Catastrophic Mortality Risk and the Smaller Insurance Company

By Don Walker

Start by thinking about whom you sell to and when are there significant gatherings of people in those groups.

I am the chief actuary of a life insurance company that is part of a multi-line insurance operation. Compared to my peers who serve our property-casualty operation, I lead a seemingly predictable existence. My life company generates a steady stream of surplus increases; their property-casualty results vary widely from year to year. A report of a new hurricane in the Gulf is a news item to me; it is a major event to my compatriots. I spend my time being concerned with interest-rate risk rather than death claims; they worry about catastrophes. But, should I be that sanguine?

When we price life products, we usually assume that the actual claims will come out close to the expected value, based on the mortality data that we are using. We rarely worry about variance in our claims results. After all, we have the Law of Large Numbers on our side, don't we?

But, guess what? Life may not be that simple. Appealing to the Law of Large Numbers requires a couple of assumptions that might not always be true. First, we need to have genuinely large numbers of policies in our risk pool. If we have issued two policies to 85-year-olds, it is highly UNLIKELY from a statistical standpoint that our actual claims on those two policies will be anywhere close to our expectation. Second, we are assuming that we have identically-distributed, UNCORRELATED lives. Put four insureds in the same car and send it (the car) out on an icy road and maybe the individual risks are NOT so uncorrelated anymore.

Large and small companies may have to look at these situations in different ways.

Regular Reinsurance May Be the Answer

One common method to reduce these kinds of risks is through regular reinsurance. A reinsurer can combine risk pools that are too small on an individual company basis and can spread the risk widely enough to avoid excessive correlations. But even after reinsuring, there is still a risk pool left behind with the issuing company. And, smaller companies may not be able to get the same pricing from the reinsurer that the larger companies can.

I would like to take some time now to discuss other approaches to managing these risk issues.

How Large is My Catastrophic Exposure?

Prior to September 11, many companies would have said "not very big." Perhaps a plane crash with several insureds aboard? That would probably be viewed as nothing that couldn't be handled.

The terrorist attacks changed that. Thousands of lives were lost in a single event, and those lives were certainly correlated. Just ask the companies that had issued group life coverage to companies that had offices in the World Trade Center.

In the last few years, we've discovered that we operate in a more dangerous world than we thought we had 10 years ago. Hurricane Katrina, bird flu and similar catastrophic events have given us lots to think about.

Now you might think my book doesn't have those kind of exposures. But, is that really true?

Start by thinking about whom you sell to and when are there significant gatherings of people in those groups. My company markets in one state, and has an affinity with a non-profit organization that has thousands of members. What kind of concentration of risk exists when that organization has its annual convention meeting?

My company has a captive field force and gives incentives to them to sell life insurance. A consequence of this is that many of our agents write business on their own lives and the lives of their families. Now, think about the implications of sending your top hundred agents (and their spouses) on an incentive trip to the Caribbean.

Curiously, even this may not be my maximum catastrophic exposure. There's another big group of my insureds who gather in one place

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every day—my home office employees. I self-insure my organization's group life program and, being insurance employees, many of them buy additional insurance from my company anyway. What happens if a tornado comes through?

My worst case scenario involves a convergence of members of all of these groups in one place: an annual tailgate celebration at a Big Ten football game that brings together my top agents, my top management people and top officials of our affinity group. Not only does a potential catastrophe at such an event have serious business continuity implications—which our corporate risk manager has considered—but it threatens a spike in claims as well.

And we haven't even talked about bird flu yet!

Once I Know my Exposure, What Do I Do With That Information?

You need to inform management—first and foremost—about the potential magnitude of the exposure and the uncertainty of the resulting loss. Only management can decide if their risk tolerance allows for the possibility of an unexpected large loss.

In all likelihood, management will come back with questions about how to hedge the risk. So let's look at possible approaches and some of their advantages and disadvantages.

Traditional Catastrophe Coverage

Property/casualty companies decide how much risk they are willing to bear on their own. They then go to the marketplace to find coverage for the excess. They pay a premium to the reinsurer; the reinsurer pays the catastrophic claims that go over the limit. Life companies can do the same thing.

It is possible to go to the reinsurance marketplace and purchase a layer of catastrophe coverage designed to meet the company's risk tolerance. The issue in recent years (since 9/11) has been the cost of such coverage. Big losses in the reinsurance industry drive up the prices and narrow the terms of coverage. Many companies have found that this is no longer an acceptable solution.

