Milevsky: Mispricing Annuities, Then and Now

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Moshe Milevsky looking over some old documents.

In London, England, almost two centuries ago a very clever chap by the name of John Finlaison wrote an urgent letter to the chancellor of the British Exchequer, imploring the government to change the way it priced and sold life annuities to the public.

You might not have known this, but in the late 17th and 18th centuries, many countries financed their national debt with the sale of life annuities and tontines, not the coupon-bearing bonds they use nowadays. So, for example, in exchange for a £100 initial investment (lent) to Her Majesty's government, the annuitant would receive an annual income of £10 for the rest of their life. There was an active market in what might be called longevity-contingent claims.

Now, John Finlaison was no commoner exercising his democratic right to complain about prices and yields. Rather, his official position was "actuary of the national debt" from the years 1822 to 1851. Arguably he was the world's first full-time actuary, who then went on to launch the British Institute of Actuaries, where his son and then grandson served in the same roles. There are entire buildings named after him in downtown London. More interestingly and relevant, in contrast to most people who might complain that the prices of goods and services purchased by retirees were too high, John Finlaison's concern was that prices were in fact too*low*. In handwritten letters to members of Parliament, he presented very convincing data that British retirees and pensioners were living much longer than what was assumed in the government's pricing schedule. This then meant that payments were made for longer, costing the government more than it had budgeted for. John Finlaison expressed great concern that pricing wasn't sustainable and urged officials to lower the payouts and raise the fees. At the very least, he agued, males and females should be paying different prices for annuities. Prior to his work in 1829, nobody thought to differentiate pricing by gender.

I know all of this, not because I am *Google*-ing or *Wikipedia*-ing historical facts from my laptop, but because I am deep inside the magnificent edifice of the British National Archives, inLondon, England. (See photo, taken before the pandemonium surrounding the royal heir.) Finlaison's cogent letters and supporting actuarial data are labeled "reference item T1/3744" and have been retrieved from the dusty files for your humble correspondent.

To boil this all down to its financial essence, according to Mr. Finlaison's calculations on the eve of the Victorian Era, Her Majesty's government was selling annuities worth £175 in present values term, for a mere £100 up-front cost, which was a jolly good deal.

Forgetting History

You would think that governments and pension and insurance industries would learn to reduce mispricing errors and better manage their risks by now. Indeed, the last two centuries are littered with similar examples, whether they have to do with life annuities, life insurance, long-term care or other forms of insurance. Alas, the long-festering battles over the underfunding of state pension plans are yet another good example of mispricing. They all come down to the same thing: reasonable models with bad assumptions.

And, lo and behold, now history has been repeating itself with variable annuities. This time around it isn't *human longevity* that's causing problems. Rather, it is *human rationality* that is rupturing the pricing models.

Let me back up a wee bit and ask you to ponder this. When the company that manufactured your car, contacts you out of the blue and asks to "buy it back," or when the tailor who made your suit, suddenly offers to replace it with a better one—are they doing it out of the goodness of their heart? Rather, they likely made some sort of mistake in the design, and possibly a fatal one.

For those of you with VAs on your books, you probably know where I am going with this. North American insurance companies have spent a good part of the last year doing exactly that. Namely, offering to buy back your client's VA policy. And, I don't think it's because they want to display the certificates in a museum or an archive. They made pricing mistakes and want a re-do.

As a recent report by Moody's Investors Service (which was profiled with much fanfare in the*Wall Street Journal* of June 26) indicated, most insurance companies assumed that policyholders and customers were (to put it bluntly) *idiots*. They assumed individuals would lapse or surrender their policies at the worst possible time (for the owner). They assumed your clients would cancel their home insurance coverage just as the hurricane was arriving or cancel the life insurance just before the priest was about to administer last rites.

Well, you don't have to be Mr. Spock to realize that isn't a good idea. Perhaps when the sun is shining and life is groovy people give up their insurance, but not in bad times and certainly not in the era of annuity analytics.

VAs with rich guaranteed living and death benefits allowed policyholders to participate in the upside of the market and generate a princely income that far exceeded what was available from other comparable instruments. So, as long as you and your clients didn't listen to the media nonsense about the evils of VAs, they effectively arbitraged the insurance companies they did business with.

Now, in their defense, perhaps the insurance company executives had been exposed to disproportionate amounts of behavioral finance theory peddled by psychologists with scant regard for mathematical finance and the market value of put options. Recall that according to this non-Vulcan view of the world, consumers are highly irrational, susceptible to systematic errors in judgment, emotional, fickle and can be easily manipulated. If that were true—with Homer Simpson as exemplar of clients—they would surely lapse or exchange the policy well before it would come back to haunt the manufacturer.

But, according to Moody's, the wake-up call is in the data. Whether by good intuition or numerical savvy, clients and their advisors are getting smarter about VA guarantees. They are learning to keep their coverage,

optimize their policies and maximize their value. Of course, not all of them are behaving this way—and lucky for the insurance companies. There is still plenty of irrationality to go around (observe your teenage kids for example) but there is less of it relative to what the companies assumed. This has caused much grief and hence the buy-back offers.

Need to Know

If a product offers you a guaranteed 5%, 6% or 7% income for the rest of your life, it becomes more valuable when interest rates are lower, human longevity is higher and markets are more volatile. The exact relationship and models linking these variables are subjects for Ph.D. dissertations, but the underlying intuition is ironclad. So, run the numbers and don't walk away from a good deal.

And, even if the math makes your head spin and your eyes water, perhaps a shortcut is to call up your local insurance rep and ask: "*What are your actuaries hoping (praying?) my clients will do?"* If you get a coherent answer out of them, start calling your clients. Needless to say, they should do the opposite.

I would like to think that if John Finlaison were still alive today, he would be writing letters and articles (perhaps even in *Research* magazine) advocating the same.