



SOCIETY OF ACTUARIES

Article from:

Risk Management

July 2006 – Issue 8

You Are in the Risk Management Business!

by John Kollar

Editor's Note: The following article is reprinted with permission. It last ran in the Actuarial Review, Volume 33, No. 2, 2006.

As a pricing actuary, you attempt to come up with the best estimate of the losses and expenses that your company will have to pay on its portfolio of insurance policies. The more precisely you can measure those future costs, the less risk is involved in writing those policies, the less capital that is needed, and the greater opportunity for profit. From your own experience you know that all of the parameters underlying the losses and possibly even the premiums and policy provisions are not known to you. Consequently, there can be a

substantial amount of uncertainty in achieving your profit objectives. This may be particularly true for some lines. Everyone is painfully aware of hurricane losses over the last few years. While some day scientists may be able to forecast hurricanes, you are probably using a long-term average catastrophe provision from a catastrophe model in your pricing. Thus the insurance policies that

you are pricing have a substantial amount of uncertainty in them because some years the winds don't blow and results are favorable. And in the years when the winds do blow, results are poor. But you do the best you can.

As a catastrophe modeling actuary, you estimate the catastrophe risk for individual policies, and you evaluate the overall risk of an insurer's portfolio of policies. You well know the difficulty of predicting cat losses. Recent years

have demonstrated that multiple occurrences increase the volatility of losses even more.

As a (ceding) reinsurance actuary, you may have no choice but to purchase reinsurance to mitigate the risk of substantial catastrophe losses (or large liability losses). You may be faced with the challenge of balancing the cost of reinsurance and the cost of capital. Supplementary contingent capital comes at a cost, and sometimes that cost may be high. On the other hand, reinsurance coverage may be extremely expensive or unavailable at any price. However you look at it, you are dealing with a lot of uncertainty.

As a corporate actuary, you may build the cost of reinsurance and the cost of capital into the profit provisions that underlie your company's rates. But you are not only building the expected costs into your rates. You are also building the uncertainty in expected costs into your rates.

As a loss reserving actuary, you must estimate your company's ultimate losses. Some claims may not yet have occurred. For some lines claims may be outstanding for many years before they are paid. Nevertheless you are expected to come up with expected reserves that reflect all of these uncertainties. Recognizing that the expected reserves will virtually always be wrong, you have to recognize the uncertainty in reserves and communicate that to management. Your communication may include margins for adverse development or confidence intervals.

As a predictive modeling actuary, you try to improve the accuracy of your company's rating structure by incorporating additional information that more accurately measures the expected cost of individual policies. You also are aware of the risk of adverse selection if you do not keep up with the competition. The more accurate the



measurement of the expected costs, the lower the rating uncertainty associated with the policy and the lower the amount of capital needed to support the policies written.

As a marketing actuary, you may focus on identifying new, potentially profitable groups of policyholders. Again the idea is to reduce the uncertainty in expected costs.

As an underwriting actuary, you want to select policyholders that match up to your company's rates as closely as possible. Once more, the idea is to reduce the uncertainty around the expected costs.

As an investment actuary, you are trying to maximize the return on assets while assuming an acceptable amount of risk.

Uncertainty is common to *all* actuarial functions, not just the ones I have mentioned here. Ideally, all these functions are well coordinated so that risk is treated consistently and in an integrated fashion across your company. That is the objective of ERM. The integrated holistic treatment of risk in the ERM process can help you and your company reduce expenses, increase profits, and increase the value of the company. As an actuary, you will find that ERM is an excellent process by which to understand and be a part of the "big picture" of your company. Actuarial career paths will change in the coming years, and ERM will pave the way.

Jim Rech reminded me of the experience of the railroads in the last century. The railroads clung stubbornly to the idea that they were in the *railroad* business. Despite what was happening all around them, they failed to comprehend that they were in the *transportation* business. They did not—indeed, *could not*—compete

effectively against the trucking industry, and the railroads lost their dominant market position.

Are you in the risk management business? ♦

“

As an underwriting actuary, you want to select policyholders that match up to your company's rates as closely as possible.

”



John J. Kollar, FCAS, MAAA, is vice president with Insurance Services Office, Inc. in Jersey City, N.J. He can be reached at jkollar@iso.com.