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## Mind the Longevity Gap!

By Editor Test     *Wed, Apr 4, 2012*

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*Ruark Insurance Advisors Inc. estimates that the cost of unhedged longevity risk in a typical variable annuity living benefit could be as much as 1.40% annually on the declining asset balance--in addition to the customary policyholder charge of 1.00%.*

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While effective hedging of investment risks has rightly been the focus of variable annuity companies for the last few years, the enormous longevity risk implicit in living benefit guarantees has gone largely unnoticed and unmanaged.

This longevity risk is due to the fact that if and when living benefit guarantee claims are triggered, they typically take the simple form of a life annuity. While this helps retirees mitigate the risk of outliving their assets, variable annuity companies risk that long-term increases in human longevity will outpace the level of longevity priced into the living benefit guarantee. Three facts exacerbate this risk:

§ There is no industry experience for living benefit guarantees in the payout phase;

§ Industry mortality experience in the accumulation phase does not follow standard mortality tables; and

§ Demographers have a long history of severely underestimating mortality improvements, by as much as 5 years life expectancy at birth.<sup>1</sup>

Let's quantify with a simple example. With the illustrative assumptions of a male age 60 buyer and a very low likelihood of triggering life annuity claims in the first 10 years of the contract, the corresponding underestimation of life expectancy in the payout phase is 2.1 years<sup>2</sup>.

For a \$10 billion premium block of 5% living benefit guarantees, we would expect perhaps 67% still inforce after 10 years. So the additional 2.1 years of payments would cost the variable annuity company \$700 million (\$10 billion x 5% x 67% x 2.1 years)! This is equivalent to a cost of 1.40% annually on the declining asset balance, in addition to the customary policyholder charge of 1.00%. We do not think that this level of longevity risk is within the risk appetite of many variable annuity companies.

How can it be managed? Longevity reinsurance.

Similar to longevity swap products in the pension market, the variable annuity company and reinsurer would essentially swap the contingent living benefit guarantee payments modified for longevity deviations relative to a negotiated benchmark. However, some modifications would be necessary for the variable annuity living benefit guarantee market:

§ For variable annuities, we would expect the benchmark to reflect a customized blend between industry mortality experience in the accumulation phase and standard mortality tables in the payout phase, such as the Ruark Mortality Table and 2012 Immediate Annuity Table.

§ The reinsurance volume and coverage period would be set at the start of the transaction in order to mitigate policyholder behavior risk. For example, the variable annuity company might expect that a \$10 billion premium block of 5% living benefit guarantees would likely have 55-67% still in force when the earliest claims are triggered after 10-15 years, so they might seek longevity reinsurance for \$275 million ( $\$10 \text{ billion} \times 5\% \times 55\%$ ) of annual lifetime payments triggered in that period.

§ Longer deferrals of the coverage period would naturally result in more conservative pricing, and reinsurers would likely require a modest premium stream as compensation for the risk that the payout phase is never triggered.

This type of longevity reinsurance is a creative extension of Ruark's expertise in the development, placement, and administration of mortality reinsurance. We believe that as variable annuity companies recognize the enormous longevity risk embedded in living benefit guarantees, longevity reinsurance will join hedging programs and mortality reinsurance as indispensable modern tools for the management of their investment and insurance risks.

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<sup>1</sup>Brian C. O'Neill, Deborah Balk, Melanie Brickman, and Markos Ezra, "A Guide to Global Population Projections", *Demographic Research*, 4, p. 203-288, 2001. Chris Shaw, "Fifty Years of United Kingdom National Population Projections: How Accurate Have They Been?", *Population Trends*, 128, Office for National Statistics, 2007.

<sup>2</sup>Timothy Paris, "Modern Variable Annuity Risk Management", p. 6, 2012.