinsurers — intermediaries between a corporation and its sources of capital — may be thought of as "risk consolidators." They provide certain capital-raising and risk management capabilities to a corporation. The conventional markets for risk and the role of the intermediaries are fairly straightforward.

Banks help firms raise equity and debt capital, which ultimately bear all risks retained by the firm. Banks also help corporations manage certain financial risks that are traded in the capital markets, such as interest rate risk, commodity risk, and foreign exchange risk. A bank's role is to structure the transaction and ultimately pass the risk through to the capital markets. Obviously, banks have the ability to retain some of the risks on their own balance sheet, and they often do. However, a bank's value is in providing access to the capital markets.

Conventionally, the insurance industry helps a firm manage its risk and capital by transferring risks from the firm to an insurer, and ultimately to its reinsurer.

(continued on page 3)

Inside this issue

The Actuary
The Newsletter of the Society of Actuaries
Vol. 34, No. 3 • March 2000

Jay A. Novik
Editor responsible for this issue

EDITORIAL

The new "new actuary" is always on the horizon

by Jay A. Novik

In this issue of *The Actuary* is an article by Prakash Shimpi on new products and developments in the insurance markets. Shimpi, with an MBA and advanced training in finance, is an early version of what has been referred to as a "new actuary." Many of the new developments that he discusses involve property or casualty risks in an attempt to find efficient approaches to solving risk and capital problems for an enterprise.

Dr. Harold Skipper's article also cites the attractiveness of actuaries becoming enterprise risk managers for insurers and for other companies — both financial and non-financial. This is indeed a rational extension of our activities. But an enterprise's risk extends beyond life, health, and benefits issues. Many of the exciting new developments in the insurance market focus on nonlife areas. We have responded to the other challenges of financial market convergence by adding more finance, economics and investment to our syllabus. But we fail to provide even an option to explore property and casualty risks within the SOA exams.

Recognizing the interaction of risk and capital, banks — both investment and commercial — are deploying their "quants" to develop new products to securitize insurance risks of all types. These quants are extensively trained in finance and will quickly become broadly knowledgeable about many aspects of insurance risk. They will not be constrained by artificial boundaries or professional definitions. They and

their companies will be limited only by the boundaries of opportunity.

Insurance times are clearly changing. So is the SOA. We are changing professionally, intelligently, methodically and, unfortunately, very slowly. We are changing as if our schedule matters. Meanwhile, the world is changing much more rapidly. While we discuss the big tent and develop the "new actuary," the world moves on to the "bigger tent" and to the new "new actuary."

Correction

In the January issue, the article "Perfect harmony; actuaries and music" refers to Halifax, Ontario. Halifax is actually in the Canadian province of Nova Scotia. *The Actuary* regrets any geographical confusion this may have caused.

Convergence and integration (continued from page 1)

Those risks stay on the books of the insurance or reinsurance company, which then has to ensure that it has sufficient capital resources to cover them. The new market for risk and capital blurs the conventional distinction between banks, insurers, and reinsurers. Four central questions emerge:

- Which risks are being transferred or financed?
- What is the role of the intermediary?
- Where is the capital covering the risks coming from?
- How will the risk transfer or financing be structured?

In any risk management transaction, the intermediary, whether it is a bank, insurer, reinsurer, or some other entity, serves three functions:

- Structurer: designs and implements the transaction
- Risk holder: places the risk on its own books
- Distributor: places the risk with participants in the capital markets

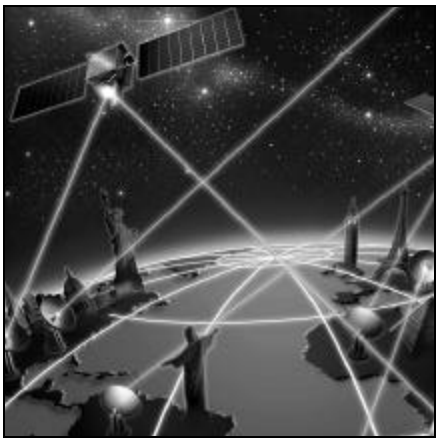
Capital to manage any risk comes from one of three sources: the intermediary, the capital markets, or the corporation itself.

The choices for transaction structure are growing. Beyond using conventional products, banks, insurers, and reinsurers have learned from each other and are borrowing techniques to develop more efficient solutions. We consider some of the new techniques commonly referred to as alternative risk transfer or integrated risk management (IRM) solutions.

Integrated solutions

These techniques borrow features from both the insurance and the capital markets, hence the term "integrated" risk management solutions. In studying their development and relationship to each other, some questions emerge about the meaning of integration:

- How much knowledge is needed of both insurance and capital markets techniques?
- How do the solutions affect the firm?



- How much must the risk manager, treasurer, and CFO be involved in the process?