Accidental Death Carve-Outs

It has been observed that the level of death claims arising from poor health is much more predictable than the level of death claims resulting from accidents. Publicly-traded stock life companies have an interest in having consistent financials from period-to-period, and the variability in claims from accidents makes that goal hard to reach. So, a number of years ago, a reinsurance market was developed to offer stability for a price—companies could "carve-out" their risk of death from accidental means and place that portion of the total risk with a reinsurer for a fixed cost.

Today, accidental death carve-out offers an interesting alternative to a traditional catastrophe cover. In exchange for carving out the accidental claims (volatile for an individual company but more predictable for the reinsurer who is aggregating many companies) and paying a premium (equal to the expected accidental claims plus a margin) to the reinsurer, a company can, in effect, get catastrophic coverage for accidental catastrophes. At the moment, terrorism isn't being excluded from the typical deal. So, the reinsurers are betting that the margins in their premiums—from many companies over many years—will cover the possible catastrophic claims (from hopefully a few companies).

Rates for accidental death carve-out deals are said to be quite competitive today. However, these are generally one-year deals and the situation could change drastically if there was another 9/11. A company using accidental death carve-out for catastrophic coverage would be well-advised to have a backup plan.

Catastrophic Claim Pools

The concept behind a catastrophic claim pool is simple enough—a number of companies band together to form a group; no premiums are paid. But if a member of the group suffers a catastrophic loss, the other members assess themselves using agreed-upon formulas to contribute toward the payment of a portion of that loss. The details of this can be moderately complex and it is customary to employ an outside party to administer the pool. Fees are assessed to compensate the administrator, who has to keep all of the pool records and handles the claims assessment process, should a catastrophic claim occur. Typically, the administrator also acts as the agent for recruiting new members, who have to pay an additional initiation fee. Pools have rules about

which companies can join the pool and when and how a pool member can opt to get out; these are also handled by the administrator.

As examples, consider the Special Pooled Risk Administrators (SPRA) pools. There are two pools—one for ordinary risk and one for group risk. Pool members have to report their in-force information annually to the administrator. The pools use fairly complex formulas to determine how much share each company has in the total pool. The pools have rules for what constitutes a covered catastrophic event and rules for the maximum payout for a single event.

For many years, it seemed that the only events that were being covered by SPRA assessments were airplane crashes. Typical assessments for a small company were about $100 per event (small company in a big pool). Administrative costs were low. There might be one event every couple of years. Management personnel viewed this as very inexpensive coverage that would almost never be used.

Then came 9/11, and the SPRA world changed. The administrator had to wrestle with important legal issues—were the attacks one event or more than one? This was important because the aggregate claims exceeded the ordinary pool's limit. The payouts were huge—hundreds of thousands or even millions of dollars per company. And, because of the limit issue, only about two-thirds of the ordinary claims were paid (the group pool did not hit its limit and all its claims were paid). Many companies—on both sides of the claim equation—were NOT happy.

A pandemic may not be insurable in the ordinary sense of the word, since, if it happens, it would likely be spread across the entire industry. So, it is difficult to see who would be willing to provide affordable coverage.

September 11 led to a number of important changes in the SPRA agreements, an increase in fees and a new awareness on the part of the participants. Some new companies rushed to join, while others looked for alternatives. Some companies did drop out; some of those companies formed another pool of their own, called SAFE (Shared Adverse Fluctuation Experience), with different formulas and a philosophy of avoiding high risk concentrations in perceived terrorist target areas. (In the interest of full disclosure, the author's company followed this last route).

Catastrophic pooling remains an interesting alternative to reinsurance, but the ramifications are many.

Going Naked

This is certainly an option, and, in some cases, may be the only affordable choice. For example, bird flu is NOT an accidental cause of death in most definitions and would normally be excluded. Catastrophic coverage may be available, but it is alleged to be VERY expensive. A pandemic may not be insurable in the ordinary sense of the word, since, if it happens, it would likely be spread across the entire industry. So, it is difficult to see who would be willing to provide affordable coverage.

Concluding Comments

Protecting the value of your company from extremely low frequency, but high severity events, is a challenge for ANY life company. Only company management can make a determination of how much risk they are willing to run and how much protection they are willing to buy, and at what price. The actuary can help management do their jobs by bringing information to the table.

This article has been an overview of catastrophic mortality risks and the various types of coverage. If there is interest, we will spend more time in future issues looking at some of these possible solutions in greater detail. ●