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Product Actuaries—Watch out for Arbitrage

by Douglas Doll

Several months ago, I received a call from a person who was considering involvement in a scheme whereby life insurance policies would be purchased by a group of individuals using simplified underwriting (how simplified was not clear). The premiums would be financed and the death benefits were projected to cover the financing costs and have plenty of excess money left over. The mortality assumption underlying the projections had been developed by an outside actuary.

The caller wanted to know whether it was reasonable to expect that the life insurance company had so underpriced the product that the projections would, in fact, happen. This was not a consulting assignment—he just wanted my off-the-cuff reaction to this broad question. I said it was possible that a product could be priced for a particular type of sale, and would be underpriced if used for a different type of sale However, I would be surprised if a group sale of the type he described (if, indeed, it received a special group simplified underwriting consideration) would be so underpriced as to make the scheme viable, because of the typical expense and profit loads built into life products.

I noted that two different actuaries could have different views of mortality, and that it was not necessarily true that the outside actuary's assumption was the accurate one. In any event, the scheme as described appeared to have at least some risk for the lender.

That was the end of our conversation as I recall, and I pretty much forgot about it until I recently read the July/August, 2004 issue of Joseph Belth's *The Insurance Forum*. In an article titled, "Flawed Life Insurance Programs Promoted to Charities," Mr. Belth described a program very similar to the one described in the call.

According to the article, a charity agrees to participate. Many "donors" are recruited to allow their lives to be insured. A lender puts up money for the premiums. Death benefits are used to service the debt and provide money for the charity. I wrote an article about a similar plan in the April, 2003 issue of *Product Matters!* However, the schemes described in that article used immediate annuities to avoid risk to the lender. I hypothesized that the immediate annuities were underpriced, but also considered the possibility of the life policies being underpriced. Mr. Belth's article mentions this mortality arbitrage as a variation of the scheme.

Without the arbitrage, Mr. Belth correctly notes that the plan does not work for the lender and the charity unless the life product has been underpriced. He spoke with a consulting actuary who is an advisor to one of the programs. The consultant disagreed that the product is underpriced and said the proper word is "mispriced." He said the policies are priced to fit a particular market that differs from the market at which the scheme is directed. Mr. Belth said he did not pursue the semantics, though I wish he had.

The article covers a number of related topics, such as insurable interest, potential tax considerations and alternative motivations for promoters of these schemes (use of program as an access to wealthy prospects). To order a copy of *The Insurance Forum*, go to *www.theinsuranceforum.com*.

I am not close enough to these programs to be able to predict if the loser will be the lender or the life insurance company. Because of the expenses involved in the product, it is possible that both parties will lose. In any event, these programs are one more example of why product development actuaries should monitor the sales of a product after pricing it, to ensure that losses are not occurring from sales different than expected—ideally, change the pricing so that there are fewer opportunities for subsidy. For example, if your expected mortality for age 45 is 40 percent, and for age 75 is 80 percent, and you expect 10 percent of sales at age 75, what happens if you price both ages at 44 percent? Nothing happens if the mix is as assumed, but terrible things happen if the age 75 proportion is significantly larger.

In the past, the life insurance industry only had its own distribution systems to find arbitrage opportunities within pricing. Today, capital markets are increasingly looking at the life insurance markets as a source of pricing arbitrage. Product development actuaries must ensure pricing arbitrage opportunities are kept at a minimum. □

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