One way to answer these questions is to assess the degree of integration. Each solution can be classified as having one of the four following degrees of integration:

1. Integration within markets, given capital structure
2. Integration across markets, given capital structure
3. Integration across markets, changing capital structure
4. Integration across markets, changing market structure

First degree

The first degree is an integration within markets, given capital structure. These techniques combine risks within either the insurance markets or the capital markets but not across the two types of markets. The risk manager or treasurer can execute these techniques separately, taking the firm's risk appetite and capital structure as a given. They have existed for several years, and most managers today are familiar with them. Examples in the financial markets are basket options or double-trigger options, where two or more capital markets risks — such as interest rates, foreign exchange rates, or commodities — are combined into one hedge transaction. Likewise, over the last few years, insurance products have been developed

(continued on page 4)

What's new on the Web

by Peggy Grillot
SOA Web Manager

Want to know what *Record* sessions from meetings are available on the Web? Just click on "What's New" under "Find" on the SOA home page (*www.soa.org)* and look for the subhead "Publications." "What's New" is updated monthly and lists all the documents changed or added on the Web site in the previous month. It also provides an archive of Web changes or additions for the past four months. Just scroll through the information to find out which *Record* sessions were released online since December 1999.

Record sessions begin appearing on the Web within four months after a meeting. For example, more than 50% of the 1999 spring meeting sessions have been posted, as well as a few of the 1999 Annual Meeting sessions. In print, this timeframe at times was 12 months or more. Rich Cruise, chairperson of *The Record*, and Linda Blatchford, SOA publications coordinator, continue to explore ways to streamline the production process to make sessions available online even sooner.

In addition, to increase member awareness of timely articles, some Section newsletters will begin listing all *Record* specialty sessions published on the Web since the last newsletter.

Convergence and integration (continued from page 3)

that integrate different lines of insurance risk into one multi-line, aggregate insurance policy.

Second degree

The second degree of integration in risk management solutions is to integrate across markets, given capital structure. These IRM techniques integrate both insurance and capital market risks. Their execution requires cooperation between the risk manager and treasurer. They are generally constructed taking the firm's risk appetite and capital structure as given. Although they have been discussed extensively, few transactions have been executed to date.

Currently, significant product development is taking place in the area of multi-line and multi-trigger products, which combine interest rate, foreign exchange, and commodity risks with a variety of insurance risks. These solutions can be structured in either insurance or derivative form. These transactions generally can be one of two types:

- Multi-line, multi-year products, called MMPs, through which the combined losses from insurance and capital markets risks are covered or
- Multi-trigger products, or MTPs, through which either a capital markets risk cover is triggered by an insurance event or an insurance risk cover is triggered by a capital markets index strike level.

Third degree

The third degree is to integrate across markets, changing capital structure. These techniques are applicable to insurance and capital markets risks, either separately or integrated. They are viewed as alternatives to conventional capital, and they can alter both the firm's risk profile and its capital structure. Execution usually involves the CFO as well as other managers.

The motivation for these solutions goes beyond merely hedging a risk to include corporate capital management considerations. Examples are finite risk reinsurance, run-off solutions, and contingent capital.

In contrast to conventional transactions, which spread losses over a large group of policyholders, finite risk reinsurance transactions (often referred to as "finite re") spread the losses from risks faced by a single policyholder over a number of years. As such, they involve both underwriting risks and timing risks, and they explicitly consider interest income earned during the policy term. In some sense, they are the insurance industry's version of corporate debt.

Run-off solutions are essentially finite risk reinsurance transactions. They merit special attention because they focus on managing risks from prior years or from discontinued operations, as well as the consequent pressure that such exposure puts on capital and share price. In effect, these transactions seek to move the exposure off the corporate balance sheet for a price, reducing the uncertainty surrounding such liabilities.

Contingent capital facilities are direct substitutes for on-balance-sheet capital. Rather than raising paid-up capital before it is needed, the corporation arranges for either debt or equity capital to be available should a triggering event occur.

Fourth degree

The fourth degree integrates across markets, changing market structure. These techniques could be included in the three previous categories, except that they require more than just a firm's unilateral actions. They require changes in the structure of the insurance and capital markets to make the transactions economically viable and executable.

The creation of insurance-linked securities (ILS) through the securitization of insurance risks is one such example. ILSs are structured as bonds whose payment of interest and/or principal depends on the occurrence or severity of an insurance event. In order for ILSs to appear as viable instruments, there had to be sufficient acceptance of the concept by insurers, investors, insurance regulators, and securities regulators. Prior to 1995, ILSs existed only in concept — the first transactions with sale of ILSs to qualified investors occurred in 1996. To date, they have been used primarily by the insurance industry to raise risk capital in the capital markets. However, they are just as relevant for non-insurance companies, and interest is growing in applying these techniques to corporate risks.

Insurance derivatives are another recent development. They first appeared in 1992 as catastrophe futures and options offered by the Chicago Board of Trade (CBOT). To date, trading has been modest, even though the instruments and the underlying indices have been adapted and refined to meet client needs several times since they were first introduced. The CBOT instruments have so far not proven suitable for managing risks of non-insurance companies; individual firm loss experience is not likely to be closely related to the CBOT-traded indices, so the basis risk is likely to be unreasonably large. However, the derivative technology can apply very well to other types of risks

faced by a corporation. Two such applications are already in use: credit derivatives and weather derivatives.

Credit derivatives have been traded only since the early '90s, but they have experienced explosive growth. They began as tools for derivative dealers who needed to generate incremental credit capacity for some counterparties. They have since become standard fare for most financial institutions, as well as making strong headway in commercial enterprises. Recently, major insurance and reinsurance companies with capital markets subsidiaries have entered the credit derivatives market with significant risk appetite and trading volume.

