NOTES ON OTHER ACTUARIAL JOURNALS

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JENSEN, G. *The Calculus of Stieltjes–Schärf Integral 1.* On the basis of approximations by step functions the theory of Stieltjes–Schärf integrals is developed for functions of bounded variation with values in Banach algebras. Special emphasis is put upon stating an operational calculus for iterated sums and integrals, like those which are known from commutation functions of higher order.

   The calculus makes it possible to deal simultaneously with linear difference and differential equations as well as mixed forms. It is particularly useful for handling systems of equations. In important instances their solutions can be expressed by solutions of subsystems using simple matrix algebra. Furthermore, tools from complex analysis are combined with Stieltjes–Schärf integrals and differential equations. In a subsequent paper these methods will be applied to projections in social security.

WOLTHUIS, H. *Prospective and retrospective premium reserves.* Recently a number of definitions of retrospective premium reserves were proposed for a multi-state life policy. Each definition satisfies a number of desirable properties. The definitions of retrospective premium reserves are reconsidered here for the continuous time Markov chain model using a simple coherent notation for both reserves; the reserves are slightly generalised in the sense that the reserves are considered for arbitrary time intervals.

KREMER, E. *The Limit-Equivalence of the Excess-of-Loss and Largest Claims Reinsurance Treaty.* Recently the author compared the excess-of-loss and largest claims reinsurance covers with the help of an asymptotic efficiency measure. It turned out that the excess-of-loss treaty is preferable with respect to that asymptotic efficiency. Now a limiting value of that asymptotic efficiency is investigated, the so-called limiting efficiency. It turns out that the excess-of-loss and largest claims covers are equivalent with regard to that limiting efficiency.

ALBRECHT, P. and MAURER, P. *Portfolio Insurance, Strategien zur Wertsicherung von Aktien-Portefeuilles (Portfolio Insurance, Strategy to Secure the Value of Equity Investments).* The rapid growth of modern Options and Futures Markets as well as the advances of mathematical finance have enabled investors to develop strategies and to realise risk-return positions which were not possible before. Among these methods are capital protection (portfolio insurance) strategies for the management of equity portfolios. These strategies try to achieve an asymmetrical risk-return profile by participating (partially at least) in equity market gains on one hand while 'guaranteeing' a minimum return on the other. To achieve this objective two basic investment strategies are at hand. Capital protection strategies on the basis of real (available at some market) put options and capital protection strategies on the basis of a 'synthetic' replication of option positions by means of a suitable combination of primary assets. The paper examines in detail the main types of capital protection strategies (protection with put options and index-puts, dynamic hedging on the basis of modern option pricing theory, Constant Proportion Portfolio Insurance). The respective strengths and weaknesses are pointed out.

LAUX, H. *Verlauf der bauspartechnischen Kennzahlen in an- und auslaufenden Tarifbeständen des Bausparens (Development of Technical Parameters of German Building Societies in the Early and Late Stages of a Collective Account).* Further to his article on page 37 of Volume XX of the *Blätter,* Laux investigates technical parameters of German building societies under a series of assumptions which model:

—the early stages of a collective account ('tariff'), and

—the late stages after closure for new business.

He demonstrates and analyses the divergencies that arise in comparison:

—to actual experience, and

—to the maturity status of the model.

BRAND, N. and JUNGWIRTH, H. *Eine Bemerkung zur Beitragszahlung versus Kalkulation in der Krankenversicherung (A Remark on the Relation between Actual Premium Payment and Calculation of Premiums in Health Insurance)*. In Germany, the premium in Private Health Insurance is usually calculated as an annual premium, payable in advance at the beginning of the insurance year. In accordance with the exemplary insurance conditions edited by the German association of Private Health Insurances, annual premiums are also payable by instalments that are considered to be delayed until the following date of payment. Monthly premiums are computed by simply division of annual premiums; usually no additional premiums are required for payment by instalments. Consequently, there is a loss, and in this paper the expected loss is partitioned in relation to its causes. Furthermore we show its influence on the annual accounting.