



SOCIETY OF ACTUARIES

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## Case study in derivatives (continued from page 7)

crediting rate guaranteed to policyholders. The floor would be designed to pay the guaranteed rate if the 5-year CMT were to fall below the guaranteed rate.

Other derivative structures are possible to meet the insurer's needs. For example, the swap payments could be designed to pay only in those interest rate environments where interest

rates increase by more than a predetermined amount in any 6-month period, e.g., pay only if rates rise by more than 25 basis points. This is similar to buying a layer of reinsurance.

If interest rate risk is viewed as the "catastrophic risk" for life insurance companies, then this case study illustrates how derivatives can be used to reinsure the risk.

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## RESEARCH CORNER

Several new projects for which proposals were solicited this winter are causing a flurry of activities this spring in the Research Department. Project oversight groups evaluated proposals and recommended letters of agreement for these research activities:

- The two projects to define the necessary research relating to dynamic solvency testing were jointly awarded to Allan Brender, William M. Mercer Ltd., and Donna Claire, Claire Thinking Inc. They plan to have a report by mid-summer 1994.
- A dynamic solvency testing project on the historical perspective was awarded to Robert Fillingham, Fillingham & Co. A final report is due early summer 1994.
- The project on the analysis of health carrier insolvencies was awarded to James Ross and Criss Woodruff of Radford University.

Work on this project began mid-May, with analysis of data scheduled for July and report preparation occurring in late summer. The final report is planned for mid-September 1994.

- Two proposals have been funded for the "Methodology to Deal with Dependencies on Multi-Life Risks" research project. Jacques Carriere, University of Manitoba, is expected to collect and analyze data. Edward (Jed) Frees and Emiliano Valdez, University of Wisconsin, plan to prepare a literature review, construct a mathematical model, run statistical tests, and develop numerical illustrations. The researchers plan to have final reports by fall 1994.

The results of Arthur Warga's research on bond pricing are published in the following articles: "Bond Returns, Liquidity, and Missing Data," *Journal of Financial Quantitative Analysis*, Vol. 27, No. 4, December 1992, pp. 605-617, and "Corporate Bond Valuation in the Dealer and Exchange Markets," *Contingencies*, September/October 1992, pp. 50-56.

The preliminary report on direct marketing persistency appears in the spring issue of *News Direct*, the

newsletter of the Nontraditional Marketing Section. A report on direct marketing mortality is being prepared and will appear in an upcoming issue.

Preliminary results of the "Long Term Bond Yields of Life Companies with Junk Bond Portfolios" research project were presented during a session at the Society's spring meeting in Orlando. A report on the "Large Claims Data Base" research project and additional analysis of the 1986-89 credit risk data also were presented at the Orlando meeting.

The Committee on Actuarial Principles has received letters in response to the exposure draft on "Reserve Principles for Life Risks." On April 15, the committee conducted a joint meeting with the Casualty Actuarial Society's corresponding committee to discuss the possible joint development of a general actuarial principles document.

The Ph.D. Grants Task Force has reviewed applicants for the 1994-95 Ph.D. grants competition. Grants awarded this year will be announced by June 15, 1994.