Why do credit derivatives merit consideration in this fourth degree of integration? Because the development of credit derivatives has forced a fundamental change in the way that both banks, insurers, and reinsurers deal with credit risk. Historically, banks, insurers, and reinsurers have been acquirers of credit risk, keeping it on their books. Banks have done so by virtue of their lending businesses. Insurers and reinsurers have been writing credit insurance policies for many years. Until recently, both these industries had very little choice but to keep the credit risk on their books.

The development of the credit derivatives market has changed all that, making credit risk actively tradable. There are still many types of credit risk that are not easily tradable, but for those that are, there is a sizeable liquid market. Today, banks, insurers, and reinsurers are able to evaluate critically their conventional credit risk portfolio and actively alter its risk profile by buying and selling credit derivatives. With this added flexibility, they are able to provide more comprehensive solutions to their corporate clients, who have credit risk concerns of their own.

Weather derivatives have also developed with the active participation of both the capital markets and the insurance industry. The revenues of many companies are susceptible to weather patterns. Energy producers, food and beverage manufacturers, and companies in the leisure sector are just a sample of the variety of companies exposed to weather risk. Detailed analyses of the degree to which certain companies' sales are dependent on temperature, rain, snow, and sunshine have recently encouraged the emergence of specific products. For the first couple of years, weather derivatives were traded through specialized brokers. Subsequently, insurers and reinsurers stepped into this market and expanded the trading volume by committing significant capital to cover these risks. Weather risk management is an example of using capital markets techniques to expand the limits of insurability.

The shape of things to come

The number of these IRM solutions is increasing. They seem to be limited only by practitioners' imagination.

An important development has been the emergence of the chief risk officer (CRO) within a number of firms, mostly in the finance industry. The CRO oversees both the identification and measurement of all risks faced by the firm, as well as the efficient use of risk capital. It is a new concept in nonfinancial firms, and there is no systematic approach or academic program to train for the CRO position. Actuaries are well-positioned to participate in this emerging market. A thorough grounding in insurance risks and financial risks is valuable in structuring solutions. Unlike other "quants," actuaries are trained to take a corporate finance perspective; it is important to understand the impact of these new solutions on a firm's financial statements.

"The chief risk officer is a new concept in nonfinancial firms, and there is no systematic approach or academic program to train for the CRO position. Actuaries are well-positioned to participate in this emerging market."

"Market convergence" should not be misunderstood to mean that everyone is going to join hands and work together. "IRM solutions" should not be misunderstood as new jargon for conventional product development. What has emerged, and will continue to do so, is a highly competitive, dynamic environment where innovation combined with sound technical expertise will be necessary to meet the risk and capital management demands of corporations.

Prakash A. Shimpi, principal of Swiss Re New Markets, is an assistant editor of *The Actuary*. He can be reached by e-mail at *prakashshimpi@swissre.com*.

Spring exam prep seminars

The Temple Actuarial Institute is sponsoring a Course 6 intensive review on April 6-10. CAMAR (Casualty Actuaries of Mid-Atlantic Region) is sponsoring the following review seminars:

Course 1	April 6-10
Course 2	April 7-9 April 28 - May 1
Course 3	March 16-19 March 31-April 2
Course 4	March 31-April 3 April 13-16

For more information contact Bonnie Averbach, Program in Actuarial Science, Ritter Annex 475 (004-00), Temple University, Philadelphia, PA 19122, phone: (215) 204-8153.

The actuary in financial services integration

by Harold D. Skipper, Jr., Ph.D.
1999 Chairholder
Thomas P. Bowles Chair of Actuarial Science

Dr. Harold Skipper addressed the SOA Board of Governors on the topic of financial services integration at the January 2000 Board meeting. A portion of his remarks that speaks directly to actuarial careers is excerpted here.

Webster's dictionary defines an actuary as "one who calculates insurance and annuity premiums, reserves, and dividends." In commenting on this definition, several actuarial friends said this definition might apply to many junior-level actuaries, but that it was too narrow, especially for actuaries of the future.

The Web site [*www.BeAnActuary.org*] sponsored jointly by the Society of Actuaries (SOA) and Casualty Actuarial Society (CAS) states that actuaries "put a price tag on future risks." Maybe we are getting closer, but even this definition seems limiting.

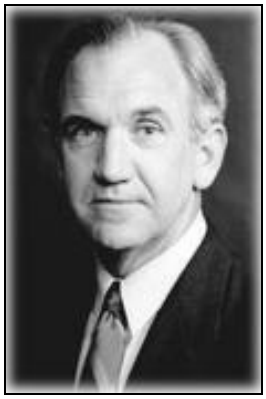
Both of these definitions illustrate a potential problem with which the profession has been wrestling for several years. Historically, the profession probably defined itself too narrowly. Of course, this seems to have changed. For example, the 1999 exposure draft of the SOA's and CAS's Principles Underlying Actuarial Science states: "The primary applications of actuarial science identify and analyze consequences of events involving risk and uncertainty." The SOA and CAS exams have been revised such that about 15% of the required coverage relates to economics, finance, and investments. The SOA also offers two advanced exams that allow students to concentrate in investments and finance. We now hear and read about the actuary being a financial risk manager. (e.g., C. L. Forbes. "Risk Management: A Role for Actuaries?" *Contingencies*, January/February 1999.) In my judgment, actuaries will be smart to jump on this bandwagon.

