

# The price is right

When markets are softening and the pressure is on, predictive modelling can help insurers secure the “right price” for individual risks. And, according to **John Lucker, Catherine Barton and Mark Rothwell**, it can benefit reinsurers too.

**SOME PEOPLE BELIEVE** that insurers operate largely in a “zero sum game”. In other words, the marketplace of risks is not growing at the aggregate rate targeted by primary insurers. The limited supply of organic new business, coupled with a high demand for risks, presents significant challenges if insurers are to deliver on their publicised growth plans.

This dynamic may be forcing many companies to relax their hard market resolve, which had been to maintain underwriting discipline throughout future market cycles. Any softening in pricing will, as a matter of course, flow through to the reinsurance marketplace. Adequate and appropriate premium on the primary side of the insurance equation clearly impacts business results on the reinsurance side.

But all is not lost. There are new tools that some insurers are using to ensure that a more optimal price, the “right” price, is charged for each and every risk. In keeping with the saying that there is no such thing as a bad risk but only poorly priced risks, these tools, broadly referred to as “predictive models”, provide underwriters with the ability to segment risks in ways that have never been possible before.

## THE GOOD, THE BAD AND THE UGLY

Separating good risks from bad risks at a granular level has always been the objective. But until now underwriters have not had the tools or the availability of consistent and reliable information to be truly precise in the pricing of individual risks. For this reason, developments in risk segmentation have previously focused on refining risk classification levels but have never really reached the individual risk level. Fortunately, through the efforts of progressive insurers and innovative professional services firms, predictive models can now provide a great deal more precision in prospective risk pricing.

Increasingly, predictive modelling techniques have provided significant value in reinventing critical insurance underwriting processes. This has allowed early adopters of these techniques to improve their risk selection, target their non-renewals, improve their retention of good quality business, and either surcharge or avoid risks

which they felt could not be appropriately priced. These tools are constantly developing and being adopted for use with a variety of products including personal and commercial motor, household and commercial property, SME and commercial packages, employers’ liability, general liability, errors & omissions, directors & officers, employment practice liability and medical malpractice. Historically, due to the availability of homogeneous data sources, modelling in the personal lines market has tended to lead the way. These new techniques significantly improve the benefit that can be leveraged within the personal lines market and extend them into the commercial market.

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### What is data mining and predictive modelling?

Data mining is a process which utilises a number of mathematical techniques to analyse large quantities of internal company and external market and vendor data to unlock previously unknown and meaningful business relationships. Data mining lays the foundation for predictive modelling. An example of data mining is the analysis of an insurer’s data to conclude that how an insured pays their bills is related to their driving behaviour, ie timely bill payers tend to drive more safely. Similarly, business owners that have been in business for more than “x” years tend to be better risks than younger businesses. The essence of data mining is the discovery of correlations that exist in data but were either not known or appropriately utilised by the business.

Predictive modelling is the application of data mining techniques and the development of algorithms to produce a mathematical model that can effectively predict and segment future events (eg policyholder profitability, retention, claims fraud propensity, loss frequency or severity etc). Predictive models consist of a mixture of relationships which can then be used in operational processes to predict business outcomes. An example that is widely used in the US and is emerging elsewhere is insurance credit scoring whereby the various bill payments, financial management, debt leverage and other related financial behaviours of an insured individual or business can be combined into a form predictive of future events. By enabling the business to peer into the future, tremendous value in the form of profitability or cost reduction can be realised.

Source: Author’s own

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### BACK TO BASICS

Through the use of high-end computing systems, data mining techniques and statistical modelling methods, new intellectual capital and an increasingly diverse range of both internal and external industry data, predictive modellers have shown they can uncover more insightful combinations of risk characteristics. And these can provide a more optimal evaluation of risk and a better approach to the pricing process. Some of these characteristics are new ways of looking at old information while others emerged from new sources of data or from variables that had not previously been considered or combined.

By analysing this varied data using rigorous actuarial and statistical methodologies, it was found that the predictive results of the models are stable across market cycles, provide consistent insights over time, maintain accuracy in their predictive levels, are measurable in their value and are actionable by the business. The end result is that they provide results that can be readily implemented and produce great value to the business and a demonstrable return on investment. So, if the objective is to get the right price whatever the market climate, predictive models are tools that can help insurers realise their growth objectives in relation to market share, premium base and product diversification.

### ONLY A TOOL

Caution is warranted. Predictive models do not produce the desired results on their own. If they did, success would be much easier. To achieve the

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full potential of the approach, the models must be implemented throughout the organisation and factored into underwriters’ risk management approach. Companies that use modelling as a technical exercise rarely succeed as value cannot be leveraged from a purely academic R&D investment. Organisations must be prepared to revisit business processes and workflows in order to maximise the full benefit of the models. In short, implementation is the pivotal factor to the success of a predictive modelling exercise.

This discussion has so far focused on how the successful use of predictive models can benefit primary insurers. But there are knock-on implications that will benefit reinsurers too. A reinsurer’s interests lie in understanding the quality of an underlying book of business and ensuring that adequate premium is being charged by the primary insurer.

Only through this can it be confident of an adequate flow of premium to the ceded side of the business at an acceptable level of risk. Downstream risk bearers cannot grow profitably unless risks are fundamentally priced correctly. The synergy between parties within the insurance value chain depends upon sufficient premium being paid by the insured to offset the risk being assumed.

If a reinsurer receives enough data from an insurer to accurately assess the underlying risks, it is then able to achieve a unique marketplace position. It is then better placed to perform a ground-up analysis of the book of risks being reviewed and can therefore more accurately determine the price for the reinsurance. Another approach is for the insurer to share with the reinsurer some basic information about the workings of their models, demonstrate why a model is beneficial and explain how its insights should be taken into consideration in the reinsurance underwriting process.

### A MODEL FUTURE

While these concepts may sound obvious, their place in the reinsurance market is relatively novel. The ability to prospectively evaluate the primary insurer’s profitability on individual risks in a book from the ground up is a dramatic shift in the reinsurance process – a shift which can provide a reinsurer with unique and valuable insights into pricing. Intuition says that such risks can be underwritten with greater confidence and therefore, when appropriate, a lower price can be offered. It is likely that those innovative insurers, which are better able to evaluate and price risks, can benefit from lower reinsurance. In this case, all parties benefit and the cycle remains healthy.

The potential, in terms of the ongoing impact of predictive modelling to reinsurers, has yet to be realised. But one certainty is that even as the market softens, insurers and reinsurers alike will continue to be pressured to grow their books profitably. In previous soft market cycles, profitable growth has been somewhat of an oxymoron. Today, if predictive models can be used in the underwriting process, such aspirations are achievable because it has been proven to deliver accurate pricing results.

Some insurers have developed predictive models and others have not. As the market cycle progresses, and if history repeats itself, we should brace ourselves for a turbulent ride. In the end, as has always happened in the past, there will be winners and losers. The winners are likely to be those with the best risk insights, the most sufficient premium, the most innovative underwriting processes and the discipline to ensure that correct pricing remains the focus of the business.

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