

# Investment strategies and risk management for participating contracts

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This paper proposes a possible asset allocation strategy for the risk management of the broad category of participating life insurance policies. The nature of the liability implied by these contracts allows us to treat them as options written on the reference portfolio backing the policy; consequently, the valuation approach is based on the classical contingent claim theory. This leads to the identification of additional safety loadings against the risk of default implied by these contracts, and the setting up of suitable investment strategies aimed at minimizing this risk. The impact on the solvency requirements for the capital of the insurer of the proposed asset allocation strategy is analyzed by means of Monte Carlo techniques. Stress testing is considered as well with respect to the key risk factors of the model, such as the equity volatility and the market interest rate. The numerical analysis show that for the specific policy design considered in this paper, a suitable choice of the participation rate combined with the proposed investment strategy minimizes the overall default risk of the insurance company, both in terms of probability of default and expected severity.

*Keywords:* asset allocation, fair valuation, Monte Carlo methods, participating contracts, solvency requirements, TVaR.

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