Ghosts of actuaries past

But I wonder whether the ghosts of the earlier incarnation of an actuary are not haunting us still. Second, I wonder whether the new exam series will achieve the desired result and whether enough is being done for established actuaries to help them become true financial risk managers. Finally, I wonder whether we in the United States are learning as much as we should from actuaries, especially those of other countries, who have made the transition to financial risk management.

First, what about the ghosts of actuarial science past? The profession still has work to do to inform others within the financial community about the actuary's special skill set and how it is relevant in an integrated financial services world. My guess is that most non-actuaries would find Webster's definition compatible with their understanding of an actuary. If I am right, this perception is itself a barrier to actuaries playing a substantial role in a financially integrated world. The profession has a marketing problem.

Another ghost relates to actuaries seeming sometimes to operate within their own world. They may have a deep understanding of investments, economics, or finance. Yet, the terminology, notation, and approach used by actuaries sometimes differ from those used by more traditionally trained specialists. These differences can inhibit communication, with the result that actuaries might be unfairly perceived as having less grasp of the area than is actually the situation.



Harold D. Skipper

For example, consider the use by the actuarial profession of the contingency or "C" risk classification scheme. It is not wrong; in fact, it has proven exceptionally useful. But the approach and terminology are different from those used in mainstream finance. In the latest edition of Ken Black's and my textbook, *Life and Health Insurance*, I have attempted to reconcile these two different approaches, because I believe that actuaries are the ones who ultimately must change their terminology and approach to this issue. The investment and finance people outnumber actuaries.

Bank risk management vs. insurer risk management

Actuaries have a disciplined approach to problem solving that reduces the likelihood of mistake. They understand uncertain, long-term cash flows and are good at constructing, validating, and applying models of them. In fact, actuaries have an advantage over bank risk managers who, by comparison, typically have a less complex modeling task than do actuaries. Bank cash flows are usually of shorter duration and contain fewer embedded options than do insurer cash flows. Also, cash flows of many commercial and investment banking activities are more easily

analyzed because the associated products or their derivatives may be tradable on organized exchanges, thus giving market prices. This is not true of many products in which actuaries are involved.

Risk management as practiced by insurers (and actuaries) differs in at least three important ways from that practiced by banks.

First, within banks, a single department might be responsible for risk management and for modeling the bank's global financial risk profile. Within most insurers, no single locus of responsibility exists for risk management, and few make an effort to quantify the risk profile for the entire enterprise.

Second, bank risk management typically is conducted within a formal structure that relies on daily reports to senior management, which makes the job of recalibrating models easier (plus sensitizes management to the risk managers' good work).

Finally, banks have a longer record of integrating risk management into their operations than do insurers, according to L.L. Gibson, "Integrating Risk Management and Value Optimization," *Contingencies*, March/April 1999.

These three differences do not mean that bank risk management is necessarily superior to insurer risk management. But they probably do mean that bank risk management is perceived as being superior or at least more systematic.

One can imagine that risk management within financial conglomerates will tend to become a global function rather than remaining within operating units. If bank risk management is perceived as superior and conglomerate risk management becomes a global function, who within a financial conglomerate is more likely to take the lead in group risk management: banker types or actuaries? The actuarial profession can do a better job of getting the message out about its strengths and probably should consider whether it is doing enough in evaluating risks systematically at the enterprise level.

Making a mark in financial risk management

My second concern about the actuary in financial services integration relates to the means by which the SOA, CAS, and possibly other actuarial organizations help their prospective and existing members to realize their potential as risk managers. These include a revised set of examinations that requires mastery of important financial concepts and various executive education programs for existing actuaries. The new exam series is proving to be especially rigorous.

Why should a student subject himself or herself to five to eight years of study and examination when a rigorous MBA degree in finance might secure a roughly equivalent position? To paraphrase a comment I heard from an actuary: "Would you recommend this profession to your child today?" If the examinations are perceived as being too rigorous, prospective students may conclude that the entry costs to secure actuarial certification are too great. If so, the profession could experience a talent drain in favor of finance or other professions.

The new curriculum will, over time, move the profession in the direction of risk management. But actuaries trained under this new curriculum will not begin making their mark for some time. What should the profession do in the interim?

The professional actuarial bodies offer several executive education programs in finance and financial economics for their members. My sense is that more is needed, but the actuarial bodies cannot do it all. If more is needed, it strikes me that formal or informal partnerships with universities to offer executive education and certificate programs are a logical means of quickly enlarging supply. We at Georgia State University believe that we have an opportunity and an obligation to do more in this area. We are exploring, for example, not only executive education and certificate programs, but also the possibility of offering a professionally oriented Ph.D. program aimed at established actuaries.

A lesson to learn from others

My final concern about the profession in an integrated financial services world relates to whether we in the United States are doing as much as we should to learn from others who have already tread this ground. Certainly, many North American actuaries have made the transition to financial risk management. Also, many actuaries in Australia, the Netherlands, France, Switzerland, Bermuda, and the United Kingdom, among other places, already routinely apply their skills to the larger risk management issues faced by financial conglomerates. The Australian actuarial profession may have been the first to embrace financial economics and corporate finance in its training. This occurred more than a dozen years ago, so a substantial proportion of today's practicing actuaries in Australia have had such training. My concern is that we might not be taking optimum advantage of this wealth of experience and insight for the benefit of the profession.

