

Pension Funding and Smoothing of Contributions

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ABSTRACT

The present work analyses the effects on the funding and the contribution rate in Hybrid Pension Schemes, when the only source of unpredictable experience is through volatile rates of return. A Hybrid Pension Scheme is proposed, which has been called the Modified Contribution (MC) Pension Scheme. As the name suggests, the proposed Hybrid Scheme consists on an individual accumulating a pension fund with variable contributions based on a pre-defined target. Two methods are considered and compared to adjust the value of these contributions, i.e. the spreading described by Dufresne (1988) and the modified spreading developed by Owadally (2003). The results of our analysis are first, that the modified spreading method eliminates any gains and losses arisen through time, due to favourable or unfavourable experience. Second, this modified spreading shows to be more efficient than the spreading, in terms of minimising the variance of the fund and the contribution. And third, this modified spreading leads to a smoother fund and contribution rate. Two models to simulate volatile rates of return are assumed: deterministic rates of return and the bootstrap sampling method with historical data for the period 1899 to 2001. The bases of our work are found mainly in Owadally (1998) and Owadally (2003).