New Approach to Captive Reserving?

"more complex reserving methods could result in more accurate estimates"

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POLICY YEAR

The policy year relates to the year over which the cover is provided, whereas the claims can emerge over many years into the future. Consequently the true cost of the claims arising from a particular policy year can take many years to emerge fully.

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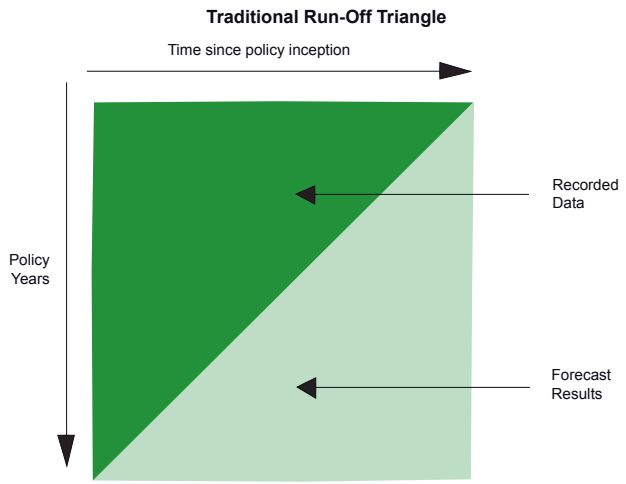
Historically general insurers, including captives, used run-off triangles as a key tool to predict future levels of claims and reserve for them.

This triangulation method involves recording observed data about total known claims amounts (paid or incurred) at regular intervals in each policy year. The data points are arranged in a table, with rows corresponding to policy years and columns corresponding to time since the policy's inception. The earliest policy years have entries in more columns than more recent policy years, so the table of known data takes on a triangular shape.

Traditional methods for estimating the "Incurred but not reported" (IBNR) reserves aim to 'fill in' the rest of the table; completing each row with an expected level of future claims at each point in time in order to arrive at the projected total claim amount in the right hand column. These methods rely on various assumptions, including one that the general trend in claims amounts over time is roughly similar across policy years. The accuracy of the projections depends on how well these assumptions reflect what happens in the real world.

The run-off triangle method often provides reasonable reserve amounts. In addition, it is easy to understand and does not require a large amount of complex data. However, it does have some drawbacks as the triangulation approach may not cope well when the insurance structure has complex deductibles, limits and non-proportional reinsurance. More importantly, the main drawback is that it only offers a single estimated value for total ultimate claims per each policy year; it cannot attach any probability to the calculated IBNR reserve.

Directors and regulators are becoming more interested in setting reserves at a level with a quantified probability of being sufficient. In view of these issues and increases in computational power and data processing systems generally, it may be time to rethink this methodology.



Stochastic Claims Reserving

As computational power has become cheaper and data quality improved, more sophisticated stochastic models have been developed. They can cope with more complex insurance structures, as well as providing more detailed results. A first step into stochastic reserving provides the insurer with a probability that the likely ultimate claims amount will fall within a range between upper and lower bounds.

More sophisticated models (which still use claims triangulations) can provide a full distribution of expected possible claim amounts. This information allows the insurer to set its claims reserves with reference to its risk appetite – essentially answering the question of what level reserves should be in order to meet claims 99 times out of 100, for example. However, being still based on claims triangulations, these methods still suffer from uncertainty arising through aggregation of data.

Individual Claims Reserving

The next refinement is to use individual claims reserving methods. If an insurer has high quality data it is possible to calculate IBNR reserves for individual claims, rather than the annual aggregate amounts. An individual approach is better able to allow for complex insurance/reinsurance structures and non-standard claims development. Individual claims reserving methods simulate the 'history' of single claims from incidence through to their ultimate settlement. These stochastic models still provide a distribution of ultimate claims, but also calculate reserves at a claim level which can lead to more appropriate projections. In practice, this means that the insurer can be more certain about their estimate of ultimate claims and, therefore, is better equipped to manage its risk.

To support this level of detail, the data needs to be of high quality, which potentially leads to increased costs. Individual claims models therefore tend to benefit larger insurers who can exert tighter control over their data recording and processing.

Conclusions

Whether the benefits of an individual claims reserving approach outweigh the increased costs will depend on the individual insurer. For many small captive insurers, the traditional triangulation-based methods work very well and the level of data recorded would not support a more sophisticated approach. However, more complex reserving methods could result in more accurate estimates and better quantification of risk could bring significant improvements in risk management and may offer insights into previously unobserved groupings of claims.