In summary, we need to be clearer about the skill set that actuaries bring to financial services integration, to ensure that more actuaries have the advertised skill set, and to do a better job of informing relevant stakeholders of how actuaries can add value in an integrated financial services world.

If we accept Webster's definition of an actuary or allow others to accept it, the actuary's future within integrated firms, the larger financial services market, and perhaps other areas as well will be limited. I hope all of us will work together to ensure this does not happen.

Harold D. Skipper, Jr., Ph.D., 1999 Bowles chairholder, is professor of risk management and insurance and holder of the C.V. Starr Chair of International Insurance at Georgia State University. He can be reached by e-mail at *hskipper@gsu.edu*.

An insurance accounting revolution

by Sam Gutterman

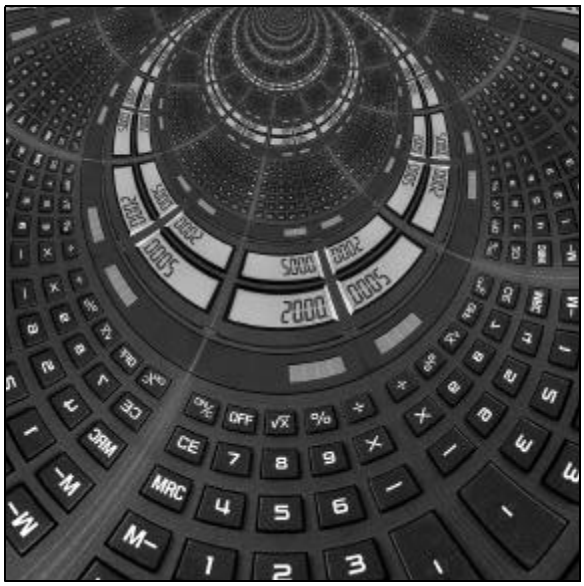
Both the International Accounting Standards Committee (IASC) and the Financial Accounting Standards Board (FASB), the author of U.S. GAAP, are off and running in a quest for a set of new accounting standards for general purpose financial reporting of insurance contracts. Both made their initial discussions public in December, the IASC through its *Insurance — Issues Paper* and the FASB through its *Preliminary Views on Major Issues related to Reporting Financial Instruments and Certain Related Assets and Liabilities at Fair Value.*

Both efforts are part of larger projects examining a possible comprehensive approach to the valuation of financial instruments, including shares, bonds, derivatives, credit card receivables, bank demand deposits, and insurance contracts.

Market growth calls for new approaches

Behind the movement to tackle financial valuations in new ways is the recent rapid growth in these products' markets and in the efficiency of many of these markets. This is combined with a growing recognition of these instruments' risks and the blurring of lines among them, as well as the industries that buy and sell them. Moreover, the increase in the scope and number of markets is leading financial professionals to focus more on the balance sheet and less on the income statement than they have in the past.

In view of these trends, both the IASC and the FASB have recognized an expanded role for fair value accounting. This approach uses reliable indications from the market to value both assets and liabilities; in the absence of markets, objective estimates are made of what market measures would indicate if they existed. It is recognized that since these products are not equally available in active and deep markets in which prices can be consistently observed, alternative approaches to measurement are needed.



Although the IASC and FASB papers argue strongly for the use of fair valuation of financial instruments and insurance, both indicate that other options are being considered. The FASB document discusses (1) a supplementary fair value-based balance sheet and income statement and (2) increased disclosure of fair value measures. In the IASC document, the issues associated with an alternative approach based on historical costs is also set forth, although the preliminary views expressed by the IASC's Steering Committee, which authored the paper, appear to support at least some form of fair value-based approach. Both indicate that, in general, accounting for insurance contracts should be consistent with accounting for other financial instruments. Neither provides a detailed proposal for standards — it is too early in the process.

Developing worldwide standards brings controversy

As one would expect, developing a potentially entirely new set of accounting standards for insurance applicable worldwide will be controversial, particularly because it is unlikely to be similar to any current standard that now exists. The most controversial issue, both for insurance and banks, is likely to be whether a complete fair value system will form the basis for determining liability values. As a member of the IASC Steering Committee recently indicated in a committee meeting, although fair value seems to be the way to go to maintain consistency, many players feel uncomfortable with some aspects of a fully implemented fair value system. Here are two examples of concern:

1. Some believe there should be a minimum floor for liabilities equal to a contract's cash value, even though such a floor would not necessarily represent a minimum transaction price if a block of insurance policies would be sold.
2. The FASB has presented the view that the insurer's credit risk should be factored into its liabilities, because (a) the underlying obligation, when valued as an asset held by another entity would reflect this risk, and (b) a lack of recognition of this risk would result in significant inconsistencies for general debt (also a financial instrument).

Some possible results, which may be controversial, of a new fair value-based system include:

- Elimination of deferred policy acquisition costs (DAC)
- Elimination of the tie between assets and liabilities, except in variable or

participating contracts, in that the discount rate used would not recognize the actual assets held
- Recognition of profit or loss on issue of a contract, depending on the present value of its expected future cash flows
- Unlocking all assumptions, reflecting the present value of future cash flows on a prospective basis
- For property/casualty liabilities, the introduction of discounting of loss reserves and elimination of equalization reserves (current European practice) and catastrophe reserves (current Japanese practice)
- A significant role for the actuary in determining these liabilities, most likely accompanied by national or international actuarial standards of practice

Many open issues remain. These include whether to recognize future interest rate margins; while currently reflected in many insurance liabilities, they are not reflected in bank liabilities. Another question is whether or how to reflect the value of embedded options. Also important is whether or how to reflect risk; both the IASC and FASB preliminary views indicate that risk should be reflected, with details yet to be developed.

