



Examining confidence levels

Ben Leung and Rennie Khan of PKF (Cayman) and Steven Glicksman of Glicksman Consulting provide their insights into loss reserves and confidence levels from the perspective of an actuary and an auditor.

In reviewing the actuarial report the audit team's independent actuary considers various technical areas that may or may not impact the company's loss reserve. One important topic is confidence levels.

In many of the captive insurer actuarial studies that we review, there is an exhibit of the balance sheet liabilities and recommended future funding at various confidence levels. For example, there is always an 'expected' or 'actuarial central estimate' amount, plus in many cases 70, 80 and 90 percent confidence level amounts. The captive then makes a decision as to what it believes is the most appropriate confidence level for reserving and funding purposes.

A better practice starts with a better understanding of confidence levels.

Understanding confidence levels

Confidence levels are developed by actuaries to determine the probability that funding will be sufficient. For example, an 80 percent confidence level indicates that the funding rate identified with this should be adequate in 8 out of 10 years.

We like to explain confidence levels outside the insurance context, eg, with an analogy of having an appointment.

- Suppose you have an appointment that with average traffic patterns should take 50 minutes of travel time. For simplicity, assume 50 percent of the time you may arrive early and 50 percent of the time you may be late. Then 50 minutes is the 'expected' or 'actuarial central estimate' travel time.
- If it is an important appointment, let's say a medical appointment, you may want to be more certain that you arrive promptly. You can leave home 75 minutes before the appointment. This way if there is some unusual traffic or you miss a few extra traffic signals you can still make the appointment. The extra time corresponds to a 75 percent confidence level.
- If it is a very important appointment, perhaps a job interview, you want to be sure to be there on time. In this scenario you may give yourself 90 minutes' travel time as you want to be 90 percent certain that you arrive at the agreed time.
- Confidence levels do not need to always be over 50 percent. In the above example, you could leave home 40 minutes before the appointment. You hope to have light traffic and get green lights at most traffic signals. It is still possible to be on time, but there is only a 40 percent confidence level.

Confidence levels, by definition, must be between 0 percent and 100 percent. This makes sense as you can never be less than 0 percent or more than 100 percent sure. A confidence level of 50 percent (in simplistic terms) means that you are funding at the average amount projected by the actuary; it does not mean that you only have half the money required.

The next logical questions are how does an actuary develop a confidence level, and what confidence level is appropriate for a specific captive?

Developing a confidence level

Actuarial standards require the actuary always to provide the 'expected' or 'actuarial central estimate' in their reports as a starting point. Although the terms are used as synonyms, they are not exactly the same, as there are slight nuances.

The 'expected' amount should be within the actuary's range of reasonable reserve estimates. The actuary may determine a range of reasonable reserve estimates that reflects the uncertainties associated with analysing the reserves. A range of reasonable estimates could be produced by appropriate actuarial methods or alternative sets of assumptions that the actuary judges to be reasonable. The actuary may include confidence levels in a range of reasonable estimates, but is not required to do so.

The actuary uses the 'expected' amount as a base to develop confidence levels. The confidence levels are based on mathematical models using assumptions of claim frequency and severity. Generally speaking, insurance coverages with infrequent and high severity claims (eg, excess medical malpractice liability) require a greater increase from 'expected' to achieve a specific confidence level than coverages with frequent low severity claims (eg, automobile physical damage). Higher self-insured retentions (SIRs) require a greater increase from expected than low SIRs.

Let's continue with the analogy of having an appointment. Situations with infrequent, but severe traffic back-ups (rare high value shock claims) are more uncertain than those with predictable steady traffic (regularly occurring small value claims).

What confidence level is appropriate?

A confidence level is another piece of information that can help the captive to make an informed decision. There is no rule of thumb. Factors to consider are:

- What are the consequences of seeking additional funding or capital in the event losses are greater than expected?
- When will losses be paid? Are they the type of claims that are paid several years into the future allowing you to gradually increase funding?
- Are you risk-averse? What is your tolerance (ability and willingness) to accept risk?
- What are the tax consequences of your decisions?
- What are the regulatory consequences of your decisions?

In a nutshell, the claims/ losses component is almost always the biggest item on the balance sheet and budget. Over the years we have



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observed two financial management styles associated with captives that have better practices and long-term success.

1. The first better practice is what we denote as consistency and moderation. This means that the captive elects to fund at a steady and sufficient, yet moderate level. Funding one year at 50 percent and the next at 90 percent, and then dropping back to 50 percent is difficult to plan and can attract additional regulatory scrutiny.

On the other hand, funding at a consistent 70 percent confidence level will allow you to weather the ups and downs without the need to respond abruptly, and gradually accumulate equity. Auditors may also regard changes in confidence levels as manipulation of the financial statements.

2. The next better practice is not to manage your actuary. An experienced actuary will likely not under/over react to changes in loss experience. For example, if loss experience takes a turn for the worse, the actuary may examine the causation. If it is one or two shock claims, then it does not necessarily indicate a new and worse trend. The same is true about improved loss experience; it does not guarantee that there will be no future shock losses.

The reserve for losses and loss adjustment expenses on a captive's financial statements is a significant figure which requires a clear understanding by all parties.

PLANNING	FIELDWORK	CONCLUSION
Significant changes from the prior year, eg, changes to coverage types or limits, new policies.	Obtain and review copies of new policies or amendments to existing policies.	Determine the adequacy of the loss reserves disclosed on the balance sheet according to auditing guidelines.
Discussion with management—loss experience through the interim period.	Obtain and review copies of loss runs and board minutes.	
Potential changes to assumptions made in the prior actuarial report, eg, discount rates and confidence levels.	Obtain and review the actuarial report.	

A typical audit follows the process of planning, fieldwork and conclusion. The table above summarises the important areas considered at each of these phases.

Together with the audit team, an actuary independent of the client's actuary is used to review the actuarial report prepared for the client. Some of the audit steps include:

- Confirming that the preparers of the actuarial report are qualified to conclude on the reserves eg, they are members of the Casualty Actuarial Society or the American Academy of Actuaries; and
- Was the work performed in a manner consistent with commonly accepted actuarial principles?

The audit team's independent actuary usually concludes on the two items above, however the audit team must obtain evidence that the inputs used by the actuary are consistent with the company's operations, by:

- Ensuring that the terms of the executed policies are the same as those used in the actuarial report;
- Ensuring that the loss runs produced by the company agree with the actuarial report; and
- Testing the claims processing cycle to ensure that the elements of this cycle are operating as documented.

It can be seen from the above that the review of loss reserves is a significant element in the captive's audit and there are a few considerations to be taken into account when examining the confidence levels used by the company. ●

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