



theactuary

the newsletter of the
Society of Actuaries

What's next? — DB plans for the long run

by Jeremy Gold

So, my fellow actuaries, here is where we are: In light of the global demand for financial transparency, we need to wean ourselves and our clients from the seductive (but illusory) and addictive advantages of Defined Benefit (DB) plans without weaning them away from DB plans. We must abandon reliance on the “free lunches” that appear to be served up by DB plans and focus instead on substantive virtues. Along the way we will need an endorse-

ment by society (better rules) and we will have to exert our creativity and sweat in the area of plan design.

The weaning: opacity to transparency

We have recently seen a worldwide attack on the opaque pension actuarial model by accountants and financial economists. As U.S. pension actuaries have migrated towards understanding the valid concerns raised, we have also seen that transparency threatens the survival of DB plans. Some will shrug and say something like “survival of the fittest—perhaps the DB age is over.” As an actuary trained in financial economics, I believe that we must acknowledge this possibility. As a pension actuary, I believe that DB plans still have much to offer to the world—

but their inherent value comes from opportunities in employment contracting and risk reduction, not from financial illusion. We must identify and articulate these opportunities and work to persuade employers that DBs deliver value to shareholders.

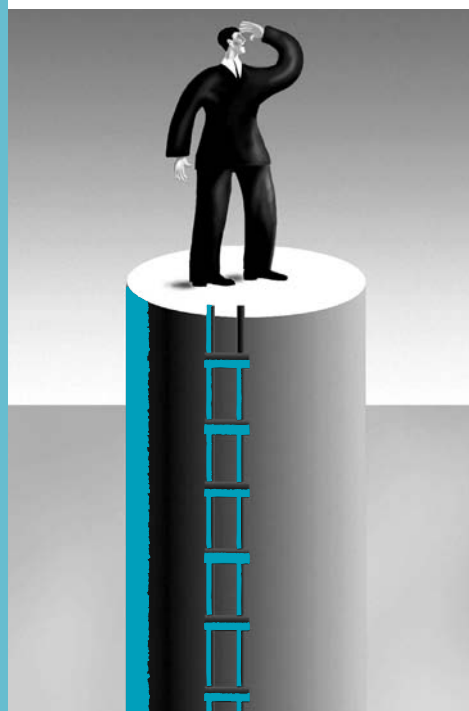
Under the regime of the opaque actuarial model, corporate executives have bought the erroneous notion that borrowing in order to invest in risky assets is positively good and that hiding the risk effectively manages the risk. Since borrowing to invest in risky assets is not positively good and, in the nations now or formerly part of the British Empire, it is demonstrably bad to do such leveraging inside a tax-sheltered pension plan, hiding the risk depicts a value waster as a value adder.

What happens when we lift the veil and commence transparent reporting? First, plan costs—whether measured by contributions or accounting—will rise in almost all cases. Although this seems to be a clear loss of value, it is nothing more than the true state of affairs. Thus, employers will learn to be less lavish in their offer of benefits instead of wages. Employees, in turn, may be disappointed. This explains some of the resistance to financial economics among traditionally trained actuaries and their addicted clients. However, if we resist transparency, the DB age will surely end. If we embrace transparency, we face the possibility of a hastened demise (euthanasia) as well as the more cheery prospect that we can breathe new vitality into the DB lifeform.

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Now they tell us.

by Alan Parikh

Pension actuaries have had a good 30-year run. First came the Employee Retirement Income Security Act (ERISA), back in 1974, imposing a new regulatory framework designed to protect defined benefit pensions. Actuaries would play a critical role in determining annual funding requirements. As new federal mandates were overlaid onto these once simple unfunded programs, actuaries would soon assume an essential role in their operations—because nobody else had the time, the training, or the smarts to figure them out. As the laws piled up, our work grew apace.

FAS 87

Then came the introduction of Statement of Financial Accounting Standards No. 87 (FAS 87) in 1986. A new parallel world of accounting and disclosure emerged alongside the existing ERISA world. Again, we adapted. We developed dual actuarial brains, adept at moving between these separate but intertwined worlds. We moved beyond our contacts in the HR and Treasury departments and started to talk to the CFO. No longer on the sidelines, we became accustomed to our new role as key advisor to the C-suite.

Since 2000, we have watched as the “perfect storm” of financial conditions has converged on the product of our decades of well-intentioned work. Our clients’ pension plans are, in many cases, severely underfunded, the result of three consecutive years of falling interest rates and dismal stock returns. The accounting picture is equally dismal. Standard practice under FAS 87 is now being challenged by the SEC, S&P, Moody’s and other interested parties.

Bad timing

Now, a group of economists and actuaries is loudly calling into question the foundations of our work—the very core assumptions about how we fund and account for defined benefit pension plans. Many of us are tempted to say, “Not now, this is not a good time. Why don’t you come back in about five years when we have this all sorted out?” Or, perhaps the more appropriate question is, “Why didn’t you tell us this five years earlier when we could have done something about it?”

At the June SOA meeting in Vancouver, there was a lively symposium entitled, “The Great Controversy—Current Pension Actuarial Practice in Light of Financial Economics.” Dozens of actuaries and economists debated issues crucial to practicing pension actuaries. Many walked away from that symposium largely convinced that the objections to our methods are valid. That didn’t include everyone of course, and the symposium attendees may have been largely self-selected by their inclination to agree.

Beyond denial

While we are nowhere near consensus, a significant number of pension actuaries are working to apply the teachings of financial economics to their practices. They are in the halls of our consulting firms, arguing with our colleagues about the proper place of the equity risk premium in our actuarial cost calculations. They are talking to our clients and prospects about the evils of asset smoothing and cost deferral. They hint darkly about the sinister effects of our innovatively applied actuarial methods, drawing connections to excessive executive compensation and stock-market bubbles.

As their arguments and points of view receive a wider audience, more will be convinced, and perhaps, some will discover valid counterpoints to their key premises. It is possible that many of us will not capitulate entirely, but we will learn to assimilate their objections into a more sophisticated and well-rounded view of our work.

Alternate paths

Some suggest that the outcome could be the slow demise of our profession, as defined benefit plans disappear entirely. But that’s not the only possible outcome. Indeed, while our corner of the retirement edifice is in bad shape right now, the weight of the baby boom is just beginning to place strains on the entire structure—defined contribution, social security, health care—you name it. Faced with a much bigger problem, we are well positioned to build bigger solutions. And it is possible that within these new ideas, we can find the blueprint for a more robust, transparent defined benefit system. This can be an exciting time for pension actuaries. Let’s see if we can rise to the challenge. ☺

Post-retirement risks and living to 100

This communication was prompted by perusing material on the Web site for the SOA section on retirement, particularly the following post-retirement articles from *The Actuary*: “Living to 100 and beyond: Why do we care?” by Anna Rappaport (May 2002); “Large employers face hard choices on retiree health benefits,” by Steve Coppock and Frank McArdle (April 2003); and “Personalizing the actuarial perspective” the editorial by Loretta Jacobs (April 2003).

As a retired faculty member, I have both a personal and an academic interest in both the post-retirement risks and also living to 100 (or not). I retired at age 67 in 1998 but, as my wife says, “I haven’t quit.” As a retired faculty member I do have some opportunities to continue teaching and research as well as consulting, opportunities that many retirees do not have and some don’t want.

Rappaport notes that, “Living longer has a bright side, but there is also a dark side to aging. As we are living longer, we are remaining healthier longer.” I suggest that a

significant fraction of those living longer are not necessarily remaining healthier longer. Improved health care is obviously a factor, so some with health problems are living longer in spite of poorer health.

In the spirit of Jacobs’ editorial, I will make it a bit more personal. Four years before I retired I had to have heart surgery to repair the mitral valve. Then, in 1998, after I had retired, I had to have the valve replaced. I am sure that 20 years earlier the technology did not exist or at least did not work as well. As my cohorts and I have discovered, you can seem to be in pretty good health, but the older you are the greater chance that your health may suddenly change in a serious way. Thus, living longer may not mean remaining healthier longer.

I am fortunate to be able to stay in the group insurance program of my former employer and even to receive some subsidy from the retirement program, but in the last two years my premium costs have increased substantially. This year will likely bring another big increase. It is natural that HMOs and insurance companies want to exclude the more risky patients, but that simply means that the

cost for the others will still be borne in a hidden way. I suggest this is an important challenge for the actuarial profession, to root out and clearly identify the real costs of the 40 million or more who are uninsured. As political aside, the longer we resist going to a single-payer health insurance program, the worse this problem will be.

