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FINANCIAL MANAGEMENT

# Analyze That

BY ROBERT REGIS HYLE

Numbers don't lie, but they can tell many different tales—a fact that complicates making major financial decisions, whether about finance, risk management, or reinsurance. Insurers looking to get the most out of every premium dollar and manage their business proactively are creating models and simulations to tackle what humans can't and find a formula for success.

In their little corner of the home office, actuaries are working with data and formulas to determine how much reserves should be held on the company's balance sheet.

They believe the assumptions they use to estimate these liabilities are consistent with those being used in another corner of the building where the corporate finance department is working on its view of the future performance and profitability of the company. In still another corner of the building, the claims department is examining its short- and long-term obligations to its policyholders. Everyone's working with the same information, right?

Maybe not. "Some companies that are 50 years old have legacy systems they have to deal with," says Keith S. Hynes, CFO of Max Re Capital, Ltd., in Hamilton, Bermuda. "It is hard to take all the systems, even for a business that has been around only 10 years, and integrate them."

While the highest-level managers may share information, it's not necessarily the same data from one department to the next. "There's always the question, 'Are we looking at the same information?' There hasn't always been a place for insurers to share this information in a single facility," says Maryellen Coggins, principal consultant with business consultancy PricewaterhouseCoopers.

Max Re has had one advantage over other insurers—it's only three years old. "Starting with a clean sheet of paper is very beneficial," Hynes says. Max Re was able to design its own capital management system using the latest technology available.

## Better Tools Now

For Max Re and other insurers, the tools needed to give them the best view of the financial landscape have something in common: simulation. Coggins says there are a vast number of financial tools and software options available to insurers today that not only help manage capital, but also allow for better analysis of the finances. As an actuary herself, Coggins points out loss reserving is one area in particular that has improved today (see "The Automated Advantage").

While there are several loss reserving software packages available, Coggins says some insurers have built their own systems, relying on the talents of the actuaries to make the system work best. The build vs. buy debate is important on the financial side as well. "As with any decision about build vs. buy, it often depends on the size of the insurer and the details it believes it needs to get into the system," says Coggins. As an example, she points to small property/casualty insurers that focus on a single line of business. "If that line of business is a short-tail line, the insurer may not have as much need to use a detailed financial model as another carrier might, so it might elect to build something in-house that is better suited to its environment," she says. "The larger insurers, just by virtue of the complexity of the exercise, if they have built a model inside, it will need to be quite sophisticated."



Keith Hynes

When Hynes speaks of managing risks and reserves, he stresses companies need a quality data management system and the right data. In the life insurance industry, the data is pretty standard—age, gender, health information. Other insurance lines are different. "If you are doing disability insurance, you are looking at the severity of the disability and what the disability is," Hynes says. "It's a whole range of information."

"Reserves dictate policyholder surplus, premium ratio, how much insurance a company can write, and how much reinsurance it has to buy to maintain the level of income it needs to go forward," says Tom King, solutions architect for solutions provider SAP America, Inc. Solutions are particularly important in the claims process, he says.

Many insurers find claims inflation is one of the biggest problems they face in modeling the future. "How much will a jury award be three years down the road?" Hynes asks. "That's what you are trying to forecast, and it's hard to do." Max Re also writes reinsurance for life companies, so predicting life expectancies also falls into its predictive modeling. "We try to make the best estimates of what those numbers are going to be," he says of mortality rates and jury

awards. "You want to be within one or two percent on an annual basis. You are going to get monthly fluctuations, but it should average out."

Asked if there is an industry standard for estimating reserves, Hynes answers no. "Not everyone does things in a detailed manner like we do," he says.

