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1995 GENERAL INSURANCE CONVENTION

18–21 OCTOBER 1995

The 1995 General Insurance Convention was held at Bournemouth from 18 to 21 October 1995. A record number of delegates attended, but our history of emphasis on healthy discussion of practical and topical non-life subjects was continued.

Stochastic asset modelling is a popular research area in all fields of actuarial work at the current time. A full paper was not produced, but this session included comments on how work should proceed. Substantial discussion ensued on the benefits of stochastic approaches as opposed to deterministic ones, and vice versa. It was clear that it depended on the nature of the scenario as to which approach was preferable. It also emerged that what was needed was a method of judging the effectiveness of the various stochastic asset/liability models.

Derivatives have recently received considerable discussion in financial circles, following the investment bank situation that occurred in Singapore. Actuaries are playing an increasingly active role in the sound and prudent management of non-life companies. They are well placed to understand aspects of other disciplines and broader business issues, and hence to ensure that proper measures are taken. The paper provided actuaries with an overview of the relatively new tools of modern risk management, the derivative instrument, and how it might be used to manage risk in the context of a general insurance company. Most of the problems that have arisen are from inadequate and inefficient management controls. Whilst these issues need careful consideration, they should not obscure the significant opportunities that derivatives can offer companies for the more effective management and control of risk.

The next paper was on household insurance. In 1994 the paper on household insurance concentrated on the subsidence and flood risks. This was continued into 1995. The paper was divided into three main topics, being:

(1) tracking the variance in building rates for areas of high flood and subsidence risk;
(2) assessment of a study of sea defences and comparisons with flood models; and
(3) assessment of the effect of house sales on the number of subsidence claims reported.

Since 1994 the building rates in areas of a high risk of flood and subsidence have benefited from reductions in rates similar to those in other areas. There has been a reduction in the number of subsidence referrals. The flood group continues

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to exhibit the largest variance, although the variance of subsidence has increased. This might be taken to suggest that insurers are taking more account of their own exposure methodologies and producing more accurate rates.

The comparison of flood models showed that there are severe limitations in applying findings to rating decisions. There was no evidence yet of insurers withdrawing flood cover. The calculations of EMLs is still problematical, particularly in the area of quantifying likelihood.

It was felt that activity in the housing market was sufficient to explain about 40-60% of subsidence claims reported. It was felt that another housing boom, similar to that which occurred in the late 1980s, would increase subsidence claims by perhaps up to 30%.

The next paper was about designing *ad hoc* management information systems. There are some who would question whether this would traditionally come within the realms of an actuary's work, but there is no doubt that actuaries thrive on good quality management information, and that this has a significant bearing on the quality of the work that they are able to perform. It is felt that there will be more opportunities for actuaries to become involved in this area and to tackle the challenges and opportunities therein. It is likely that management information systems will become more refined and sophisticated in the future, and the unique qualities of the actuary are particularly useful in this area.

The paper on insurance as a capital project considered whether any added insight could be obtained into the likely future performance of an insurance company by treating it as a capital project. It was felt that the skills of an actuary are well placed when it comes to appraising capital projects.

In viewing an insurance company using capital project techniques, clearly certain attributes become important, such as:

(1) the structure of the model;
(2) cash flows between the elements of the structure; and
(3) an association with the achievement of the financial goal.

As well as forecasting the future cash flows, the actuary needs to develop sophisticated modelling techniques, including the use of a number of suitable and consistent financial assumptions.

It has been a long time (nearly 10 years) since a paper was produced about pricing in the London Market. The growth in the number of actuaries in this area and the increasing number of roles in which actuaries are becoming involved make such a paper possibly long overdue. Whereas it is the role of the underwriter to make the particular decisions about accepting risks and quoting rates, it is clear, by the growing use of actuaries in this area, that many see the skills of the actuary as being useful in supporting the underwriter's decision-making process. It can also be seen as a control mechanism.

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Actuaries are trained in financial management, and can see, not only the particular risk being assessed, but also the broader picture of the whole process of insurance from underwriting through to reserving. In addition, they are trained in cash flow techniques and can appreciate the relationship between inflation, investment income and other features that affect cash flows. This means that the actual price can be broken down and justified by its constituent elements.

While clearly separate functions, there is a relationship between the pricing when the risk is first written and the later reserving processes. Actuarial involvement in the pricing will certainly be able to assist the reserving. Whilst it is necessary that the roles of the actuary in pricing and reserving are kept totally distinct, it is clear that there is a great degree of comfort to all those involved by having actuarial involvement in both functions.

The increasing number of companies and syndicates going into run off makes such a review an important issue for the mid 1990s. At present there are about 250 Lloyds syndicates and 125 non-life insurance companies in run off. Of the latter, over 20 are at the insolvency stage. The gross liabilities are estimated to exceed £25bn.

The main features of the industry are claims management, reinsurance recovery and litigation. Associated with these are discussions for commutations, both inwards and outwards, and other features that affect the management of the company. Also, in the process of a company going into run off, the claims development will not follow the normal pattern. Any actuary must be fully aware of the specific features of the concern going into run off in estimating his ultimate liabilities.

It might be felt that a company in run off should be reserved at a more conservative level than on-going companies. Of course, this will depend on the circumstances.