Rappaport asks the question, “Are people exiting the labor force at the right time, and if not, how do we change that?” This is clearly a highly individual question, not a mass question. Some individuals need and are ready to leave the labor force at a much earlier age than others. I have a colleague who took early retirement and has never been back to the university at all. He has no interest in maintaining any connection with his former work.

In contrast, I am still active and, barring some significant change in my health, I expect to continue for some time. I have totally withdrawn from some aspects but have increased my involvement in others. However I have no regrets about having made the transition to being “retired.”

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What’s next? — DB plans for the long run

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Society’s endorsement

We believe in DB plans. If we can sell the real advantages to society and its representative rule makers, they can help breathe fresh life into—they may need to do little more than remove their hands from the throat of—our beleaguered DBs. Some properly designed tax favor may be their sincerest form of endorsement.

But before we ask for reduced regulation and tax advantages, let us identify the inherent merits of the DB plan design. This will help us to make the sale to society and it will further serve as a platform for our focus on substantive virtues.

I cannot, on my own, enumerate all of the boons to society offered by DB plans and so I invite my fellow actuaries to find and promulgate their own. But I want to emphasize that I will not be impressed by

cosmetics, and neither in the long run will society. No more lipstick on the pig; we must get the meat to the table.

Pareto optimality—some econ-speak

Because DB plans are primarily financial contracts, we are going to have to sell society on the economic benefits that it will reap by encouraging DB plans. Pointing to redistributive “advantages” will not work; Congress can rob Peter to pay Paul without actuarial assistance. We have to grow the pie before we slice it up.

Pie-growing has a somewhat formal specification in economics. *Pareto efficient* contracts and transactions are those that increase the welfare (personal utility) of at least one party without reducing the utility of any other. When there is no further opportunity to make such gains, the situation may be described as Pareto optimal.

Here are some examples:

- Taxing Bill Gates to balance the federal budget is not Pareto efficient. Even though a marginal dollar provides negligible utility for Mr. Gates and thus it could be used to enhance the utility of many poor folks, the Pareto rule is not met.
- Two risk-averse actuaries who contract to flip a coin for their, coincidentally identical, net worths are destroying more utility than they will create. Even before the coin ascends, the expected utility of each actuary has been diminished.
- But, when Bill Gates makes a charitable bequest, we may presume that his positive utility for altruism results in a utility gain for both Gates and the recipients. The Pareto rule is met.

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Is pension accounting broken?

by Brian Donohue

The last few years have seen a rash of accounting scandals that have eroded the confidence of investors in corporate financial statements and chipped away at the credibility of corporate America. Enron and WorldCom are examples of companies in the hot seat because of alleged fraudulent activity. But in the second wave of criticism, which has focused on stock option and pension accounting, the complaint is that the

- The slow recognition of gains and losses (asset smoothing, 10 percent corridor, amortize over expected future service).

Plan sponsors favor these smoothing devices, as they lead to more stable and predictable costs. Actuaries, too, are inclined toward stable costs, and not solely in their clients' interest either. Actuaries are trained to think in terms of level

Unless we are prepared to cede ground as experts on pension plans, our profession needs to take the lead in valid critique of the current rules and proposals for change.

current standards do not accurately reflect the economic reality of the underlying transactions.

As actuaries, we need to understand the charges against pension accounting. If the criticisms have merit, our profession must shoulder a share of the responsibility for shabby corporate accounting. Unless we are prepared to cede ground as experts on pension plans, our profession needs to take the lead in valid critique of the current rules and proposals for change.

The problem: delayed recognition under FAS 87

The principal charge leveled at Statement of Financial Accounting Standards No. 87 (FAS 87) is by now familiar to most pension actuaries: layers of smoothing and deferral that shield pension costs from actuarial gains and losses.

In particular, the culprits are:

- The use of expected, rather than actual, return on assets in the calculation of pension cost.
- The ability to use a smoothed asset value to calculate the expected return on assets.

premiums, of cutting through the “noise” to the underlying consistent “signal.” The terminology of our profession (e.g., normal cost) betrays this inclination.

The noise/signal issue defines the current debate on pension accounting. One extreme view is that there is a true, predictable, underlying cost and all deviations are noise. The noise should average out over time and shouldn't pollute the pension cost. At the other end of the spectrum is the view that pension volatility is pure signal – the signal includes information about the risks of sponsoring a pension plan, and these risks ought to be expressed in a potentially volatile cost as dictated by experience.

As long as things unfold more or less according to expectations, the debate is largely academic. The last three years, however, have produced a string of significant losses, and FAS 87 smoothing has left pension accounting far behind economic reality for most plans. You don't need to be a “pure signal” adherent to get the feeling that pension accounting has lost its way.

It is worth pointing out that in the late 1990s, the opposite situation prevailed, although it was less pronounced. The long bull market resulted in many plans accruing a larger liability than their unfunded Projected Benefit Obligation (PBO).

This fact is a caution against overreacting to the current situation. However, it is also a testament to the severity of the recent reversal, since it had to consume the cushion of over-accrual first. Additionally, the experience of the 1990s provides evidence that stability, rather than manipulating accounts, is the chief aim of plan sponsors, since the economic reality was rosier than FAS 87 suggested for most of the decade.)

I incline toward the “pure signal” viewpoint myself, at least with respect to the balance sheet, which after all is intended to provide a snapshot of a firm's financial



position. In calculating the annual pension cost, some smoothing is defensible, but pension accounting needs to be more responsive to reality than current practice under FAS 87.

Balance sheet

Lost in much of the criticism of FAS 87 is the fact that the standard provides sufficient balance sheet information to intelligent investors. The Accumulated Benefit Obligation (ABO)—for underfunded plans, PBO, fair value of assets and accrued costs are all on display in annual reports. Of course, these items are infamously “buried in the footnotes,” but it is a straightforward matter to mark the balance sheet to market given this information.

FAS 87 goes even further than this, requiring underfunded plans to record an

Additional Minimum Liability (AML). Many plan sponsors will attest that this rule represents marking to market with a vengeance.

The minimum liability rule makes a lot of sense, but it is asymmetric and therefore flawed. Plans that have funded their ABO and overfunded plans that have recorded pension income in the past typically show a large pension asset on their balance sheet that bears no relationship to actual overfunding, because the AML rule does not apply to plans with no unfunded ABO. From an investor's perspective, such a pension asset is worthless. Is there any reason not to add a "maximum pension asset" concept (equal to Assets – ABO) that would mirror the AML? Just such a concept is included in Financial Reporting Standard 17 (FRS 17), the UK accounting standard slated for implementation in



2005 and considered to reflect the most up-to-date thinking on the subject.

Such a rule would eliminate the familiar but absurd scenario of "\$1 of unfunded ABO." Under FAS 87, a plan with \$1 of unfunded ABO records a balance sheet liability to offset any pension asset on the books. By funding \$1 more, the plan is allowed to preserve its pension asset. This anomaly in the accounting rules has spawned a curious year-end ceremony among pension plan sponsors, as they struggle with the significant balance sheet implications of essentially shifting money from their left to their right pockets.

Many actuaries (myself included, in lucid moments) will howl at the suggestion of a

maximum pension asset. Funding ABO is the only strategy against the AML for many plans right now. This is a practical objection though, which ignores the specious pension asset generated by current rules and does not address the discontinuity whereby a non-event (\$1) can dramatically impact the balance sheet.

If we continue reporting a muffled pension cost year in and year out, what does that mean for the future?

But why stop there? Sure, most plans are under-accrued now, but in theory, the notion of a minimum pension asset/maximum pension liability (perhaps based on PBO) is defensible for over-accrued plans along similar lines as the AML. I am not prepared to press this argument too far though, on the view that pension surpluses are not strictly symmetrical with deficits.

The previous discussion assumes liability measures reflect rates at which liabilities could be "effectively settled," as FAS 87 dictates. It is sometimes difficult to reconcile this notion with the FAS 87 presumption of a "going concern," but this is a classic and pervasive issue in accounting. Also, we should remember that pension balance sheet liabilities—and especially assets—tend to be offset somewhat by deferred tax entries.

