SYNOPSES

Copies of the following papers can be borrowed from the Institute Library. They are also available from the Institute or direct from the author(s) whilst stocks from the original printing remain.

MODELLING THE GILT EDGED MARKET

BY G. B. CHAPLIN, F.F.A.

(Synopsis of a paper presented to the Society on 2 November 1982)

THE paper reviews mathematical methods of analysing the gilt edged market, with the particular aim of removing some of the mystique surrounding the use of three dimensional models. The paper shows how such a model may be built from the old fashioned yield curve approach simply and in an understandable way by the introduction of a single variable representing a tax rate.

This simple model is shown to have some of the general desirable features of a model, and these ground rules are then discussed in some detail. Other models are discussed and criticized on the basis of these ground rules (including the simple model presented, which is not intended to be a working tool but rather more a 'teaching aid').

The use of models and other techniques in the identification of possible switches is discussed. In particular, it is demonstrated that an improvement in the anomaly position as shown by a model does not necessarily lead to a profit. Indeed, it is demonstrated that this is true for all except one method of identifying anomalies.

Finally, the paper discusses the use of some statistical techniques in the problem of matching (and deliberate mismatching) of assets and liabilities. Decision theory is used to balance risk against possible reward, where risk is measured by variance in profit. To apply the approach in practice the use of different scenarios is advocated, with weightings representing the likelihood of each scenario.

MOTOR PREMIUM RATING

BY S. M. COUTTS

(Synopsis of a paper presented to a joint meeting of the Society and the Royal Statistical Society (General Applications Section) on 30 November 1982).

THE purpose of this paper is to outline some of the statistical and technical aspects of a premium basis for motor insurance. At present, only broad outlines

https://doi.org/10.1017/S0020269X00009671 Published online by Cambridge University Press

are available in the Institute of Actuaries' literature and in particular they do not highlight the pragmatic aspects of the problem. There have been some papers written in the ASTIN bulletin e.g. Pitkanen, Tariff Theory (1974); however, they are generally theoretically based. The first full analysis found in the literature was Kahane and Levy, Regulation in the Insurance Industry: determination of premiums in automobile insurance (1975). However, the emphasis was statistical modelling rather than discussing the practical problems involved in premium rating. Recently, two groups have published studies concerning the problems of rating. In the Netherlands, a group of actuaries were asked to revise the motor rating structure and this is written up in the Netherland Group Report, New Motor Rating Structure in the Netherlands (1982). At the United Kingdom General Insurance Study Group meeting in Stratford-upon-Avon (1982), there were four case studies from different countries on premium rating. Hence, in general, there is little written assistance to help either the actuary new to motor insurance or the actuarial student trying to appreciate the practical problems of premium rating.

The paper emphasizes a detailed within-portfolio analysis, taking into account simultaneously, *inter alia*, some of the major underwriting factors and separate statistical analyses of claims frequency and costs, together with expenses, to arrive at a breakeven premium. By performing this detailed analysis, it is believed that the person responsible for the premium decision will be able to restrict his attention to the sensitive areas where judgement has to be exercised. The paper develops a 'points system' which is similar to a number of premium systems operated by United Kingdom Insurance Companies. This 'points system' is used to compare different sets of assumptions. Finally, an analysis of surplus is described with an example.

PENSIONS AND BENEFITS IN A REWARD STRATEGY

By G. R. G. Wilson

(Synopsis of a paper presented to the Society on 15 February 1983)

Try asking the Chief Executive of a large United Kingdom company why he decided to have his present pension scheme rather than one costing 5% of payroll more or less. Compare the answer with the answer to a question involving the same amount of money in a different area—say why he decided to go ahead and market his latest high-technology product rather than lower-technology products his Japanese competitors are now marketing. His answer to the second question will probably mention a long-term strategy, a short-term set of business objectives, an evaluation of the impact of the particular decision against a set of specific alternatives and a firm commitment by the Chief Executive to the success

https://doi.org/10.1017/S0020269X00009671 Published online by Cambridge University Press