A Counting Process Approach to Stochastic Interest, by Christian Max Møller (University of Copenhagen)

The aim of the present paper is to propose a stochastic approach for describing the return of an investment and study its applications in insurance. The process governing the return of the investment is assumed to have bounded variation over finite intervals and possess a jump part. Attention is restricted to cases where the process has independent increments and is subject to fluctuations given by a Markovian environment. In the first case, direct calculations are obtainable for evaluating moments of present and accumulated values. In the last case we establish differential equations akin to the celebrated Thiele's differential equation in life insurance. *Insurance: Mathematics and Economics*, October 1995, 17(2): 181–192. (Reprinted with permission of North-Holland Publishing Company.)

Differential Equations for Moments of Present Values in Life Insurance, by Ragnar Norberg (Laboratory of Actuarial Mathematics, Universitetsparken, Copenhagen)

Ordinary differential equations are obtained for first and higher order conditional moments of present values of payments in respect to a life insurance policy described as a time-continuous Markov chain. Those for the first moments are the well-known Thiele's differential equations for the reserve. It is shown how the differential equations can be used to construct untraditional insurance products. Numerical computations of moments are performed for some forms of insurance common in practice. Applications to problems in pure probability theory are demonstrated by examples. *Insurance: Mathematics and Economics*, October 1995, 17(2): 171–180. (Reprinted with permission of North-Holland Publishing Company.)

Quadratic Distance Estimators for the Zeta Family, by Louis G. Doray (University of Montreal) and Andrew Luong (Université Laval, Cité Universitaire)

The zeta distribution is a discrete distribution which has been relatively little used in actuarial science and statistics, a reason being that most estimators proposed in the literature for the parameter of this distribution require iterative methods or the extensive use of tables for its calculation, due to the complicated form of its probability mass function. In this paper, we propose a new estimator, based on quadratic distance, asymptotically fully efficient for parameter values greater than two and highly efficient for smaller values, but computationally more appealing than the maximum likelihood estimator; we also compare its asymptotic variance with that of the moment estimator and the estimator based on the ratio of the observed frequencies of the first two classes. *Insurance: Mathematics and Economics*, July 1995, 16(3): 255–260. (Reprinted with permission of North-Holland Publishing Company.)