Income statement

Clearly, smoothing of experience in calculating pension costs masks risks that plan sponsors undertake. What is not clear is that a wildly gyrating pension cost provides meaningful information to investors about a firm's prospects (particularly if the future is not likely to be as turbulent as the recent past). On top of this, firms have a legitimate desire for some stability in their budgeting process that is ignored by "pure signal" devotees. Isn't there something telling in the fact that FAS 87 calculations look quite a bit like a pro forma calculation an investor may use to forecast a firm's earnings? That being said, pension cost ought to be more responsive to what is happening "out there." One reason is that fluctuations

are not merely noise, but include information that reflects the risk of sponsoring a pension plan. Secondly, the accounting principle of "articulation" (i.e., reconciling from balance sheet to balance sheet via the income statement) is violated when an AML crops up. A related point is that pension costs that are more responsive to

experience will reduce the necessity and impact of balance sheet adjustments generally, since the regular accrual of cost will track reality better.

As with the balance sheet, pension footnotes currently provide savvy investors with lots of information, allowing them to substitute their own view regarding (say) expected asset returns or to get a sense of the relative weight of employee benefit costs (operating expense) versus insurance operations (i.e., risk-taking or financing expense) represented by the plan.

Who wants higher costs?

To date, corporate earnings have reflected only a fraction of the bad pension news that was 2000-2002. Costs are higher, but most of the pain is still knocking around the unrecognized loss bucket.

If we continue reporting a muffled pension cost year in and year out, what does that mean for the future? The best-case scenario involves a renewed bull-market coupled with rising interest rates. I'd love to see it, but is it prudent to just sit back and hope?

Some firms—particularly those who can absorb the balance sheet hit but wish to avoid reduced earnings—may want to neither fund their ABO nor record higher costs, preferring instead to live with chronic under-accrual and balance sheet volatility.

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2003–2004 SOA election results

Stephen G. Kellison has been elected SOA president-elect for 2003-2004. He will take office during the October SOA Annual meeting in Orlando.

Kellison is a Fellow of the SOA. He served on the Board of Governors from 1973-1975, 1990-1993; as vice-president from 1999-2001, and as secretary/treasurer from 2000-2001. Kellison has a long history of service with the SOA, including chairmanships on life insurance practice advancement, finance and admissions committees. He has also served on a number of committees including papers, educational facilities, continuing education, alternate route, advisory on education and examinations, elections, education policy, administration and finance, financial affairs, education and examination management and operations. His participation in the spring and annual meetings is extensive, serving as moderator, panelist, speaker and co-chairperson for a number of these events.

Kellison is currently a consultant in Orlando, Florida.

Vice-President elections

Three new vice presidents also have been elected: Christian J. DesRochers, senior vice president at Aon Consulting, Avon, Conn.; Larry M. Gorski, consulting actuary at Claire Thinking, Inc., New Berlin, Ill.; and Dale H. Yamamoto, Hewitt Associates LLC, Lincolnshire, Ill.

Board elections and amendments

Elected to three-year terms on the SOA Board of Governors are: Christopher M. Bone, executive vice president and chief actuary at Aon Consulting, Somerset, N.J.; Timothy F. Harris, principal at Milliman USA, St. Louis; Shu-Yen Liu, executive director, China Financial Information & Services Company, Beijing; Barry L. Shemin, senior vice

president and corporate actuary at John Hancock Life Insurance Co., Boston; Richard Q. (Dick) Wendt, principal at Towers Perrin (US), Philadelphia; and Teresa Russ Winer, actuary at Chastain Financial Services, Atlanta.

The constitutional amendments to extend voting privileges to ASAs who have been members of the SOA for five years or more did not pass. Passage of the amendments required 66 percent of the votes cast to be in favor of the change. The total votes were 63 percent in favor and 37 percent against the amendments.

Section elections

The following persons have been elected to 16 section councils to serve from October 2003 to October 2006 unless otherwise indicated:

Actuary of the Future

James C. Brooks
Paul V. Bruce
Joseph Paesani

Computer Science

Charles S. Fuhrer
Philip Gold
Kok Bin Liew

Education and Research

Thomas P. Edwalds
Kathleen S. Elder
Hal Warren Pedersen

Financial Reporting

Simon R. Curtis
Kerry A. Krantz
Darin G. Zimmerman

Futurism

Steven F. Malerich
Robert W. Ryan
Michael S. Taht

Health

Mark E. Billingsley
Craig S. Kalman
Lori Weyuker

International

Anna Louie
Ronald L. Poon-Affat
Thomas E. Leonard

Investment

Sean Patrick Casey
Stephen J. Stone
Martin K. le Roux

Long Term Care Ins.

Vincent L. Bodnar
Steve P. Sperka
Robert K. Yee

Mgmt. & Personal Development

Jennifer L. Gillespie
Vincent G. Mace, Jr.
K.H. Kelly Rendek
Alan J. Sheptin

Nontraditional Marketing

Jeanne Meeker Daharsh
Ian G. Duncan
Robert P. Stone

Pension

Betsey Byrd
Anne M. Button
Arthur L. Conat

Product Development

Mary Ann Broesch
Elinor Friedman
Nancy Westfall Winings


Reinsurance

Richard K.M. Lau
Larry Warren
Henry B. Ramsey, III

Smaller Consulting Firm

Daniel P. Cassidy
David C. Hart
David Pratt Ward

Smaller Insurance Company

Donald W. Hagen
Terry M. Long
Philip A. Velazquez 

Control cycle provides framework for actuarial education redesign

This is the fifth in a series of articles addressing potential changes to the education and examination (E&E) system. Look for follow-up articles in future issues of *The Actuary*.

The SOA working groups, charged with redesigning basic and actuarial education, have identified the value of the control cycle as an instructional framework. The control cycle was

Set in the control cycle context, the ASA course will focus on introducing candidates to financial security systems, common actuarial techniques and practical experience early in their careers.

first introduced by Jeremy Goford (1985) as a concept reflecting the actuarial skill set. Subsequently, the Australian actuarial profession adopted the framework as fundamental to actuarial education.

The control cycle framework has now been tailored to provide the foundation for the redesign of the SOA's ASA education component, in particular. We are confident that its adoption will improve education for actuaries by making the process more relevant to actuarial practice and better preparing actuaries for the future.

Set in the control cycle context, the ASA course will focus on introducing candidates to financial security systems, common actuarial techniques and practical experience early in their careers. The framework will enable understanding of the business environment while exposing candidates to situations and tools that are common and useful regardless of practice area.

What is the control cycle?

The control cycle is a problem-solving approach that applies equally well to the most broad and the focused actuarial problems. It is a model of actuarial practice in a wide range of fields and provides common grounding for all candidates. Through the control cycle, all actuarial work is categorized into three main functions:

1. Define the problem (common applications at the product or organizational level).
2. Design the solution (selecting from current existing designs, study of societal or industry design or the creation of new design solutions).
3. Monitor the results (monitoring techniques).

Continual feedback among the functions is presumed. The actuary manages this process while continually examining the external forces that create new problems, constrain any potential solution or affect the current results (examples of external forces include law and regulation, stakeholders, business environment, economics, demographics and taxation). In addition, the actuary manages the

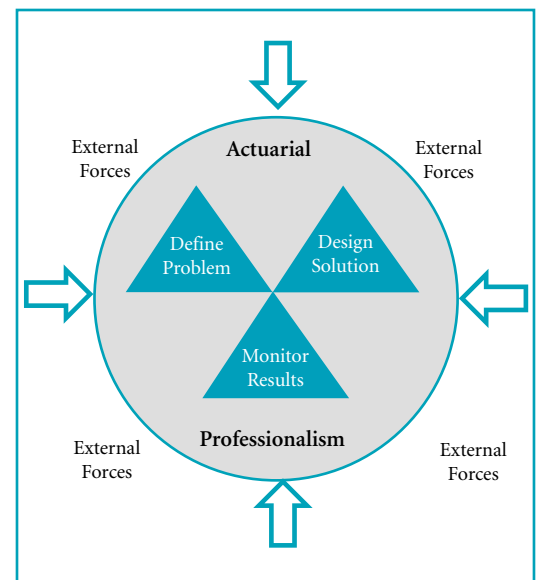
control cycle in a way that recognizes our profession's standards.

What will be expected of candidates?

Candidates for the ASA will be expected to understand the general concept of the control cycle and be able to apply it to each area of actuarial practice. To do so, they first must understand the external environment of the practice area (products, delivery systems, regulation and competitors, as appropriate) and then be able to use their understanding of how the control cycle applies. The candidate also will be expected to understand how the control cycle is applied to common applications that are found across practice areas (e.g., reserving, data collection and verification, gain and loss).

