



SOCIETY OF ACTUARIES

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Actuary

Actuaries interact with the public

by Charles Habeck

"An audience of elementary school children is one of the few groups I have found that is not yet jaded against insurance," states Jerome E. Tuttle, senior vice president and actuary at Mercantile & General Reinsurance Company, Morristown, New Jersey, in his response to questions raised in an October 1993 *Actuary* article on actuaries and the public.

Tuttle was one of six actuaries to respond to the request for accounts of experiences in giving talks to the public. Each year, he visits his children's elementary school classes to give a talk about math that relates to his work. His favorite talk involves a hurricane simulation game that he has presented both at the first-grade level and at the New Jersey math teachers conference.

The game typically covers several "years" or hurricane seasons. Each player receives Monopoly® money and a Monopoly® house and is given various hurricane data to think about. "The main issue in the game," Tuttle said, "is whether the students should buy hurricane insurance."

Probability concept demonstrated

In a Math Awareness Week for grade school students last year, Mark Rowley, associate actuary at The Principal Financial Group, Des Moines, opened his presentation with gambling-type examples. Once the students grasped

the concept of probability, he progressed to the life and death case. A couple of students learned enough to be able to find the net premium, given a certain probability of death.

To reward their efforts, Rowley gave out "Ask An Actuary" buttons to the students. About a week later, one child was seen still wearing the pin on her jacket, and very proud of it.

Encouraging careers through example

Making use of her varied math background, Joan Ogden, health care consultant in Salt Lake City, builds her classroom presentations on the students' own experiences. She is a "founding mother" of the Utah Math/Science Network, whose purpose is to encourage young women to persevere in math and science. The network provides role models and career information to achieve this goal.

Ogden may speak to a class first about grading "on the curve" and then move to the concept of the "normal curve" and the need for a proper size sample. If time remains and the group is able, she describes other curves, such as the sine curve, and weaves into her talk examples from her earlier work in a pulsation dampener engineering firm and in the Apollo space program.

The presentation ends with a discussion of the need for good oral and written skills and the need to find and know how to use available data

resources. All this occurs in one-half hour, followed by questions. Ogden gives talks once a month during the school year. In addition, she is now co-authoring a book to help benefits managers assess their companies' health care programs, including how to use an actuary to advantage.

Making content fit audience

An important aspect of public presentations — tailoring remarks to the needs of the audience — is related by Paul J. Sulek, vice president and chief actuary

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EDITORIAL

The pension actuary setting an interest assumption

Sitting on the horns of many dilemmas

by Mary Hardiman Adams

In the many years I spent as an actuary providing consulting services to defined benefit pension plan sponsors, I never met a pension actuary who did not want a plan's funding to be at least at a level that would provide the benefits promised under the plan's terms. Thus we have a basic premise:

The actuary uses actuarial assumptions and methods deemed suitable by the actuary in determining the funding of a pension plan.

Lately we have been hearing about plans that are significantly underfunded because the actuary has been using interest assumptions that were too high. Is this true? Is some current underfunding really the fault of the actuary?

External restraints arising from laws and regulatory authorities limit how much the actuary can control the methodology and assumptions used for a particular valuation. Some of these restraints have been modified by court decisions. Some of the major issues, particularly those related to interest assumption selection, are included in the following dilemmas. (Note: It is usual to call the interest assumption the "valuation interest rate" when determining contribution/funding levels. For financial reporting, however, the "interest rate" is the expected return on assets; the "discount rate" applies to the determination of benefit obligations.)

Dilemma 1

The Internal Revenue Code and its regulations impose restraints under which:

a. Loadings and contingency reserves are prohibited.

b. If an actuarial assumption used for a plan's funding produces a gain over a period, such as five years, the offending assumption is challenged, and contributions may be disallowed.

c. Maximum deductible contributions are prescribed. These include a maximum funding limitation that, in turn, involves using an interest discount assumption that can be higher than the one the actuary would otherwise use (producing lower liabilities).

d. Excise taxes are imposed on a plan sponsor if contributions exceed the maximum deductible amount.

Dilemma 2

However, the tax court has ruled that some conservatism is appropriate. For example, Judge Clapp's Opinion of July 14, 1992 (Wachtell, Lipton, Rosen & Katz, David M. Einhorn, Tax Matters Partner v. Commissioner of Internal Revenue) acknowledged that actuaries need to balance the current economic environment with the long-term and largely unpredictable nature of pension obligations and with the security needs of plan participants.

