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Retirement Fund Last Forever Under Stochastic Volatility*. Preliminary report.

Suppose that regular disbursements are to be made from a portfolio consisting of one or more stocks. Since the return on securities is uncertain, financial planners must choose a disbursement level and/or portfolio mix which ensures a certain probability that the portfolio survives forever. We consider a discrete-time model for the value of a portfolio with random multiplicative returns and constant withdrawals. This model allows the multiplicative returns of the stock to follow any specified distribution, including the commonly used lognormal distribution. An integral equation for the survival probability function is developed, allowing for its numerical evaluation. We also study the sensitivity of the survival probability upon the parameters of market return and volatility.

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