Figure 1 shows the three main functions and how they interrelate, depicts how external forces come into play and demonstrates how professionalism underlies all actuarial work.

Figure 1: The Control Cycle



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Control cycle provides framework for actuarial education redesign*continued from page 7***How will the framework benefit candidates?**

Within the context of the control cycle as a problem-solving framework, candidates will have an increased understanding of:

- The role of the professional actuary.
- Actuarial work/functions.
- Competencies expected of all actuaries.
- How core external forces integrate into actuarial work.
- Key concepts within the context of common actuarial problems.
- Traditional and nontraditional problems.
- Common models for each practice area.
- Selecting assumptions and how the process and considerations are critical to finalizing the design solution and monitoring results
- The application of the complete cycle and the interrelationships between each cycle component

Cycle, Sydney: Institute of Actuaries of Australia.

Goford, Jeremy (1985), "The Control Cycle: Financial Control of a Life Assurance Company," paper presented to the Institute of Actuaries Students' Society (now the Staple Inn Actuarial Society), February 1985.

Society of Actuaries (2003) *Summer 2003 Report to Membership: Education Redesign*. Online at www.soa.org/eande/report_membership03.pdf. 

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October 2003 issue of the NAAJ focuses on insurance and finance

Six articles in the October 2003 issue of the *North American Actuarial Journal (NAAJ)* explore the insurance and financial arenas and, in some cases, expand on previous research and past perspectives.

In "Modeling Catastrophes and their Impact on Insurance Portfolios," H el ene Cossette, Thierry Duchesne and  tienne Marceau, examine the large losses caused by natural disasters (e.g., earthquakes, floods and droughts) by proposing a general individual catastrophe risk model that allows damage ratios to be random functions of the catastrophe intensity.


Hon-Kwok Fung and Leong Kwan Li build upon past research, adopting a fast and flexible numerical technique, called sequential quadrature, and investigate the pricing of discretely monitored dynamic fund protections in "Pricing Discrete Dynamic Fund Protections."

Two articles in the issue examine the effect of stochastic interest rates from distinct points of view. X. Sheldon Lin and Ken Seng Tan consider the pricing of equity-indexed annuities in "Valuation of Equity-Indexed Annuities under Stochastic Interest Rates." The authors propose an economic model that has the flexibility of modeling the underlying index fund as well as the interest rates. In "Stable Laws and the Present Value of Fixed Cash Flows," Marc Goovaerts, Ann De Schepper, David Vyncke, Jan

Dhaene and Rob Kaas consider the present value of a series of fixed cash flows under stochastic interest rates.

"Empirical Estimation of Risk Measures and Related Quantities," by Bruce Jones and Ri ardas Zitikis, presents an alternative representation of risk measures originally defined in terms of expectations with respect to distorted probabilities. The authors show that the right-tail, left-tail, and two-sided deviations/indices suggested by Shaun Wang in 1998 can be represented in this alternative form.

In "Tail Conditional Expectations for Elliptical Distributions," Zinoviy M. Landsman and Emiliano Andres P. Valdez derive explicit formulas for computing tail conditional expectations for elliptical distributions, a family of symmetric distributions that includes the more familiar normal and student-*t* distributions. The authors extend this investigation to multivariate elliptical distributions, allowing them to model combinations of correlated risks.

Visit the NAAJ Web page at www.soa.org/bookstore/naaj03_07.html to preview the abstracts of the October 2003 issue. If you are interested in submitting a discussion for publication in a future issue, please contact Kimberly J. Wargin, editorial assistant, at kwargin@soa.org for a copy of the entire article. 

2000-2001 Redington Prize Awarded to Luke N. Girard

Congratulations to Luke N. Girard, FSA, FCIA, MAAA, who was awarded the 2000-2001 Redington Prize. The prize is named after F. M. Redington, the eminent British Actuary who coined the term “immunization” in a 1952 paper that was published in the Journal of the Institute of Actuaries.

To promote investment research, the Investment Section sponsors this biennial prize of \$2,000 (U.S. currency) for the best paper on an investment-related topic written by a SOA member. Girard won with his paper, “Market Value Of Insurance Liabilities: Reconciling The Actuarial Appraisal And Option Pricing Methods”, *NAAJ*, January 2000 (vol.4 No.1). This is the seventh award since the prize was first established.

Girard’s paper provides useful insights into the important area of financial

Girard’s paper provides useful insights into the important area of financial reporting.

reporting. He explores the mathematical and pricing implications on insurance liabilities of adopting various pricing paradigms, and identifies conditions that

will insure convergence to actively traded securities. The debate over the fair valuation of liabilities has been intensifying, making this paper even more relevant today.

Some of the parameters that govern the Redington Prize Award include:

- The topic must be judged to be timely, primarily of an investment nature, and must be of substantial value to SOA members.
- The selection criteria includes factors such as investment content, originality, practical significance, timeliness, relevancy and educational value to the membership.


The Prize Committee received a total of 15 nominations for the 2000-2001 publication period. The Council’s decision was not an easy one due to the number of

excellent papers received, and would like to thank all those who took the time to submit nominations.

The Prize Committee would also wish to make honourable mention of the following paper: “A Regime Switching Model of Long-Term Stock Returns”, *NAAJ*, April 2001 (Vol. 5, No. 2) by Mary Hardy, FSA. The Committee ranked it highly in its review. Hardy addresses the non-normality (‘fat tails’) in historical data. She presents an appealing and credible modification of the normal model, discusses how many ‘regimes’ are enough, and shows to what extent such theory fits historical data.

On behalf of the Investment Section, the Council would like to congratulate Girard on receiving the Redington Prize, and thank and acknowledge Girard and Hardy for the exceptional work they have contributed to the profession.

The Council also expresses its gratitude to the members of the Prize Committee in the final selection process. They are Nino Boezio, Paul Donahue, Steven Easson, Jeremy Gold, John Manistre, Robert Reitano, Ken Seng Tan, Michael Sherris, Elias Shiu, Richard Wendt and Yong Yao.


The next Redington Prize will be awarded in 2005 for papers published in 2002-2003. 

It’s a tie: Co-winners announced for NAAJ 2002 Annual Prize

The *North American Actuarial Journal (NAAJ)* is proud to announce the co-winners of the Annual Prize for the best papers published in 2002:

- David F. Babbel, Jeremy Gold, FSA, PhD and Craig B. Merrill for “Fair Value of Liabilities: The Financial Economics Perspective,” Volume 6, Number 1.

- Luke N. Girard, FSA, FCIA, MAAA, for “An Approach to Fair Valuation of Insurance Liabilities Using the Firm’s Cost of Capital,” Volume 6, Number 2.

The NAAJ Editorial Board Members congratulate the authors for their fine contribution to the body of actuarial literature. 

Broken trophy, intact spirit

Canadian actuaries prove they're not just a bunch of hockey pucks

by Lynn G. Coleman

What could turn mild-mannered actuaries into fierce bad-boy competitors? Why ice hockey, of course.

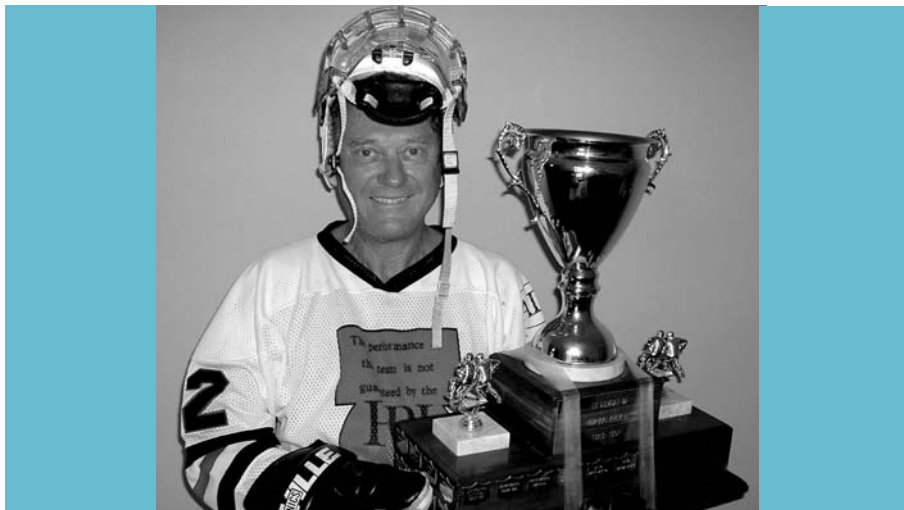
In a recent interview, Fred Thompson, owner of the Actuaries and Insurance Brokers (AIB) hockey team in Toronto, revealed some of the adventures and misadventures of his winning team. It's a story not only about the thrill of victory and the agony of defeat, but also about persistence and plain old fun.

