

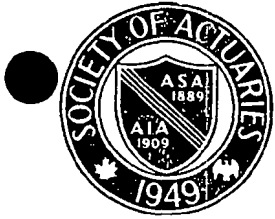


SOCIETY OF ACTUARIES

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RISK VENTURES

by Cecil J. Nesbitt

A Conference on Capitalization of Risk Ventures, sponsored jointly by the Graduate School of Business of the University of Wisconsin and by the Society's Committee on Research, was held October 21-23, 1971 in Madison, Wisconsin. The format of the Conference consisted of three invited lectures and their discussion, a general session on aviation liability insurance, and a general session in which three contributed papers were presented. There were approximately 100 participants including a number of leading members from Europe, the Casualty Actuarial Society, and the University of Wisconsin.

In the first invited lecture, Professor Hans Buhlmann of Zurich gave some wise reflections concerning the reserve needed to reduce the probability of ruin to a given level. He also discussed the effect of taking interest into account for the risk reserve and commented that with a sufficiently large volume of expected claims the effect of interest is negligible because the interest rate per unit of operational time is then small. Dr. Hans Gerber, also from Zurich, followed with a paper "On the Discounted Compound Poisson Distribution" which also considers how to take interest into account in risk theory. This had led him to come up with a "liberal" definition of ruin where hope is not abandoned until the risk reserve is in such a state of deficit that it cannot be restored even if all future premiums were applied to it.

Dr. Hilary Seal entertained the Conference with a discussion of the numerical calculation of three basic formulas of risk theory. In order to get the probability distribution function for aggregate claims, it still seems necessary to go to some transform image function and,

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19th INTERNATIONAL CONGRESS

OSLO, JUNE 19-24, 1972

Arranging an International Congress is far from a simple job, even the elementary chore of providing accommodation for nearly 1700 participants. Add to this the scientific and technical parts of the program. The Organizing Committee for this Congress with Mr. Paul Qvale as Chairman and Mr. Halvor Løken as Secretary seems to have done a thorough job from the detailed announcement of the Congress activities just received.

The Scientific Program could hardly be more topically up-to-date. Such matters as

- (1) Life and Pension Insurance with Variable Sum Assured and Variable Premium;
- (2) Methods for forecasting the development of an insurance company during the next ten years;
- (3) Private Pension Schemes and Social Insurance; and
- (4) the National Reports on the Government Control and Supervision of the Private Insurance Industry

are items of immediate concern to actuaries on the North American continent.

The social events and excursions are always a highlight of the Congresses. Our Norwegian friends make mention of some of the attractions and state categorically (how rare for actuaries!) that "Fine weather has been booked."

The Norwegian actuaries and their wives have been attending language classes to brush up their knowledge of the Congress languages. We hope the Canadian and American actuaries have been brushing up their Norwegian!

Finally for the non-attenders, copies of the proceedings may still be purchased and any reader interested should get in touch with Mr. E. A. Lew. □

ACTUARIAL FEATS AND FOIBLES

by M. B. Hutchison

At their November, 1971 meeting, the Younger Actuaries Committee of the Canadian Institute of Actuaries crossed the generation gap to study the evolution of our profession, through the careers and philosophies (both public and private) of some of the actuarial giants and oddballs (frequently synonymous) of the past. The featured speakers, Mr. Benjamin T. Holmes, Past President, Canadian Association of Actuaries, and Past President, Society of Actuaries; Mr. George Ryrrie, Past President, Canadian Association of Actuaries, and Mr. Arthur Pedoe, Past President, Actuaries Club, themselves candidates for inclusion in at least the former category, provided both an informative and entertaining evening, and some fascinating insights into actuarial idiosyncrasies.

The meeting yielded a number of memorable "words to live by," some of which should undoubtedly be considered for inclusion in the *Guides to Professional Conduct*.

• *Blackbridge on risk theory*

"Poker is a game for gentlemen and a straight flush is to be respected not because you make money on it (I have never seen anyone make money on a straight flush) but because it prevents four aces from being absolutely the winning hand, and thus relieves gentlemen from the necessity of betting on a certainty."

• *Hunter on the presentation of papers*

"There will be ten papers presented at this meeting, nine by myself and one by Mr. Robert Henderson."

• *Kilgour, on the need for surplus in a mutual company (in answer to a question from a shareholder at an an-*

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Risk Ventures

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from knowledge of the latter, to return by a computational inversion process to the desired distribution function. Techniques for the inversion process, such as the Fast Fourier Transform, are becoming increasingly efficient and tend to outmode methods such as Esscher's approximations.

