# Module J Unit 17E

## SERVICE PROVIDERS - THE ROLE OF THE ACTUARY

**Purpose**

At the end of this unit the participant should be able to demonstrate an understanding of the role played by an actuary advising a (re)insurance company and the benefits and limitations of the role, in particular in the context of a captive.

**Assumed knowledge**

Working knowledge of the operation of a (re)insurance company.

| **Summary of learning outcomes** |
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| 1. Describe the breadth of skills and knowledge possessed by an actuary. |
| 2. Explain the relevance and value of these skills and knowledge to an insurer. |
| 3. Describe the uses and benefits of those skills specifically in a captive context. |
| 4. Explain the limitations of the actuarial approach. |

# Module J Unit 17E

# SERVICE PROVIDERS - THE ROLE OF THE ACTUARY

## 17.0 INTRODUCTION TO THE ROLE OF THE ACTUARY

An actuary uses mathematical skills and a knowledge of finance to help measure the probability and risk of future events.

One of the most common areas for the use of these skills in insurance companies is to compile and analyse statistics and use them to calculate insurance risks, premiums and reserves needed to meet future claims.

An insurer will, as a matter of course, maintain a record of claims paid and reserved in respect of policies written. Some information will be factual such as the amount paid for specific claims in respect of specified policies. Other information will be more subjective such as the reserve for claims that have been reported as incurred but not settled. Although the insurer will have a reasonable knowledge of the nature of the claims reported, there may be uncertainty as to the amount of the ultimate settlement. An additional reserve on top of the level of reported claims may be needed which is referred to as a reserve for claims incurred but not enough reported (or "IBNER").

There may also be claims that have not yet been reported to the insurer but which can reasonably be foreseen based on past experience or other means of analysis. A reserve for such claims is referred to as a reserve for claims incurred but not reported (or "IBNR").

The role of a reserving actuary is to review the nature of the business written and the available data to assist the company to assess an appropriate level of reserves with particular attention to the potential exposure to IBNER and/or IBNR.

The above summary and following text refers to insurers writing what is usually termed "general" or "non-life" business. Specific requirements and regulations apply to actuaries working on life business and this is considered separately below in the final section.

## 17.1 ANALYSIS OF DATA

The basic data that the actuary will consider usually includes a pattern of past paid and incurred claims reported over time, typically by year or quarter. These patterns are often referred to as claims development triangles because the longest past experience exists for the earliest years of underwriting and the data can be recorded and presented in the form of a triangle. Please see the Unit 11.2.1 for an example of a claims development triangle and an explanation as to how it is constructed.

Actuaries have developed a range of statistical techniques for projecting the ultimate level of claims that may be expected based on triangular data for paid or incurred claims from past years. Judgement is required in selecting an appropriate technique and in the finer details of its application.

Given the reliance on such data, it is important that the insurance company records such data accurately and consistently. Mathematical techniques will be less effective if the data is flawed. Even if an actuary is not engaged to give a view on the reserves, the board or management of the company may still gather useful insights from recording and reviewing such data.

There are certain types of insurance risk for which analysing data using the triangle approach may not be appropriate. An example would be employers' liability cover where the employees have been exposed to asbestos. Because of the long development period for such claims, using a triangle based on past experience to forecast ultimate cost of claims may not capture future loss development adequately. For such risks, actuaries can apply industry models and projections to estimate the cost of future claims.

In recognition of the variety of risks covered, the actuary needs to ensure that he/she has the appropriate expertise to consider the specific risks written by a company. Otherwise, the methods adopted may not be appropriate for the business considered.

For some small insurance companies, the cost of an annual actuarial review may be deemed too expensive for the value delivered. In some cases a company may seek a review on a triennial basis or not use actuaries at all.

An increase in the use of actuaries has been influenced by the adoption of Solvency II (which is an insurance directive applicable to insurers within the EU). Solvency II requires a company to have an actuarial function and sets out detailed requirements as to the role and operation of this function. For territories outside Solvency II, such requirements may not apply but increasingly similar principles and approaches have been adopted by regulators in recognition of the value the actuarial function can deliver.

### 17.2 PRESENTATION OF RESULTS

An output of employing an actuary should be that a report is received which clearly sets out the data received, the methods of analysis used and the results produced.

While such reports will inevitably include technical details, the overall approach should be comprehensible to a layman. A graphical presentation of results is often helpful to explain the recommendations and the approach adopted.

The report should comply with actuarial standards which should ensure the report is of a satisfactory quality and consistency. Nevertheless, the report should be presented in draft to allow the users to question the approach and conclusions before the report is presented to the insurers board for approval.

An exchange of views with those involved in operating the insurance company may help to refine the estimate of the reserves. The actuary may be alerted to further data or views on potential development of the specific risks being considered. The management of the company may benefit from an independent view that may provide an additional insight into the appropriate reserving policy.

### 17.3 RESERVES AND AUDIT REVIEW

The challenge for companies that do not use actuaries is to ensure that any reserves established are not only robust but can be demonstrated to be robust. Some companies will write business where there is limited variability in expected future claims and may be able to demonstrate this without an actuarial report.

In this context it is useful to be aware of the UK accounting standard ISA 540. This sets a number of requirements for auditors considering estimates such as claims reserves. The auditor must consider methods, models, data and assumptions and the extent to which these are objective (or subjective) and can be justified. The auditor is required to have a sceptical approach and challenge the approach adopted.

Many larger audit firms will seek to involve their own actuarial teams to review an estimate of claims reserves.