For 24 years, AIB was on a slippery slope, but the team recently clawed its way up to the pinnacle, winning the Metropolitan Toronto Insurance Hockey League trophy for the last two years in a row.

The league has been in existence since the 1930s. At one time, there were 12 teams representing Toronto insurance companies—both life and general. By the 2002-2003 season, that number had dwindled to five: Canada Life, Manulife, AON, London Guarantee and AIB. Thompson says the league's diminution reflects consolidation and other changes in the industry.

We successfully recruited a team every year, but there were some years when our only hope of moving from 12th place to 11th was if one of the other teams quit.

"We started well in our first year as we had several players who played at a very high level. Unfortunately, they were getting pretty old and drifted off almost before the season ended," says Thompson, FSA, a consulting actuary with Thompson Actuarial Limited in Toronto.



AIB team owner Fred Thompson proudly displays his winning team's mended trophy.

"Over the years we have had mixed success. We successfully recruited a team every year, but there were some years when our only hope of moving from 12th place to 11th was if one of the other teams quit."

AIB is not a company team, but a mish-mash of hockey aficionados involved in the insurance industry as consultants, independent brokers or employees of

companies too small to have their own team. Thompson formed AIB in 1976 and has been known from the beginning as its "owner."

"'Founder' or 'organizer' seemed rather pedestrian, and 'star' would be an out and out lie," Thompson says, although, at age 63, he is still playing with the team. "I've

always led the team in negotiated assists," he quips, noting that his teammates fully expect to see him out on the ice with his walker when he's 75.

"I have been recognized as the highest scoring owner in league history. Also I have been awarded 'most valuable owner' for 26 years running," says Thompson. "This is pretty well routine as I am the only owner listed and, hence, only I get to vote."

With the number of teams down to five, odds of AIB hanging onto fifth place were good, but, surprisingly, during the last three or four years, the team rose to become one of the top two or three teams.

"In the last two years, we have been dominant," Thompson says. In 2001-2002, the team won three exhibition games, 16 of 18 league games and swept the playoffs. One game resulted in a tie and AIB lost a game, but he said that was on purpose. It seems that, during the second period of

play against Canada Life, AIB disputed a call by the referee. After much stewing in the locker room (and, naturally, calculating that a forfeit wouldn't affect their

We have so much fun before and after the game that some guys have said they want to join just to hang out in the dressing room.

chances of staying on top), the AIB players refused to finish the game and went home.

The team once again lost only one game during the 2002-2003 season—this time not on purpose—and had one tie. “We averaged about seven goals per game and allowed about 2.5,” Thompson says, achievements similar to the previous year. “We had easily the best goals against average and nine of the top 19 scorers in the league.” And, he gloats, AIB trounced Canada Life 9-0.

When I asked Thompson how he accounts for this sudden winning streak, he said, “We just seemed to get a bunch of good players. Other than myself, we have

no weaknesses.” At his advanced age, Thompson is an outlier; the average age of AIB players is early 30s. And six or seven of the team members played at the junior level (think the minors in baseball).

The victory is even sweeter because Thompson feels the level of play in the league is very professional. “There is no heavy body checking, but everything else goes. We have two referees, full equipment, slap shots and, yes, very occasionally, a fight,” he says.

Over the years, many actuaries have played on the team, but AIB is currently

down to one ASA and two FSAs out of 14 players. Thompson thinks that, given similar athletic abilities, actuaries have an edge in sports because of their intelligence and strategic-thinking abilities.

With AIB on a winning streak, recruitment should get easier. “Now, besides being a very good team, we have so much fun before and after the game that some guys have said they want to join just to hang out in the dressing room.”

Unfortunately, during one of these raucous occasions, one of the players accidentally fell on this year's trophy, smashing it to bits. But, no matter, Thompson says the team taped it back together with hockey tape and it's as good as new—well, almost. 🤞

Lynn G. Coleman is a freelance editor and writer based in Arlington Heights, Ill. She can be reached at lcoleman@colemancommunications.com.

Pension

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Others may continue to exploit the anomaly in current rules, avoiding the balance sheet hit by ensuring they have funded their ABO. The fallout here is that contribution levels will be high and/or volatile, and investors may catch on and apply their own “maximum pension asset” to the firm's balance sheet.

Those who manage to record higher pension costs will be freed (eventually) from the specter of the AML, regardless of funded status.

Working within the system

Curiously, the same smoothing devices that have allowed accounting to stray so far from reality will hamper employers' ability to generate higher pension cost even if they want to do so.

Obviously, more conservative assumptions will increase costs. If actuarial gains ensue, they will directly reduce the unrecognized loss. However, more conservative assumptions—other than expected return on

assets and salary scale—will produce a larger ABO, exacerbating near-term AML issues.

We need to follow the standards. I am not suggesting otherwise. But maybe it's time for a candid conversation with clients about under-accrual.

Tinkering with assumptions is a dangerous business. We are not free to set assumptions to achieve an accounting objective, however worthy we feel that objective to be. Both FAS 87 and our Actuarial Standards of Practice (ASOPs) embrace an individual “best-estimate” standard for setting assumptions (although ASOP 27 identifies a “best-estimate range” for many economic assumptions).

We need to follow the standards. I am not suggesting otherwise. But maybe it's time for a candid conversation with clients about under-accrual. Ultimately, plan costs are independent of assumptions and the truth will come out.

Apart from scrutinizing assumptions, it is worth noting that FAS 87 does not require the protracted recognition that we see for

most plans. It is perfectly acceptable for firms to recognize gains and losses more quickly than FAS 87 requires.

The difficulty, however, is how to get there from here, since adopting more rapid recognition of gains and losses under FAS 87 would constitute a change in accounting principle, requiring a one-time charge equal to the cumulative effect of restating prior costs in the year the new method is adopted.

Calculating the cumulative effect of prior restatements can be onerous. In some cases, however, it is wonderfully simple. For example, calculating the cumulative

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Measuring Madness

reviewed by Tim Giles

So you think reconciling numbers is driving you nuts? Here's a story of literally global dimensions that drove one of its heroes to a nervous breakdown.

At the end of the 18th century, the French Academy of Science decided to define the meter as one 10-millionth of the distance from the equator to the North Pole. Two astronomers were commissioned to calculate, using triangulation, the distance from Barcelona to Dunkirk. One left Paris and headed north; the other left Paris heading south. The latter had inconsistencies in his data that led him to a nervous breakdown.

Adler, an associate professor of history at Northwestern University, makes this a very lively tale, replete with the chaos of the French revolution, bad weather, malaria, hostile peasants and professional jealousies. The Enlightenment desired a universal measure (the measure of volumes would also be tied to the meter) at a time when the foot of a king was abhorrent. The countryside, however, did well with a bushel defined according to the local effort necessary to produce it.

The northern bound astronomer was the erudite and cosmopolitan Jean-Baptiste-Joseph Delambre. He recorded his measurements in a log in ink. The southern bound astronomer was the cautious and scrupulous Pierre Mechain. He recorded his measurements on scraps of paper.

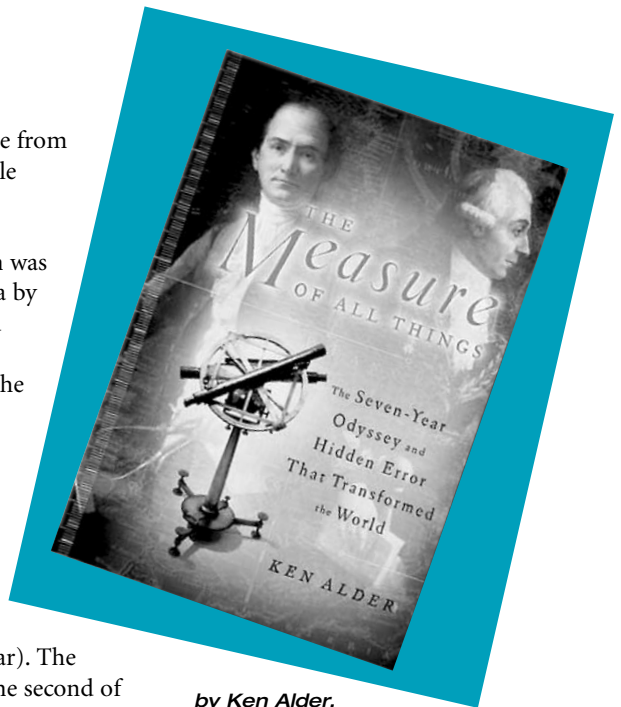
The error

The calculation of the meter involved two measurements: (1) the distance from Dunkirk to Barcelona, and (2) the calculations of the latitudes at those two

locations so that the distance from the equator to the North Pole could be extrapolated.

