

***Dynamic Approaches to Pension Funding***, by Steven Haberman and Joo-Ho Sung (City University, London)

The paper presents a dynamic model of pension funding for a defined benefit occupational pension scheme. Two types of risk are introduced concerned respectively with the stability and security of funding: the "contribution rate" risk and the "solvency" risk. An objective function is introduced to allow the simultaneous minimization of these two risks. The paper derives optimal funding control procedures for the contribution rate subject to specified constraints. *Insurance: Mathematics & Economics*, December 1994, 15(2/3): 151-162. (Reprinted with permission of North-Holland Publishing Company.)

***Determinants of Pension Funding and Asset Allocation Decisions***, by John Gregory Gallo (University of Nevada, Reno) and Larry Joseph Lockwood (Texas Christian University)

Prior research suggests that the funding and asset allocation decisions for defined benefit pension plans may be based on tax, risk, and profitability factors. Much of the previous empirical work, however, suffers from statistical problems that may produce misleading or contradictory results. We employ a confirmatory factor analytic model to address the statistical problems plaguing pension research. Various competing hypotheses are tested simultaneously. Findings indicate that firms use pensions to offset business risk. *Journal of Financial Services Research*, June 1993, 9(2): 143-138. (Reprinted with permission of Kluwer Academic Publishers.)

### Insurance Pricing Models

***Capital Structure and the Cost of Equity Capital in the Property-Liability Insurance Industry***, by J. David Cummins (University of Pennsylvania) and Joan Lamm-Tennant (Villanova University)

Financial pricing models are now widely used in insurance pricing and price regulation. However, most practical applications of these models have not taken into account either the effects of firm capital structure or the differences in financial risk across lines of insurance. The objective of this paper is to provide a first step toward remedying these deficiencies by providing theoretical and empirical evidence on the effects of capital structure and line of business risk on the cost of equity capital in property-liability insurance. A theoretical model is developed that expresses the cost of capital as a function of both insurance leverage (the ratio of policy reserves to assets) and financial leverage (the ratio of financial debt to assets). The model is tested using data on traded stock property-liability insurers over the period 1980-1989. The results indicate that the cost of equity capital is sensitive to both insurance and financial leverage and that the cost of equity is higher for firms writing long-tail commercial lines such as general liability and workers' compensation. Thus, both leverage and line of business specialization should be taken into account in using the cost of equity capital in pricing property-liability insur-

ance. *Insurance: Mathematics & Economics*, December 1994, 15(2/3): 187-201. (Reprinted with permission of North-Holland Publishing Company.)

### Insurer Markets

#### ***Evidence of Capacity Constraints in Insurance Markets***, by Anne Gron

Empirical support is found for the primary predictions of capacity constraint theories of property-casualty insurance cycles. The primary implications concern industry capacity and the difference between the price of insurance and noncapital costs, referred to as the price-payment margin (PPM.) Capacity constraint theories predict that low capacity will lead to higher PPMs and that capacity growth will follow PPM increases as insurers rebuild capacity. Price-payment margin and capacity series are constructed using industry time series for 1949-1990. The estimation finds that PPM growth varies inversely with capacity at the beginning of the period and also inversely with changes in capacity. *Journal of Law and Economics*, October 1994, 37(2): 349-377. (Reprinted with permission of ABI/Inform, Copyright UMI.)

### Ruin Theory

#### ***A Note on the Solution of Practical Ruin Problems***, by F. De Vylder (UCL, Louvain-la-Neuve, Belgium) and M. J. Goovaerts (K. U. Leuven, Belgium)

An algorithm is presented in order to solve numerically all practical ruin problems mentioned by Howard Waters in his Monte Verita lecture of 1993. Severity of ruin, interest, dividends, varying severity loadings,...can be taken into account. *Insurance: Mathematics & Economics*, December 1994, 15(2/3): 181-186. (Reprinted with permission of North-Holland Publishing Company.)

#### ***Cramér-Lundberg Approximations for Ruin Probabilities of Risk Processes Perturbed by Diffusion***, by H. Schmidli (Heriot-Watt University, Riccarton, Edinburgh, Scotland)

In the present paper risk processes perturbed by diffusion are considered. By exponential tilting the processes are imbedded in an exponential family of stochastic processes, such that the type of process is preserved. By change of measure techniques asymptotic expressions for the ruin probability are obtained. This proves that the coefficients obtained by Furrer and Schmidli (1994) are the adjustment coefficients. *Insurance: Mathematics and Economics*, May 1995, 16(2): 135-140. (Reprinted with permission of North-Holland Publishing Company.)

### Safety and Loss Control

#### ***Safety at What Price?*** by Walter Y. Oi (University of Rochester)

Overall exposure to risk can be controlled through choices in the market which reveal the implicit personal prices for safety. Externalities and imperfect

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