A number of insurance regulators have expressed concern with some of the developments so far. This stems from fear that they might lose their ability to control insurance liability requirements, if these reserve standards were used for both general purpose and regulatory financial reporting as is done in Canada. The IAA committees have indicated that this new approach would only be appropriate for regulatory purposes if an effective risk-based capital system would be in place that reflects the liability scheme in place.

Comments due in May

Comments on both documents must be forwarded to the accounting standard setting organizations by the end of May. If you have an interest in this subject, I encourage you to become familiar with the discussions and, if you desire, to become an active participant in them. Committees have been formed in a number of national and international actuarial organizations — including the American Academy of Actuaries, the Canadian Institute of Actuaries, and the International Actuarial Association — to study the issues involved and develop responses on these ongoing discussions. In addition, the Society of Actuaries and the Casualty Actuarial Society have sponsored or are planning research projects or symposiums on related topics.

Significant changes are likely within
e
r t s
d d s d a r e 6 7 s u c h l a s s
s l e e
1 2 4 . 8 8 3 7 3 0 2 . 0 5 4 / I

Continuing Education: 2000 Meetings and Seminars

Here it is, your guide to all the remaining 2000 continuing education opportunities currently planned by the Society of Actuaries. Because some topics listed are tentative and dates are unknown or may change, please confirm all the details on the SOA Web site under "Meetings & Seminars" before you make your final plans or call the SOA Continuing Education Department (847/706-3540). Also, check the Web site for Professional Development credits for Fellowship candidates or EA credits for the seminars. For the May Health and Pension Spring meeting in Las Vegas and the June Life Spring meeting in San Diego, PD credits are noted in individual session description on the Web and in the Preliminary Program. Some seminars still have speaker slots open, so if you would like to speak or can recommend a speaker on any of these topics, contact Barbara Choyke at 847/706-3546.

DATE	TITLE	LOCATION
March 30-31	The 3rd Annuity Conference	Grand Hyatt Buckhead Atlanta, GA
May 1-2	Distribution Economics in the 21st Century	New York Marriott East Side New York
May 8-9	Corporate and Chief Actuaries Open Forum	The Colony Beach and Tennis Resort Longboat Key (Sarasota), FL
May 16	Basic GAAP	New York, NY
May 16-17	Management Seminar	Wyndham Peachtree Conference Center Peachtree City (Atlanta), GA
May 17-18	Advanced GAAP	New York, NY
May 22-24	Las Vegas Spring Meeting (Health & Pension)	Bally's Las Vegas Las Vegas, Nevada
May date TBA	Financial Reporting & Valuation Current Topics: GAAP, STAT	Bally's Las Vegas Las Vegas, Nevada
May date TBA	Math of Direct Marketing	TBA
May date TBA	Pension Accounting Lab US/CAN	TBA
May date TBA	Cash Balance Plans – Trends & Innovations	TBA
June 21	XXX Certification	Hotel del Coronado San Diego, California
June 21	Pricing Innovations	Hotel del Coronado San Diego, California
June 22- 23	San Diego Spring Meeting (Product Development & Financial Reporting)	Hotel del Coronado San Diego, California
June date TBA	Communication between Investment Departments and Senior Executives	TBA
June date TBA	Measuring & Managing Hospital Outpatient Costs	TBA

June date TBA	Stochastic Pricing for Life Insurance Products	TBA
July date TBA	Special Products LTC/DI/CCRC US/CAN	TBA
July date TBA	Experience Analysis & Actuarial Assumptions US/CAN	TBA
July date TBA	Interest Rate Modeling	Chicago
July date TBA	Interest Rate Modeling	New York
July date TBA	ALM	Wharton School Philadelphia, PA
July date TBA	Employee Benefits from the Participants Perspective	TBA
July date TBA	Managing Prescription Drug Costs	TBA
August 29-30	Management Seminar	McLean Hilton McLean, VA
August date TBA	Risk Management for Insurance Companies	TBA
August date TBA	Small Employer & Top Heavy Issues	TBA
August date TBA	Credibility	TBA
Sept. 12-13	Performance Measurement	Washington Hilton & Towers Washington, DC
Sept. 13	Financial Reporting for Reinsurance	Washington Hilton & Towers Washington, DC
Sept. 13	Small Insurance Company Seminar	Washington Hilton & Towers Washington, DC
Sept. 14-15	Valuation Actuary Symposium	Washington Hilton & Towers Washington, DC
Sept. date TBA	Advanced Topics in the Financial Management Employee Benefit Plans	TBA
Sept. date TBA	Current Trends in Provider Contracting	TBA
October 12-13	Embedded Value-Added	Sheraton & Towers Chicago
Oct. date TBA	Segregated Funds/Guarantees on Variable Products	TBA
Oct. date TBA	Executive Compensation US/CAN	TBA
Oct. date TBA	Market Driven Product Innovation	Sheraton & Towers Chicago
Nov. 9 or 10	Magic or Science: Quantitative Marketing for Actuaries	TBA
Nov. 13-14	STAT and GAAP	Orlando, FL
Nov. date TBA	Post Retirement: Valuation & Accounting	TBA
Nov. date TBA	Pricing Alternative Medicine Benefits	TBA
Dec. date TBA	Public Employee Plans US/CAN	TBA
Dec. date TBA	Symposium on Unified Valuation System	TBA
Dec. date TBA	Investment Actuary Symposium	TBA