In December 1793, Mechain was doubly trapped in Barcelona by the war between France and Spain and recovery from an injury. From the terrace of the hotel Fontana de Oro, he took over 10,000 observations over a four-month period. He concluded the latitude of his hotel to be $41^{\circ} 22'47.43''$ (based on Polaris), $41^{\circ} 22'48.38''$ (based on Kochab) and $41^{\circ}22'44.14''$ (based on Mizar). The first two agreed to within one second of arc (or 100 feet), "making the Fontana de Oro the most accurately located hotel on the face of the planet," according to Adler. However, the Mizar data differed by some 400 feet (see Table 1).

A year earlier, Mechain had taken over 10,000 star readings at a nearby fortress, Mont-Jouy. He proceeded to reconcile the two results. He calculated the distance between the two sets of observations to be 1.1 miles (59.6 seconds of arc), but the difference in the measurements (excluding the Mizar data) was 62.8 seconds of arc, a discrepancy of 3.2 seconds or 312 feet. It is about 600 miles from Barcelona to Dunkirk. Today's meter is about .2 millimeters short of ideal. And there are 10,002,290 meters from the equator to the North Pole.



by Ken Alder, Free Press, 2002

The discrepancy drove Mechain crazy. He could not complete his mission. He didn't return home for seven years. His wife joined him, but failed to console him, and he died of malaria on a second expedition to Spain.

Cause of the error

Twenty-five years after Mechain's death, a young astronomer named Joseph Nicollet offered further analysis. He discarded the data for Mizar. Its passage near the horizon was overly distorted by refraction. He recalculated the other stellar heights using more accurate tables of stellar declination that weren't available to Mechain. This recalculation effected a minor improvement.

Table 1: Mechain's Star Readings

Star	Fortress	Hotel			
Mizar	$41^{\circ}21'41''$	$41^{\circ}22'44.14''$			
Polaris	$41^{\circ}21'44.91''$	$41^{\circ}22'47.43''$			
Kochab	$41^{\circ}21'45.19''$	$41^{\circ}22'48.38''$		Measured Difference	Error
Thuban	$41^{\circ}21'45.19''$		Difference		
Average	$41^{\circ}21'45.097''$	$41^{\circ}22'47.905''$	62.808"	59.6"	3.21"

There was a physical defect in the measuring instrument, the Borda circle, caused by excessive use. Mechain had first calculated the average latitude implied by each star and then averaged all the averages. Nicollet distinguished

Nicollet was not so brilliant when it came to picking stocks. He lost his fortune, emigrated to America and mapped the upper Midwest. “Over the course of the next few decades astronomy became something of a bureaucratic science,” says

were presented at the world’s first international scientific conference), which Delambre had neatly organized. Legendre assumed that the earth’s meridian traced out an ellipse; he then used the least-squares rule to find the eccentricity that would minimize the square of each latitude’s deviation from that curve to the Delambre/Mechain data. He concluded that the deviations were caused by the figure of the earth and not the data.

By combining the northern average and the southern average at each location, the difference was reduced to .25 seconds.

stars that passed north of the zenith from those that passed south (these were for Pollux and Elnath, for which Mechain had sparser data). By combining the northern average and the southern average at each location, the difference was reduced to .25 seconds. Adler says, “The meter was flawed because the expedition’s premise was flawed: that the French section of the meridian could be considered representative of the world’s shape as a whole.”

Adler, “in which a staff of junior observers (career-minded young men) and an office full of calculators (underpaid young women) toiled for a senior astronomer who directed their efforts, analyzed their data and then published the results under his name.”

The least-squares method

In 1805, Adrien-Marie Legendre tried out his nascent least-squares method on the world’s most famous data set (the data

Four years after Legendre’s paper, Johann Carl Friedrich Gauss claimed that he had been using the least-squares method for nearly a decade. He too was puzzling over the Delambre/Mechain data, which had been published in Germany on 1799. Though second in print, Gauss had the deeper meaning, showing how likely the curve was the best. Error was quantified and thereby legitimized. ☺

L. Timothy Giles, FSA, lives in Canton, Ga. He can be reached at epi1828@mycobbweb.com.

Pension

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impact of immediately recognizing gains and losses as they occur—or in the following year—is straightforward. A less extreme approach for which the cumulative impact would again be simple is to recognize immediately all gains and losses outside the corridor.

Some firms may find this strategy appealing, inasmuch as they can true-up their balance sheet and avoid the drag on future earnings that amortization of unrecognized losses implies under current accounting. The trade-off is that future costs will be more volatile.

Creative minds will see lots of other ways of working within the system. The point is that it is mistaken to simply throw up our hands and blame FAS 87 for the current mess. We don’t need a new accounting standard to take steps that mirror what many firms have done in the past year with respect to accounting for stock options.

A new pension accounting standard?

FAS 87 is not nearly as bad as is sometimes suggested. It allows, but does not require, significant smoothing of experience, but the AML provides a market value corrective. Parallel concepts—a maximum asset and perhaps a minimum asset and maximum liability—should be added, but a more responsive pension cost will render all of these balance sheet mechanisms less significant.

With respect to pension cost, some modest adjustments ought to mollify the most ferocious critics of the current system:

- Eliminate the market-related-value of assets concept
- Eliminate the 10 percent amortization corridor
- Reduce the maximum period for recognizing gains and losses (5 years?)

- Use the discount rate to calculate the expected return on assets component of cost

This last point reflects sound reasoning from the financial economics crowd regarding intergenerational stockholder equity and the propriety of recognizing unearned risk premiums in advance.

Finally, to help put the FAS 87 critique into perspective, I encourage all actuaries to take a look at FAS 115 (“Accounting for Certain Investments in Debt and Equity Securities”). Here we enter a prehistoric world of “held-to-maturity” bonds reflected at amortized value and “available for sale” stocks and bonds with unrealized gains shielded from the income statement. The point here is that FAS 87 does not stick out among current GAAP standards as uniquely out-of-date. ☺

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The Actuarial Foundation and the Actuarial Education and Research Fund have officially merged

Following a five-year Affiliation Agreement, which allowed for both organizations to strive to unify and align missions and activities, we are pleased to announce the

completion of the merger, effective August 15, 2003.

The “new” Actuarial Foundation will continue its focus on youth education and consumer education, as well as contribute to the long-term health of the actuarial profession through support of research, actuarial education and scholarships representing all practice areas of the profession. The Board of Trustees has been expanded to include a broader representation of actuaries from a variety of specializations. The number of non-actuaries with management operations expertise has also been expanded.

- Our mission: “Utilize the unique skills and abilities of actuaries to increase public understanding, address societal problems, and advance actuarial knowledge.”
- Our vision: “A secure financial future for an educated public.”

While there are other charitable organizations advocating purposes similar to the Foundation, there is virtually no vehicle that does so in a way that highlights the skills, abilities and contribution of actuaries for the benefit of society as a whole. ☺

Mentors needed to advance student achievement programs

The Actuarial Foundation is actively seeking actuarial volunteer mentors for its Advancing Student Achievement (ASA) program, which brings actuaries and educators together in voluntary partnerships to enhance student mathematics achievement.

More volunteer mentors are needed for current ASA programs in the following communities: Phoenix, Ariz., Houston, Tex., Birmingham, Ala., St. Louis, Mo. and female actuaries for a girl’s program in Schaumburg, Ill. All of these mentoring programs combine actuaries’ expertise with a sense of community spirit. It’s all about kids, mentoring and real-life math! If you can spare a relatively small amount of time to assist in an estab-

lished math-mentoring school program, please contact the Foundation at 847.706.3535 or asa@actfnd.org. ☺

—Van A. Jones, FSA and student



Letters

continued from page 3

There is a tremendous amount of talent, experience and knowledge residing in the retired population; employers need to ask whether they can afford to ignore all that. I suggest further that we need to consider whether second careers will become important and necessary, for society as well as for the individuals.