## Too Much Is Too Much

Over-reserving means capital is being kept in lower-interest-bearing accounts. Formerly a senior vice president with Zurich Financial Services, Mark Berwick, co-founder of DFA Capital Management, developed a simulation product to help insurance executives make and adjust their daily decisions. "Prior to 9/11, the industry considered

## The Automated Advantage

When it comes to loss reserving, finding the happy medium—not too much in the checking account and certainly enough to avoid the embarrassment of bounced checks—is essential for a company's sustained well-being. Finding that balance may be better left to technology. Maryellen Coggins, principal consultant with professional services firm PricewaterhouseCoopers, lists four major benefits to using a software solution in performing loss reserving work that readily apply to other software solutions for use in financial decision-making.

"The first is storage of your historical data in an error-free environment," she says. "Once it's cleansed and it's in the database underlying the tools, you can use that data in multiple ways."

The second benefit is the tools themselves. "Actuarial calculations, by their nature, are very detailed," she says. "The tools help avoid any human error that an actuary may make in performing hundreds of calculations."

Since reserve evaluations need to be updated frequently, the third benefit is flexibility. "To the extent the tool is flexible, it can be easily updated," she says. "It would be very time consuming and repetitive for the actuary to recreate each valuation."

A wider view of the business is a fourth advantage. "To the extent the tool is built correctly, it can provide the actuary with a number of views," she says.

Having clean data reserving actuaries can depend on is probably the biggest advantage today's carriers have over the past, according to Coggins.

itself over-capitalized," Borwick says. "In the wake of 9/11 there was a realization there are events that are unforeseeable. Therefore you had to craft strategies that permitted you to operate with an efficient amount of capital but allow for these kinds of events. Today there is concern over insufficient capital."

He says there are different ways of dealing with this issue. "One way is to always have a lot of capital on your balance sheet so if [a catastrophe] happens you're ready," Borwick says. Technology allows financial people to come up with a better alternative, though. Situations can be simulated so an insurer can determine how much capital would be needed to meet most situations. "You also create a contingent structure where you can either raise capital quickly if an event occurs that is worse than you might have expected or this is some transaction under which you will receive what you need," he says.

Coming from Zurich, Borwick says the trend globally as well as in the U.S. is toward more regulatory involvement. Insurers have to satisfy statutory risk-based capital requirements, and regulators (and insurers) get nervous when they see what a major catastrophe can do to a company's bottom line.

He suggests insurers examine their reinsurance needs closely. "If you can reduce reinsurance costs by 10 to 15 percent without any meaningful change in your risk, that's an enormous bottom-line advantage," says Borwick. "If you are able to deal with risk management in a way that isn't haphazard, you have a way of increasing your return on capital enormously."

Max Re lives by that advice. "We use several programs," says Hynes. "You focus on expected scenarios of cash flow, claims statements from our liabilities, and an asset simulator that simulates the expected cash flows from your assets." The company knows it will have cash flow in, say, March 2004 but needs actuarial models and asset models to determine a range of that potential cash flow, according to Hynes. Max Re uses asset liability modeling to examine its current books to determine when the insurer will pay off the claims it knows it has compared with the premiums it is going to collect. Determining the cash flow from premiums is done through the book of business already written. "We have the business that is already written, the expected claims amount, and then there's the variation around that expected claims amount," says Hynes. Every time a

new transaction is written, the model is updated. "You are sitting there today looking at where you will be if you never wrote any more business. And then this afternoon we write another piece of business, we put it in the system, and that changes all the numbers. We model the actual business we have on the books now, the actual bonds we hold, and the actual securities we hold."

Managing risk is not just handling the company's liabilities, though—it also can include assets. "We look at the risk of our insurance activities in relation to the other risks we have—credit risk on our bond portfolio, interest rate risk, market risks on risk assets and asset markets—so we're looking at risk across the balance sheet."

The company also looks at its risks with software, opting to buy multiple modeling programs and integrating them into the system. "If you have several models from leading vendors you get more information from having access to a lot of models," says Hynes. "The value we add is integration of the models. Over time you learn which ones tend to be more accurate in certain economic environments or certain situations." Says Hynes: "It's a continuous process."

