Monte Carlo Valuation of the Initiation Option in a GMWB Variable Annuity

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We focus on the initiation option featured in many Guaranteed Lifelong Withdrawal Benefit variable annuity contracts, granting their owner the right to decide the age at which lifetime withdrawals should begin. Such contracts have been successfully analysed using a PDE approach, see Huang et al. (IME, 56(2014), 102-111). While the latter method is elegant, it becomes less viable when the valuation model is more involved and other guarantees are considered. We exploit the Least Square Monte Carlo method and explore the interaction of the initiation option with lapses and other riders, and the effect of stochastic volatility, interest rates and mortality.