In contrast to the not-so-distant past, living 20-30 years after retirement is not unusual. This means that one might be “retired” one-third of a lifetime. Some will enjoy good health and have sufficient resources to travel, play and so forth, but others will lack one or the other. Even with good health and adequate financial resources, is it really a good thing to simply “play” for that long a time? Is

it good for society? Can we afford to have a significant portion of the population being retired for one-third (or more) of their lifetime? There are monetary costs and intellectual costs that represent challenges for the actuarial profession.

Finally, a point that should be of interest to financial actuaries: When people routinely live to ages 90-100, the chance of experiencing multiple economic downturns is greater. While it may not be appropriate to compare the current situation with the depression of the 1930s, it was and is quite dramatic for a large fraction of the population. It was a risk that few retirees anticipated.

It seems, however, that unlike the 1930s when nearly everyone suffered, the effects of the

current downturn are very uneven. Both the extended time span and the unevenness of the impact of the downturn make financial planning more difficult both for individuals and for companies. The issue raised by Coppock and McArdle is just one aspect.

Is the actuarial profession looking at these problems on a sufficiently broad scale?

Donald E. Myers
Emeritus Professor of Mathematics
University of Arizona
Tucson, Ariz.

<http://www.u.arizona.edu/~donaldm>

Fourth quarter 2003 events

Several continuing education events this fall explore the practical applications of investment and asset liability management theory, and detail the growing influence of international accounting standards on insurers. Complete agendas and registration information can be found under "Meetings/Seminars" at www.soa.org.

Investment Actuary Symposium

The SOA and the Canadian Institute of Actuaries (CIA) are jointly producing the Investment Actuary Symposium in Toronto on Nov. 9-11, 2003, at the Royal York Hotel. The three-track program features a general session, "Economic Outlook for a Post-Everything World" delivered by Warren Jestin, and breakout sessions on "Revisiting the 60/40 Asset Allocation," "Credit Risk Measurement," "The Pension Perfect Storm," "Capital Market Hedging" and many others. The program and registration details can be accessed through the SOA Web site or the CIA Web site (www.actuaries.ca).

The adoption of international accounting standards (IAS) is an unavoidable consequence of the globalization of the insurance industry. The SOA and Ernst & Young LLC are jointly sponsoring a seminar on IAS for insurers that will be held on Nov. 17-18, 2003, at the Omni Berkshire Place in New York. Seminar participants will learn the major valuation alternatives for assets, insurance and investment contract liabilities and understand the latest direction of the International Accounting Standards Board (IASB).


The impact of the standards on financial statements will be illustrated by many case studies that will help the participants get a jump start on IAS concepts and related business implications. Participants also will learn more about the current thinking and key concerns of major insurers and actuarial bodies around the challenges of implementing IAS as well as wider risk and capital management applications.

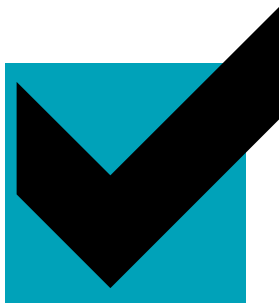
ALM course

Notwithstanding the well-deserved attention enterprise risk management (ERM) has received of late, there has been a lot of activity in the area of asset/liability

management (ALM), which remains a vital part of overall ERM. SOA and Nexus Generations will present a three and a half day course, "Asset Liability Management—Techniques and Practices for Insurance Companies" to be held at the Hilton Pointe South Mountain Resort in Tempe, Ariz., on Dec. 7-10, 2003.

Not so long ago, ALM was synonymous with interest rate risk management, and, while interest rate risk remains a focal point of ALM, the scope today has broadened considerably. Using many case studies, course participants will learn how to implement ALM as a strategic decision-making framework to improve the company's competitive advantage, to ensure that appropriate policies and control procedures are in place, to practice advanced techniques for measuring risk exposure and to identify the limitations and pitfalls of various risk metrics. They also will learn how to communicate risk exposure effectively.

For additional information on these or other seminars, contact John Riley, SOA's managing director of continuing education, at jriley@soa.org. 



The **Washington, D.C.**

Spring Meeting Record Sessions

are now available at

www.soa.org/bookstore/record.html. 

What's next?—DB plans for the long run

continued from page 3

- When Microsoft hires a talented software designer with a fresh idea, we may expect Pareto enhancement (pure pie-growing) because the idea is leveraged by Microsoft's other resources.
- When our two risk-averse actuaries go to Las Vegas—no doubt to earn continuing education credits at a conference—they may enjoy some

rely on something less—a bundle of features that fits easily into a DB framework and is hard to match using other financial vehicles.

Annuitization

Insurance of various sorts may be used to increase the social welfare of groups through risk pooling. A classic example holds that n risk-averse persons would rather pay $1/n$ th of the fire loss on n simi-

annuities, whether actually purchased from an insurance company or provided as a normal form under a DB or Defined Contribution (DC) plan, can be priced more attractively. If the plan mandates annuities, still better pricing may be achieved.

Because saving for retirement gets us only part way to the goal, we should reserve our best incentives for savings combined with periodic payments for life.

low stakes gambling despite its negative expected return (they do not count cards). In this case, the Pareto benefit comes in the form of entertainment—I describe my own enjoyment of blackjack as a price paid for repetitive small doses of adrenalin.

- Almost every voluntary business contract and transaction is likely to be Pareto positive, at least as between the contracting parties. But we need to cast a discerning and professional eye towards third party victims. Many badly bargained DB plan benefits enhance the welfare of managers and employee representatives at the expense of shareholders and taxpayers of today and tomorrow, among others.

No bigger pie, no Pareto. But be not too literal, as the altruism and entertainment examples show; not all utility is monetary.

Focus on substantive virtues

We must look to find Pareto-enhancing features that exist in DB plans and we must strive to develop still others. We hope to identify features deliverable exclusively by DB plans, but we may have to

lar homes than bear the entire risk on one. Because each homeowner already bears the latter risk, they purchase insurance even though the price exceeds $1/n$ th of the expected loss.

Anti-selection (which underwriting seeks to mitigate) and moral hazard (held in check by claims adjustment) represent deadweight costs that arise from imperfect information and attach to the insurance process. By definition, deadweight costs destroy value and are the antithesis of Pareto improvements. We are tolerant of these costs because they are cheaper than alternatives and lead to a net utility increase for each risk-averse policyholder.

Longevity risk is borne by all who retire. In a rational world with perfect information and no deadweight costs, each retiree would purchase an annuity whose price would perfectly reflect her mortality-risk-adjusted fair value. In the real world, by the time one is old enough to retire, private health knowledge leads to substantial anti-selection; individual annuities are purchased only by those who deem themselves very healthy. Because insurers know this, individual annuities are typically priced to yield no net utility gain to a majority of potential annuitants. Group

But unhealthy employees approaching retirement age may still find the implied annuity price excessive and non-utile. They, and others for other reasons, will select lump sums if offered. Commitment to annuitization early in one's career (under a plan that mandates annuities) serves to increase expected utility before the individual has acquired too much private health information. Of course, this theoretical utility gain requires information—at least the employee would have to understand that overall plan benefits were higher expressly because lump sums are forbidden. While it is not reasonable for us to expect such information and comprehension to inform the citizenry, actuaries and policymakers should be able to recognize that our collective body politic is well-served by mandatory annuitization.

How does this influence the overall objective defined by this article? We may ask society to endorse mandatory annuitization via tax favor; DB and DC plans that deny lump sums may be encouraged by tax advantage. As a people, we have been willing to subsidize the savings of our fellow citizens so they do not burden us in their old age. Because saving for retirement gets us only part way to the goal, we should reserve our best incentives for savings combined with periodic payments for life.

I recognize that choice is also utile. Society need not deny choice, but it is economically rational to target public policy in favor of Pareto-efficient systems. Companies whose employees place a high utilitarian value on choice may still offer choice to their employees, thereby increas-

ing shareholder value. But they cannot demand that societal tax subsidies treat them as well as companies whose plans better serve the public good.