Bearing in mind these requirements, using an actuary will generally address a number of these points as the actuary should document data, methods and any assumptions made in their report. An actuary will be well placed to understand and respond to questions raised by an actuary working for an auditor.

If an actuary is not used then the company will need to ensure that someone has undertaken the relevant work to document the basis of any reserves established (or not established). Such an independent approach will need to be of a sufficiently rigorous standard to meet the scrutiny of the auditor reviewing the reserves.

### 17.4 SETTING PREMIUM RATES

An insurer will often use an underwriter to set premium rates. However, depending on the nature and scale of the business being written, the specific advice of an actuary may be helpful.

An actuary may be familiar with the recent development of a type of insurance business through analysing exposure and loss data to set reserves. An extension of this role is to comment on the level of premium to be charged for future business. In this context the actuary will need to be aware of changes in the environment which can impact on future claims such as; inflation, claims trends and changes in law.

An actuary may be helpful in calculating premiums that are dependent on a range of factors in competitive markets such as motor insurance or house insurance. Actuaries may be able to help design programs to set premiums in an effective way and analyse the impact of changes.

For a smaller company, such as a captive, the actuary may be able to help justify the captive's pricing of risk given that the rates may be applied between connected parties and there is a need to demonstrate arm's length pricing. The actuary should be able to provide independent justification of the rates used.

For captives, the role of actuaries to determine or validate premium rates has generally been less frequent than the use of actuaries to advise on reserves. However, the use of actuaries is increasing in both areas.

### 17.5 INTERNAL AND EXTERNAL APPOINTMENT OF ACTUARIES

Actuaries can be employed directly by insurers or be appointed for specific tasks on a consultancy basis.

A large company will tend to employ actuaries directly as there will be a large quantity of work needed and the actuaries appointed may contribute to a range of areas beyond their specific actuarial role.

Smaller companies are likely to use consultants for specific tasks as a full time appointment may not be economically viable.

There are a range of consulting firms with different advantages and disadvantages. A large consulting firm will have access to a wide range of resources but may regard smaller appointments (such as for captives) as relatively low priority. A smaller firm may have limited resources but be keener to deliver a good service to smaller clients.

In appointing an actuarial firm (of any size) care should be taken to ensure that the team appointed have the relevant experience and expertise to undertake the work required.

### 17.6 LIMITATIONS ON THE USE OF ACTUARIES

There are a range of reasons why an actuary may not be appointed (if an appointment is not mandatory to meet regulatory requirements).

1. Using an actuary can be costly for a small insurer such as a captive.
2. It may be felt that the expected claims development is not likely to be susceptible to IBNER or IBNR and thus there is no need for an actuary to advise.
3. Smaller companies have fewer claims than larger companies so in some cases the application of statistical methods can be less effective.
4. A company might consider that an external actuary may lack the wider understanding of the specific business written and hence not apply the appropriate method or apply the method incorrectly.
5. Those managing the business may believe that their insight into the business is sufficient to set adequate premium rates and/or reserves without the need to resort to a third party.

Notwithstanding these potential limitations, the use of actuaries by most insurers, including captives, is expanding. Boards increasingly are looking for support in setting reserves and while actuarial methods have their limitations the alternative of having no specialist independent review may not be acceptable.

### 17.7 THE ROLE OF ACTUARIES FOR LIFE BUSINESS

The above description of the work of actuaries applies to non-life insurance. For life business the role of the actuary is specified in most jurisdictions by regulation. Within the EU the role of the actuary is mandated to comply with the actuarial function requirements of Solvency II.

In jurisdictions outside the EU, commonly there are rules and regulations that require the appointment of an actuary for an insurer writing life business and determining the minimum scope of the work to be undertaken by the actuary appointed. This is the case in Guernsey. For further details of the statutory role of actuaries in Guernsey life companies please refer to the GFSC website which includes various relevant guidance notes. These include the Guidance Note on Actuarial Requirements and Standards and the Guidance Note on Actuarial Valuations. There are also references to actuaries in other guidance notes including, for example, the Guidance Note for International Life and Pensions Insurers and the Guidance Note on Unit Pricing.

The reasons that insurers writing life business have been treated separately from general insurers include the following.

1. Life business is a business in which contracts typically operate over a considerable period of time and hence the increased importance of setting reserves appropriately in order to manage the business correctly.
2. Policyholders may have certain rights to participate in the profits of the life business and actuaries often have a role in determining how such participation is designed, operated and valued.
3. Actuaries have a traditional role in analysing mortality and morbidity experience and developing suitable tables to reflect the experience measured (and expected future development of such experience).
4. Actuaries have a professional standing and regulators may rely on this to require, for example, sign off of marketing material by an actuary to ensure that such material is of an appropriate quality that limits misleading promotion and detriment to policyholders or potential policyholders.

The detailed regulations can vary significantly between territories. However, in most cases the actuary will have a role in quantifying the level of reserves required to meet solvency requirements.

The specific requirements applicable in a given territory should be carefully considered. The above comments provide merely a very high level introduction to the requirements that may apply.

**Self-test questions**

Answering these questions will remind the participant as to what has been learnt. Once completed, please check your answers against the relevant text.

1. What is likely to be the strongest skill set of an actuary?
2. Why is it important that an actuary can access reliable historic claims data?
3. Must a (re)insurer appoint an actuary?
4. In what circumstance is it advisable for the board to appoint an actuary?
5. What role does an actuary play in setting premium rates?
6. What role does an actuary play in setting claims reserves?

| **Summary of learning outcomes** |
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