

Yang, H. (2014). Valuing Equity-Linked Insurance Products, 105 Annual Meeting of the Swiss Association of Actuaries, Davos, Switzerland, September, 2014.

Abstract:

Motivated by the Guaranteed Minimum Death Benefits in various deferred annuities, we investigate the calculation of the expected discounted value of a payment at the time of death. The payment depends on the price of a stock at that time and possibly also on the history of the stock price. Because each time-until-death distribution can be approximated by a combination of exponential distributions, the analysis is made for the case where the time until death is exponentially distributed, i.e., under the assumption of a constant force of mortality. The time-until-death random variable is assumed to be independent of the stock price process which is a geometric Brownian motion. A substantial series of closed-form formulas is obtained, for the contingent call and put options, for lookback options, and for barrier options. (This talk is based on joint papers with Hans U. Gerber and Elias S.W. Shiu).