Fortunately, financial engineering has developed ever more efficient tools to allow individuals to exercise choice in their financial arrangements. While this will allow individuals to rearrange their personal assets, they must still bear the cost of such selection and anti-selection; this is the true venue for individual responsibility; personal responsibility extends beyond asking the state to subsidize one's costly preferences.

Contracting

Because of the ERISA Game (*Reinventing Pension Actuarial Science*, Pension Forum, January 2003), actuaries have not recently focused on the DB plan as a contract between shareholders and employees. Too often we have had to focus on redesign as a compliance necessity. Nonetheless, some post-ERISA design inventions may meet our Pareto-enhancement objective.

With an increasingly mobile workforce, employers are reluctant to invest in employee training because the fruits of that investment may be harvested by other employers. Thus contracts that retain employees have the potential to permit training, which in turn makes the

With an increasingly mobile workforce, employers are reluctant to invest in employee training because the fruits of that investment may be harvested by other employers.

employee more productive, thereby enriching the employee and the shareholders. Early DB plans had vesting periods that formed part of the retention contract. Although ERISA and its later amendments have diminished this contract opportunity, part of our effort to redefine Pareto-effi-

cient contracts may have to include persuading society that leaving some benefits unvested is a good thing. Consider a five-year class-year vesting for DB plans that fully vests at age 55; this is arguably an efficient retention contract that encourages employees and employers to make extended commitments.

The choice of age 55 for fully vested benefits is arbitrary, but I am using 55 to represent the age at which a cohort's productivity has passed its peak and orderly retirement has become more desirable than retention. As an example of the superiority of DBs versus DCs in facilitating exits, consider the late career employee who reached age 55 in the year 2000 expecting to retire shortly because her 401(k) plan balance had soared. The subsequent recession has made this employee likely to defer her retirement date at the same time that the shareholders have become more anxious to encourage her to retire. With the fixed promise of a DB plan, this dilemma is ameliorated. Additionally, shareholders may offer an "open window" plan to cut employment during a recession without incurring all of the ill will that may attach to more abrupt terminations.

Recent innovations in "phased retirement" and Deferred Retirement Option Programs (DROP) may or may not be

providing Pareto enhancement. As I warned in the final Pareto bullet point, we need to be wary about two-party contracts that derive their value from third parties.

Cash balance and other hybrid plan designs may be seen as creative ways to redefine the DB contract in a fashion that increases society's pie by shifting compensation from older to younger workers. It is at least as likely, however, that such shifting changes the relative positions of firms and worker cohorts without Pareto enhancement. Certainly much of the publicity surrounding cash balance plan conversions has not served to revitalize DB plans in society's eyes.

Our collective design creativity has been a mixed bag in the years since ERISA. Too much effort has been siphoned off by compliance needs. But some innovation has had the potential to improve productivity through contracts that retain and motivate employees while they are most productive, and that commit employees and employers to an orderly retirement transition.

Conclusion

With greater transparency comes the threat of an early death for DB plans. As actuaries who believe that DB plans still offer value to our society, we must focus on making the value proposition to society. Efforts to fight against transparency wastes energy that should be directed to the pursuit of better designs. We must then sell these designs to society in exchange for tax benefits and streamlined regulation.

I wish to thank the following FSAs—Larry Bader, Dave Kass and Tom Lowman—for their thoughtful comments. ☺

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Academic infrastructure principles approved

During its June meeting in Vancouver, B.C., the SOA Board of Governors approved, without dissenting vote, a set of five principles submitted by the new Task Force on Academic Infrastructure. The principles, designed to guide the future work of the task force, are:

1. The subject matter of actuarial science is, and should be regarded as, an academic discipline.
2. The presence of a strong academic base for a profession benefits not only the profession collectively, but also its members individually.
3. Recognition and enhancement of actuarial science as an academic discipline are crucial if actuaries are to be recognized “as the leading professionals in the modeling and management of financial risk and contingent events” (as mentioned in the SOA’s Vision Statement).
4. The development and enhancement of actuarial science as an academic discipline

can contribute positively to SOA’s process for identifying persons qualified to receive our professional designations.

5. The SOA should maintain its role of qualifying new members into the profession, at least in part through a series of

Approval of these principles by the Board, in and of itself, does not imply any specific functional changes at this time. It merely establishes the framework within which future specific proposals for specific functional changes can be

The presence of a strong academic base for a profession benefits not only the profession collectively, but also its members individually.

rigorous examinations. SOA should approach its qualification function in a fashion that recognizes and supports the academic nature of the discipline and the educational value of studying actuarial science in an academic setting.

In the considerable discussion preceding the vote, the Board stated its belief that, in general, enhancing the academic base of the profession and the level of academic education experienced by our entering new members is in our best interests for the future of the profession. In particular, the Board agreed that an enhanced academic visibility for the profession would contribute significantly to our goal of becoming more influential and accepted in wider fields such as risk management and stochastic finance.

brought. The Task Force on Academic Infrastructure will continue to study this important issue, and will be bringing further recommendations to the Board at its meeting this month in Orlando.

We would like to hear from the membership on this important matter. Any thoughts you care to share with the task force regarding the role of academia in actuarial education will be very much appreciated. ☺

We want to hear from you!

We need your feedback on the role of academia in actuarial education. Please direct your comments to Richard L. (Dick) London, FSA, director of actuarial science at the University of Connecticut, Storrs, and the SOA’s vice president for actuarial promotion. He can be reached at london@math.uconn.edu. ☺

Improving our Corporate Governance

Following Enron and other failures, all major organizations are examining their corporate governance, both structure and process, to better protect various stakeholders. Since the SOA's Board of Governors is not immune from the possibility of less than stellar board performance, we are now undertaking a complete "governance audit" with the help of an external consulting firm that specializes in strategic governance issues.

The consultants have already conducted a large number of one-on-one interviews and focus groups with many persons, including current and former Board members, section representatives and other volunteers in key SOA positions as well as leaders of other actuarial organizations. This input was discussed by the Governance Audit Task Force (GATF), headed by Board Vice President Brad Smith, in mid-August.

In general terms, many felt that our current 28-member Board was too large and not sufficiently efficient but has made significant improvement in the recent past by focusing more on strategic issues and less on operational aspects. The organization of the Society (committees, practice areas and sections) was generally viewed as too complex, resulting in a duplication of efforts that require a significant commitment to coordination.

Some of the key areas emerging from the governance process include:

- The traditional volunteer/staff partnership employed by the SOA.
- The size and composition of the Board of Governors.

- Roles of the President Elect, President, Past President and Penultimate President.
- Leadership development throughout the organization.
- Nominating and election processes; representation of constituents to improve the link between practitioners and the governing body; voter turnout.
- Committee structure and functions, recruiting volunteers, transitioning new committee chairs into their role.

Important initiatives

The GATF reviewed the feedback and set the design criteria for the project. Primarily, these criteria state that the SOA leadership should be able to tackle tough issues of importance to the profession. It also should empower volunteerism and retain the energy/enthusiasm reflected in the SOA sections today.

As an organization, we need an action-oriented bias to move decisions into actions quickly and a simpler (more understandable and explainable) organizational structure. There must be a clear process of accountability regarding the Society's direction and very clear definitions of responsibility and authority.

Finally, we need to foster a broader sense of belonging, with the membership being connected to leadership at all levels. After all, the leaders of the SOA are just ordinary members who play key roles for a temporary period. They need to be able to reflect the issues and concerns of ordinary members while they hold office. This is in addition to their role in setting the future agenda for the profession, an agenda that is established through the strategic planning process.

I expect that we will see a number of recommendations from the GATF that include:

- Reducing the number of Board members.
- Strengthening the mechanism for input to the Board from the various areas of practice.
- Incorporating the strategic planning process as a core Board activity.
- Reducing the number of committees.
- Getting more members involved in committees through more rapid turnover.
- Increasing the accountability of sections to take responsibility for general SOA functions.

Overall, I hope to have all committees and the Board operate in an efficient manner that makes best use of the volunteer and staff talent. I'm proud to belong to a profession in which giving back to the profession is so highly valued. However, we need to optimize coordinating that talent with SOA needs in order to minimize the cost to employers of supporting such significant volunteer efforts. A more formal volunteer registration process, together with more rapid turnover, can allow more members who wish to be involved to play more significant roles.

As I depart the office of President at the end of October, I wish the new Board, and in particular your new President, Neil Parmenter, all the best in driving our organization to new heights. It's been a real privilege to serve all members of the SOA as your president over the past year. 🙏



Harry Panjer