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IMMUNIZATION WITH (ALMOST) NO MATHEMATICS

by Irwin T. Vanderhoof

Having talked (and written) about immunization for years, I've found a glazed look followed shortly by loud snores to be the normal audience reaction. Yet, after three or four of these lectures, faithful listeners tell me that the subject is simple and they can't understand why they ever had a problem. So, with some concern about disturbing readers' sleep habits, I offer a simple illustration requiring only high school algebra rather than the ordinary and stochastic calculus that has been applied to this subject. Once a simple example is understood, the elaborations that now stud actuarial and financial literature become comprehensible.

Illustration

Assume that today's interest rate for all maturities is 10%, that you now have \$1,000 and that you need \$1,100 one year from now. Assume further that the only investments available are a money market fund, where interest rates change daily, and a two-year obligation, without coupon, that matures for \$1,210. How can you invest your money so as to be assured of \$1,100 in one year regardless of changes in the interest rate?

Needing to avoid the losses that may ensue if either you invest short and interest rates fall, or if you invest long and interest rates rise, what do you guess to be the right investment strategy? You are absolutely correct! You have instinctively made the right decision—to invest half your money short and half long. Let's see why.

If the interest rate remains at 10%, the following expression displays the identity between our investments and

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"THE EDUCATION AND TRAINING OF ACTUARIES"

The above is the title of an extraordinary paper presented to the Institute in London in January 1982 by W. W. Truckle, F.I.A., Director of that body's Actuarial Tuition Service. Written to provide a framework for oral and written discussion, it features questions rather than opinions.

This summary is limited to subject headings and the questions that end each section, but we cannot resist giving also the apt quotations Mr. Truckle has picked to headline each of his topics. For his paper as a whole he quotes Francis Bacon: "I would live to study, and not study to live."

(1. is an introductory section.)

2. Policy

2.1 *What an actuary needs to know*

"A smattering of everything, and a knowledge of nothing"—Dickens

Ques.: What are the limits of knowledge to be demonstrated by a qualified actuary, distinguishing between essential subjects (to be examined) and incidental subjects (to be treated as post-examination education)?

2.2 *Adaptation to change*

"Knowledge advances by steps, and not by leaps"—Macaulay

Ques.: How do we ensure that developments in the actuarial and allied fields are adequately monitored and tested?

Ques.: Do we need to clear a route by which the results of research into new ideas are filtered into the educational and examination system so as to create and maintain a momentum of change?

2.3 *The scope of actuarial education*

"I don't know why they make all this

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COMMITTEE ON ELECTIONS INVITES VOLUNTEERS FOR LEADERSHIP

The Committee on Elections cordially invites any Fellow who would like your availability as a nominee for election to the Board of Governors to be drawn to our voters' attention on this year's first ballot, to write to its chairman (Julius Vogel, Senior Vice President & Chief Actuary, Prudential Insurance Company, Newark, NJ 07101) giving a brief summary of your background and accomplishments. You should do this before May 7, 1982.

In 1981, for the first time, a "reference list" of over 70 names, compiled on specific criteria having to do with past services to the Society, was offered as possible nominees for the Board. This year's committee will repeat this procedure, and will include in that same list such names from among those who respond to this invitation as the Committee picks on the strength of the material those volunteers submit. The list won't identify which actuaries volunteered their names.

Service on the Board of Governors is for a three-year term and requires attending three or four Board meetings a year. Meetings, frequently held on weekends adjacent to Society meetings, may last a day or a day-and-a-half. Board members (or their employers) pay the costs of attending these meetings. Board members occasionally serve on special committees that require additional travel and correspondence. Board service necessitates careful advance review of lengthy and detailed agendas.

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