The third invited lecture was presented by Dr. Harald Bohman, President of the Swedish Actuarial Society, under the title, "A Mathematical Model of Insurance Business Designed to Control Equity, Solvency and Profitability in the Business." He considers that a mathematical model is necessary in a management information system. He illustrated the insurance business model by analogy with a water system with three main sub-systems for direct business, reinsurance accepted, and reinsurance ceded. Each main sub-system is further subdivided into systems for "equity groups." Means are provided to control equity, solvency and profitability. Thus there are adaptive mechanisms built into the model.

A highlight of the Conference was a general session on aviation liability insurance. David Halmstad and Edward Lew presented an outline and tables from an extensive simulation study of such insurance with respect to passengers on jumbo jet aircraft. This is in anticipation of reinsurance needs against jumbo jet plane crashes where deferred settlements may run in excess of \$125,000,000. Large amounts of capital are required for such a reinsurance venture, and the large life insurance companies are a likely source. The simulation study was based on a conservative model and it is hoped that it provides the beginning for a participating premium rate structure. A second analysis of the capital requirements for insuring airplane passenger deaths was presented by John Boermeester and Newton Bowers. In their essentially experimental study a comparison is made of results obtained by simulation and by the Normal Power (Cornish-Fisher) approximation.

Two other contributions were "Applications of Moments for the Collective Stochastic Process" by John Beekman and Newton Bowers, and "Collective Risk Models with Investment Fluctuations" by Clement Jackson.

Vigorous and wide ranging discussion

followed the lectures and presentation of papers and the presence of so many European leaders in risk theory gave a special atmosphere and authority to the Conference and an unusual opportunity for exchanges between our own and European researchers. The Conference provided a step forward in bringing the theory of risk into closer contact with our actuarial practice.

This Conference, the sixth of a series, saw the end of Ed Lew's Chairmanship of the Committee. He has been Chairman since its organization in 1963 and to his enthusiasm and tireless efforts must be attributed the success of the Committee's work, including the various conferences. The value of Ed's work was properly acknowledged by the tributes paid to him at the Conference dinner.

Plans for distributing copies of the proceedings of the Conference are under way and will be announced in due course. □

Letters

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"Beta" Concept

Sir:

Apropos Bill Dreher's article, "New Horizons" (*The Actuary*, December 1971), any actuary heeding the call of investment-related work will quickly confront *beta* and other measures of investment uncertainty that so many purveyors of investment performance services use in discussing investment risks for pension funds.

The most clearly written description of *beta* and related concepts is contained in J. Peter Williamson's *Investments: New Analytic Techniques*, 1970, New York (Praeger Publishers, Inc.). Actuaries who have struggled with the ponderous literature on performance and risk measurements, portfolio and stock selection, security analysis, will find this lucid book a sheer joy to read.

For insight into the current popularity of the *beta* concept on Wall Street and the flavor of the controversy it has evoked, see the lively article in the September 1971 *Institutional Investor*, "The *beta* revolution: Learning to live with risk."

Philip J. Feuer

Interest-Adjusted Method

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to be and has been consistently interpreted by courts as a single entity. This single entity offers rights and benefits beyond those that are available to persons who buy a decreasing term policy and build a savings fund independently thereof."

In that the Interest-Adjusted Method produces separate costs for the decreasing risk element with the total policy expenses associated with that element, there may be some danger that the use of this method may "create misunderstanding rather than enlightenment." The Interest-Adjusted Method is an improved way of comparing the costs of similar policies, but it is valid only in this context as a comparative index. Its limitations should be recognized. □

Board of Governors

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year in which it started, i.e., F.S.A. 1946 in 1970 and F.S.A. 1951 in 1971, on sees a reduction of only four, rather than five, years at time of election.

Any change in the median year is the result of more dramatic changes in only about one-third of the 29-member Board: under normal circumstances involving no vacancies, the number of new members can vary from four to 12. This year, there were nine (the new Secretary, the new Treasurer and seven new Governors). Four positions were filled by the election of persons serving in other positions on last year's Board, 14 remained filled by last year's incumbents and two were filled by automatic succession.

Range of Fellowship Years

Perhaps of more interest than the median year is the range of years of attaining Fellowship. Before the election, no Board member had attained Fellowship after 1957; after the election, there were four (1958, 1960, 1963, and 1966). At the other end, there were three members on last year's Board with Fellowship prior to 1938; now there are non-

Whether this is the beginning of a trend or a fluctuation, only time—and the nominations by the Election Committee and the voting by the Fellows of the Society—will tell. □