

BOOK REVIEWS

Managing the Insolvency Risk of Insurance Companies, edited by J. David Cummins and Richard A. Derrig (Kluwer Academic Publishers, 1991).

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Managing the Insolvency Risk of Insurance Companies is a collection of papers presented at the Second International Conference on Insurance Solvency, held in Brighton, England in May, 1988. In the preface the editors mention that the Conference was formed to facilitate more interaction between insurance economists and actuaries, with the recognition that these two groups often pursue insurance financial research utilizing distinctly different methodologies. The editors observe that actuaries tend to approach solvency research by attempting to model the random processes underlying insurance transactions. Often these actuarial models ignore the risk and return relationships established in the financial markets. On the other hand, they point out that the actuarial approaches could improve financial economic models in insurance by incorporating more realistic modeling of random loss processes and placing more emphasis on pricing relationships in markets that are imperfectly competitive.

The title of the book should not be interpreted too literally. Although several of the papers deal specifically with insurer insolvency, a number of the papers are only loosely related to this topic. Perhaps "Operational and Financial Models in Insurance" would have been a more descriptive title.

The book is divided into two parts. The first part titled, "Operational Models of Risk Assessment," contains seven papers. In the first paper, Gregory Taylor explores possible explanations of insurance profit cycles and their effect on solvency. He also provides discussion of possible policy responses aimed at mitigating underwriting cycles. Chris Daykin and G. Brian Hey present a management simulation model of a general insurance company. Their approach utilizes a cash flow model that attempts to simulate the operations of an insurer as a going concern. Unfortunately, the model suffers from a lack of market focus.

Bob Hershbarger and Ran BarNiv apply several statistical methodologies (multiple discriminant analysis, nonparametric analysis and logic analysis) to estimate financial ratios that can accurately classify insolvent life

insurers. They conclude that more than one multivariate approach may be necessary for measuring the probability of insurer failure.

A paper by Steve Haberman and Daniel Dufresne considers problems associated with selection of appropriate pension contribution levels in the face of random rates of return. The relevance of this paper to the general theme of the book is not obvious. Henk von Eije attempts to reconcile the differing view of actuaries and financial economists with regard to the value of reinsurance. The paper presents a useful framework for valuing reinsurance contracts. However, the framework largely ignores the important implications that agency theory has for evaluating reinsurance.

Solvency problems created by use of CAPM-based rating methods in the presence of serially correlated profits are addressed by Emilio Venezian. In the final paper in part one, James McDonald considers a generalized four parameter statistical distribution as a model for losses and empirically evaluates the performance of the distribution.

The second part of the book titled, "Financial Models of Risk Assessment," contains five papers. Jim Garven and Steve D'Arcy compare alternative rates of return models in terms of the ability of these models to predict underwriting profit margins. They find the strongest support for the option pricing model and, hence, suggest that pricing models must consider more than systematic risk.

For purposes of discounting loss reserves Robert Butsic determines an appropriate interest rate which incorporates financial market considerations. Also related to establishing loss reserves, Glenn Meyers uses a risk theoretic approach to calculate safety loadings in premiums that will decrease the insolvency probability due to variation in losses.

Neil Doherty and Harris Schlesinger demonstrate in an expected utility framework that some consumers may be better off with a higher chance of insolvency and a lower price. They suggest that the proper role of regulation may be to provide information to consumers rather than to prevent insolvencies. Although not mentioned, their results contain some interesting implications for the proper role of guaranty funds. In the final paper, David Cummins shows that insurance prices should reflect individual firm characteristics, including default risk and capital structure.

The contents of *Managing the Insolvency Risk of Insurance Companies* confirm that progress has been made toward reconciling the differences between actuarial and financial economic research in insurance. Although more work remains, this book and its predecessor, *Financial Models of Insurance Solvency* (1989), also edited by Cummins and Derrig, represent valuable advancements toward the goal of establishing an integrated theory of insurance solvency and finance.

Retirement and Public Policy, edited by Alicia H. Munnell, National Academy of Social Insurance, Washington D.C. (1991).

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