Imagine that

Actuaries create fictional world of the future

by Jacqueline Bitowt
SOA Public Relations Manager

What do Genensure Life, the Ross Equation and extra-terrestrial diplomacy have in common? They're all creations of the fertile and offbeat minds of actuaries in the latest volume, Version 3.0, of *Speculative Fiction*, a periodically issued collection of short stories written by Society of Actuaries members and other actuaries. A project of the Computer Science Section, the book is available free from the SOA. The first prize story from Version 3.0, "Computer Graphics," also appears on the SOA Web site on the Computer Science Section page and was printed in the American Academy of Actuaries magazine *Contingencies* in its January/February 2000 issue.

Fans of the past three volumes will be glad to know that the Computer Science Section, this time in cooperation with the Futurism Section, is planning its fourth edition to be issued in early 2001. Appropriately, the stories in Version 4.0 speculating on the actuarial world of the future will not be paperback form, but will be published only on the Internet. Watch the Computer Science Section's page on the Web site for details on guidelines and deadline for submission.

A contest as well as a literary effort, the short stories will be judged by a futurist and professor of English. A modest monetary prize is offered: $250 for first place, $150 for second, and $50 for third.

"*Spec Fic* puts a more human face on actuaries," notes Carol Marler, who edited versions 2.0 and 3.0. "People don't necessarily relate the term 'actuary' to individuals who have weird, interesting ideas. *Spec Fic* publicizes the profession by showing that complex, futuristic, and insightful side of us."

Marler was a Section Council member at a time when "the Council was looking for ideas that Section members would participate in and be proud of." She and a fellow Council member, Jim Toole, had previously discovered a mutual literary interest — they both wrote poetry. They believed there had to be other actuaries who enjoyed writing as well. And for the Computer Science Section, what would be more appealing than a contest for the best sci-fi story by an actuary? The Council approved the idea, and the *Spec Fic* contest became an experiment, with Version 1.0 edited by Toole.

Actuaries and the sci-fi muse

One writer who hasn't placed yet still finds it worthwhile to write for *Spec Fic*. Gary Lange, associate actuary, CNA Insurance, has had stories published in all three issues.

"The reason I started writing science fiction is because I read a lot of it," he said. "I wanted to find out if I could write like that." A few years ago, Lange worked with someone whose writing had been published, and that was an important catalyst.

Writing for the *Spec Fic* competition has value beyond winning. The judge critiques each story, "and that's very important to me," Lange said. "I like seeing how my writing changes between the very first time I write the story and the time I send it in. The process is worth it to improve my writing. I also learned to appreciate the authors. In *Spec Fic*, you see one or two people who have been given consistently high rankings, and you can see why. They clearly show talent beyond their actuarial talents."

And that's the truth behind *Speculative Fiction*.

5 reasons to have a Speculative Fiction contest

by George DeGraaf

1. To stimulate new ideas about possible future events and what technologies may be reasonable to expect in the future.
2. To encourage creative thinking, both in the writer and the reader. Wide exposure for the collection of stories also sends a message to our publics that the profession consists of members who are creative and have a sense of humor.
3. To develop good written communication skills and to challenge actuaries to stretch their vocabulary and writing style.
4. To find out what actuaries' dreams of technology are and the fascinating issues and implications that arise with technological advances.
5. It's fun!

George De Graaf is senior actuarial technology consultant for The Principal Financial Group, consulting and technology actuary for SALT Solutions in Des Moines, and chair of the Computer Science Section. He can be reached at *degraaf.george@principal.com*.

A tale of travel, high school students, and actuarial careers

by Jacqueline Bitowt
SOA Public Relations Manager

Three students stood out in the crowd at this year's CAS/SOA Actuarial Career Information Fair at the San Francisco annual meeting. While most of the 120 teachers and students attending wore West Coast-casual t-shirts and khakis, one trio wore the crisp navy-and-white uniforms of their Bermuda school.

Bermuda? Yes, the island 3,500 miles from the San Francisco Marriott, where the career fair was held.

Math instructor Edwin Small led Jonathan Allen, Chante Burchall, and Christopher Pimental on a more than coast-to-coast trek in search of direct knowledge about actuarial science careers. They're fifth year (grade 11) students of Small's at The Berkeley Institute Pembroke, Bermuda. The Berkeley Institute is one of two public senior schools on the island, with an enrollment of just under 500 students from grades 9 to 11.

Small made his way to the 1998 career fair in New York, held after the SOA's annual meeting there. "I saw the announcement in the CAS newsletter, which I receive regularly," he said. "I had decided to start the actuarial exams, and I thought the career fair would be a good way to find out as much as possible first-hand."

Small found the fair valuable and thought it would be helpful for his students. "I wanted them to see a career choice that was heavily math-oriented, so as to bring the subject to life," he said. Also, "students would be able to actually speak to actuaries about the demands of the business world in general, and actuarial science in particular. This would help them decide whether the career was really for them. It also would be good for students to see the types of employment opportunities available and to learn more about how the profession 'marries' several academic disciplines — math, business studies, computer studies, economics."

