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Optimal utilization of variable annuity guarantees

Variable Annuities contain numerous living and death benefits which have attracted recent attention within the literature on finance and insurance. One established fact coming from this research is that many widely available products sold in the U.S. were underpriced, likely because the insurance company wasn't hedging properly and/or using actuarial (as opposed to financial) techniques for pricing. Indeed, the popularity as well as the liability created by these products were partially responsible for the financial difficulties experienced by numerous insurance companies during the 2008/2009 crisis. This pricing and hedging literature continues to grow.

A question which has attracted less scholarly and research attention, but is equally important, is how exactly consumers who hold these guaranteed should best manage them. In the U.S. market alone there are over $1 trillion worth of these guarantees held by individual investors, so this is a question financial advisors are increasingly being asked. The optimal policy for a consumer seeking to maximize lifetime utility with these products – in an incomplete market – isn't necessarily a policy that induces the maximum liability to the issuer. In other words, the hedging strategy (for the issuer) isn't the symmetric opposite of the dynamic utilization strategy (for the buyer). I will discuss some results in this direction, obtained with Huaxiong Huang and Moshe Milevsky.