Judge Clapp also noted that the actuary's perspective is very different from an economist's. "Congress did not entrust the nation's tax-advantaged retirement system to hypothetical returns that the markets 'should' bear. That task was left to actuaries whose background, training, orientation, and philosophy is well suited to the task. As practitioners specifically enrolled under the scheme established by Congress to create a smooth funding pattern assuring that benefit obligations will be met, they necessarily have a different perspective. The selection of an interest rate assumption is an actuarial judgment made in

accordance with actuarial principles materially different from financial market performance forecasting.”

Dilemma 3

The “Retirement Protection Act of 1993” (H.R. 3396/S.1780) was introduced in October 1993. This act provides for strengthening (some feel not enough) contribution requirements to defined benefit plans, particularly those that have low funding levels. While action is not expected until well into 1994, a step toward the goal of meeting plan participants’ expectations has been taken.

Dilemma 4

The Supreme Court on December 13, 1993, in an opinion written by Justice Ruth Bader Ginsberg, ruled that a portion of the assets in the general fund under some insurance company contracts may be subject to ERISA’s fiduciary rules. As I understand the conclusions of this summary judgment, if, under a group annuity (GA) or group immediate participation guarantee (IPG) contract that provides guaranteed and supplemental benefits, the assets held in the insurance company’s general account are in excess of the amount needed for guaranteed benefits, then that excess is covered by ERISA fiduciary rules.

For a few years, actuaries will have to set interest assumptions for general account pension plan assets without knowing whether or how life insurance companies will change their interest crediting policy, or even whether the companies will be willing to have this money in the general account at all.

Those in insurance companies’ group pension and investment areas likely will have problems that won’t be resolved quickly. It took four years to get to this summary judgment; no guess can be made on the time it may take the trustee’s suit (John Hancock Mutual Life Insurance Company v. Harris Trust & Savings Bank) to wind its way through the courts.

Dilemma 5

The Financial Accounting Standards Board (FASB) requires disclosure of certain pension cost and pension obligation figures. These are management numbers. The “instruction” for selecting the interest rate applicable to the assets was to use a long-term expected rate of return; the instruction for selecting the discount rate used to determine the obligation was to use a “settlement rate.” The discount rates selected by plan sponsors were based on items such as 30-year treasury bonds, the interest rate used in computing group annuity purchase rates, or some other chosen index. According to a letter from the SEC to FASB in September, however, the discount rate should be determined in the same manner as that under FAS No. 106, i.e., the rate for Aaa (or Aa) bonds (now at about 7%). The actuary can question long-term considerations, but technically this has nothing to do with funding (but might it?).

Dilemma 6

The plan sponsor is the one who must make the contribution to the plan. Just as actuaries always want to see plans well funded, I have never heard a plan sponsor indicate that a low level of funding was a goal. Plan sponsors, however, are business oriented, whether they are profit-making organizations, nonprofits, small, large, industrial, service, governmental, or union/management. They all have cash flow considerations, and they all have a bottom line.

Plan sponsors want adequate plan design; they want adequate plan funding. However, in plan design or funding, they do not want, nor can they afford, to exceed their competitors’ or their peers’ by any significant degree. They do not want to over-contribute; they do not want tax disallowances; they do not want to pay excise taxes. To avoid these situations, a sponsor can put pressure on the

actuary to reduce contributions by employing a higher interest rate than the actuary would have selected (or, without success, even higher than a rate within the actuary’s range of reasonable long-term rates).

In addition to all these external forces, actuaries face a further fact-of-the-moment. Interest rates have declined 1%, from about 8% to 7%, on top grade bonds in 1993, but the stock market has gone up by more than 10%. What kinds of special consideration does this call for?

At the time this issue of *The Actuary* is published, many pension actuaries are considering the valuation interest rate(s) that might be used for actuarial valuations to determine 1994 contributions (likely having completed the valuation of 1993 year-end obligation for financial disclosure, which, in turn, means that the discount rate for 1994 pension cost also is decided). Many problems can be involved. The most troubling is the significant upward effect on liabilities and contributions of a decrease in the valuation interest rate and on pension cost and disclosed pension obligations of a decrease in the discount rate. The increases in unfunded amounts is likely to be noted.

It is clear that this is not the fault of the actuary, who still has questions. *Are the current low rates temporary? Were past assumptions really too high? What is the appropriate rate to use right now?*

In spite of some poor press, actuaries have been doing a great job in coping with today’s dilemmas, and I believe will continue to do so.