SOA President-Elect Rob Brown takes a moment to speak with the students from Bermuda.

Small returned to Bermuda and began a year-long campaign to send some students to the 1999 San Francisco fair. Late in the 1998-99 academic year, he received permission from Miclelle Gabisi, the principal, and Rhonda Woods-Smith, head of mathematics, to raise funds. He approached Bermuda insurers, actuarial consulting firms, and the school's PTA. He received $1,000 from donations by Argus Insurance and the PTA, and the school advanced $3,000 more, to be paid through fund-raising this year. "Our principal was extremely supportive. We really owe our attendance to her willingness to advance us the money and support us in all of our preparations," he said.

Students were given the criteria for being chosen to go on the trip: a combination of the best mathematics score at the end of the 1998-99 year and interest in an actuarial science career. "We found that few students knew much about actuarial science, and so we decided to make the second criterion a priority. Otherwise, we risked taking someone who would not benefit fully from the experience," Small noted.

How did Jonathan, Chante, and Christopher react when they heard they had won? "They were elated and excited! They saw it as our recognizing their potential," Small said.

Chante said, " I was already considering a career as an actuary, and I felt that this trip would enable me to see whether I was really making the right choice."

"Their parents were very supportive and also very proud," Small said. "They actually came forward with suggestions about funding, and even offered to underwrite some of the cost themselves so their children could have the experience."

And the experience was a special one. The trio enjoyed talking to actuaries, checking out the new actuarial career Web site (*www.BeAnActuary.org*), attending the workshops, and, of course, picking up giveaways from the fair's exhibitors.

(continued on page 14)

For 50 years, the Society of Actuaries (SOA) has performed a variety of services that have benefited the public, insurance companies and other organizations in the financial services industry, and the professionals that practice in them. Some of the most valued services have been the analysis and publication of experience studies of mortality, morbidity, voluntary termination, and investment performance and other research based on these data. These projects have helped insurance companies and other organizations to:

- assess and reduce risk
- design innovative products
- manage assets
- determine appropriate levels of liabilities for future contingent events and
- analyze revenues and costs

Because of the importance of these studies to many audiences, we encourage insurance companies to become data contributors, particularly to our individual life insurance 1Tw ecautm

mortalite studie.t

e
S
e
d

Here's a no-risk opportunity

Las Vegas spring meeting has CE sessions for all

If you're practicing in today's health, long-term care, and pension fields, you know it's a roll of the dice to keep up on new issues, regulations and world events. At the Society of Actuaries spring meeting May 22-24, 2000, at Bally's Las Vegas, you have a no-risk opportunity to fine-tune your skills in your practice area. More than ninety education sessions, covering everything from dental and disability insurance through cash-balance plans and mergers and acquisitions, offer a wide choice of resources for you to meet the challenges and changes ahead in 2000 and beyond.

And, in Las Vegas, what better keynote speaker than a nationally recognized authority on money, Terry Savage. Her 1999 book, *The Savage Truth on Money*, was named "one of the ten best money books of the year" by amazon.com. Savage is the *Chicago Sun-Times* and Barrons Online personal finance columnist, and one of four featured financial experts on Microsoft's Money Central Web site.

Make your hotel reservation by calling Bally's at (800) 722-5597 and ask for the $109 SOA room rate. If you register now, you'll hit the "early bird" jackpot: $50 off for those who register by April 17. Visit the SOA Web site (*www.soa.org*) Meetings and Seminars page or call (847) 706-3545 or (847) 706-3540 for registration materials.

Explanation to puzzle on page 9

Let $p = 0.6$ and $q = 0.4$ denote the probabilities of heads and tails, respectively. Then the probability that the gambler's fortune will ever decrease by $1 from the current level is the ratio q/p. Let $R(u)$ denote the probability that the gambler, with current fortune u (a positive integer), will eventually lose all his money. It follows that $R(u)$ is the ratio q/p raised to the power u. Now, the conditional probability of obtaining heads in the next toss of the coin, given the information that "ruin" will occur, is:

Prob(heads and ruin)/Prob(ruin) = $pR(u+1)/R(u)$,

which, after simplification, is q, for any u.

University opening

Applications and nominations are invited for The Munich Re Chair in Insurance at the University of Waterloo, Waterloo, Ontario. The deadline for nominations and applications is April 30, 2000. Complete details are available on the Internet at http://www.stats.uwaterloo.ca/Stats_Dept/homepage.html.

DEAR EDITOR

Actuary sources biased?

I read the article "Study Time" (November 1999) with some surprise. Why is the Society of Actuaries including comments from teachers of actuarial seminars to the effect that students will require these seminars more than ever to pass the new exams? If I was an employer of actuarial students, I would be very displeased that you were writing articles promoting the "need" for expensive and sometimes lengthy seminars, based on such biased sources.

Helen Mildenhall

Editor's reply:

This article was written to address concerns expressed by academics teaching actuarial subjects, by employers, and others about how actuarial candidates can best prepare under the new 2000 E&E system. As with all our articles, we seek the most knowledgeable sources to interview. In this case, the sources were professors prominent in the education of future actuaries.

ACTUCROSSWORD