When a company changes from being an on-going company to being a company in run off, the main areas of concentration of the company are totally changed. This may be a smooth process, or there might be fundamental problems that occur. The paper discussed all the aspects that make this such an interesting area for those involved.

It is always pleasant to be faced with a situation of an innovative approach to reserving. A popular recent introduction has been the bootstrap method. This is an approach whereby a distribution that is known can be used as an assumption of a distribution that is unknown. Bootstrapping can be used to estimate the distribution of the chain-ladder estimate rather than just the chain-ladder point estimate. As such, it gives more information available about the data that are being accessed.

The paper on actuarial support for claims assessment was entitled 'Should Actuaries talk to Claim Managers?' This paper demonstrated that actuaries should have a much wider role in general insurance than in the traditional fields of

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rating, reserving and reporting. The actuary's training makes him peculiarly well qualified to understand all the different aspects of a general insurance or reinsurance company and to be able to work closely with the claim managers and others within the insurance industry. By gaining a better understanding of the function of claims manager, the actuary will then be in a far better position to give opinions on future trends in claims frequency and severity and other aspects of claims that are, perhaps, not fully appreciated by the claims manager.

Of the three areas of non-life insurance: marine, non-marine, and aviation, it is clear that aviation is the youngest. Perhaps, because of this, there has not been a paper devoted to this subject for the General Insurance Convention (GISG) in the past.

It is important that an actuary is in a position to understand the different types of business written within aviation insurance, and also to be able to recognise specific attributes of the business. For instance, is aviation products liability to do with the manufacture of the wings or the manufacture of the seats? This fact of being either critical or non-critical products can make a large difference to the potential exposure.

In the late 1980s, because of the excessive capacity of the aviation business as compared with the demand, rates plummeted, and this loss-making situation was aggravated by the large airline claims and emerging aviation pollution claims. Following years of significant large losses in the aviation market, the rates reached more satisfactory levels in the early 1990s.

Exposure to risk in the London Market is a topic that has rarely been tackled in the past. It is important to follow the way that risk is assessed at the various stages of the insurance process. This starts off at the underwriting level and follows through the claims level to the reserving level.

The paper was structured into three sections, discussing:

(1) the underwriter's viewpoint and requirements, and also the effect of the capital that supports the underwriting;
(2) the difficulties that arise in the data used in the estimation of future liabilities; and
(3) the statistical methods used in the estimation process.

Time series have been used in general insurance for many years. Whereas most of the actuarial work has been concentrated on claims reserving and claims analysis, using such models as GLIM, there have been very few papers at GISG about this. Such techniques are useful when there are seasonal changes and trends in the data that need to be modelled. The basic structure is for the time series to be the trend, plus a seasonal component, plus an error component. By analysing the model in this way, a better understanding of the trends can be obtained.

The author considered that there was a reluctance to use actuarial valuations in the determination of personal injury compensation in the British courts. However,

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actuarial valuations are used for divorce cases and for unfair and wrongful dismissal. The development of the Ogden tables has produced a focal point for future discussion.

There was a discussion on the topics of capital, profit and risk. This featured a case study in the practical application of risk-based capital. It involved a setting of profit margins and analysing the underwriting contribution to the process. Stochastic techniques enable a range of possible results to be assessed. In the more competitive environment of modern times, it is clear that the return on capital must be a fundamental feature in any process involving the acceptance of risk.

Uncertainty is a day-to-day aspect of actuarial life. A good discussion at GISG is a certainty. It is clear that it is important to discuss to whom we are communicating the uncertainty. Why are we trying to communicate this? What are the best ways in which it can be communicated? We can look at other professions to gain an example of how they proceed in this area, and learn from this.

Although fairly new in the United Kingdom, rating agencies have been used in detail in the United States of America for many years. The paper described the various rating bureaux as being S&P, ISI and Bests. It then went on to describe the rating systems in use. Users utilise the ratings in order that they might purchase reinsurance and be in a position to collect without the reinsurer going into liquidation in the meantime. However, although rating can be used to determine quickly whether a reinsurer is very good or completely unreliable, it is less useful for differentiating the reinsurers that are more borderline. One of the drawbacks of rating is that, although ratings are regularly updated, they are invariably based on data that are fairly out of date, with a time lag, generally, of more than twelve months after the finish of the period in which they are being rated.

There was a workshop on stochastic asset models. Various approaches were presented and contrasted, including those based on random walk, autoregressive, fractal, chaotic and equilibrium. Examples were provided of the main approaches rather than numerical investigations, and then the suitability or otherwise for the various uses was outlined. The application of the models in general insurance included profit testing, solvency testing, asset liability studies and portfolio selection. One of the main uses of the workshop is that much of the published work is highly technical and not easily accessible for those not working in the field. For those with a mathematical bent, they will find some of the formulae quite engaging, but trial and error is a good way for us lessers mortals to understand the models.

Finally, there was a presentation given on the update of the *Claims Reserving*

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Manual. This has now become a comprehensive survey and description of general insurance reserving methods in the U.K. In addition, it has been purchased by many non-actuaries. The continuing work is in two areas being:

(1) the review and update of listing material in Volume One; and
(2) the introduction of more advanced methods into Volume Two. It is expected that this will be a continuing operation, as clearly, in a field such as general insurance, an approach other than a dynamic one is of little value.

C.J.W. CZAPIEWSKI

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