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GENERAL INSURANCE STUDY GROUP

CONVENTION, 27–29 OCTOBER 1993

The 1993 Convention of the General Insurance Study Group (GISG) was held from Wednesday 27 October to Friday 29 October at the Hinckley Island Hotel in Leicestershire.

After the introduction by the Chairman of GISG, we went into the first plenary session which was about Reserving. Four papers were presented and discussed, namely:

(1) Variance in Claims Reserving,
(2) Prudential Margins,
(3) Claims Runoff Patterns (update), and
(4) Equalisation Reserves.

The first paper, on Variance in Claims Reserving, was seen as an educational paper. Although in recent years there has been considerable development of statistical techniques for predicting claims payments, some of them have yet to be assimilated by the profession and put into practice. These techniques have, nevertheless, been gaining in popularity owing to the increasing speed with which microcomputers can handle the heavy computational load necessary to carry out the calculations, and at low comparable cost. The paper gives an insight into the various techniques, dispelling some of the mystique surrounding them and demonstrating how they work in practice. Much of the paper is devoted to stochastic models, which differ from non-stochastic models in that the mathematical models are not confined to the underlying pattern, but also encompass the variation of the data around that pattern. The stochastic approach is perceived to offer three main benefits:

— The influence of each data-point in determining the fitted model should depend on the amount of random variation in that data-point: figures with large random components should have relatively little influence.
— The reliability of the fitted model, and the likely magnitude of random variation in future payments, can be estimated. This enables 'standard errors', indicating the reliability of predictions, to be calculated.
— Statistical tests may be applied to the modelling process to verify any assumptions and to gain an understanding of the variability of the claims process.

Much of the lively discussion which followed the presentation of the paper centred around the pros and cons of stochastic versus deterministic methods, with practitioners of the former being in the minority.

The paper on Prudential Margins (on reserves) does not attempt to offer a solution to the necessary quantum, but is more of a discussion of the issues to be considered. Questions arose as to whether the reserves should be a best estimate only, with the 'margin' contained within the free capital. However, the conclusion was that margins are not just desirable, but essential, in view of the long-term nature of insurance.

The paper on Claims Run-off Patterns presents an update of the run-off derived from statistics of claims payments incorporating data from 1991. The format is as for previous presentations to GISG:

— The source data came from returns made by insurance companies to the Department of Trade and Industry.
— Four risk groups were analysed: fire; comprehensive private motor; non-comprehensive private motor; and employers' liability.
— Four different methods were used to derive the runoff patterns from the data, and the paper contained details of the methodology used.

The paper on Equalisation Reserves was discussed mainly to arm the working party with the views of the conference in order that a formal response might be made on behalf of the profession to the DTI and the Inland Revenue. This was in response to their consultation document which had been issued a few months earlier.

The discussion centred initially on whether equalisation reserves should be required. The principle of insurance is that of pooling over numbers of risks and over geographical areas. This principle can be extended to pooling of risks over time to cater for the random fluctuations in frequency and cost of claims. The paper then goes on to talk about the tax effect of equalisation reserves. Comparison is made with overseas countries where equalisation reserves have been used in recent years to a greater or lesser extent. The form of the equalisation reserve is basically given as either whole account equalisation reserves or catastrophe equalisation reserves. The former would be calculated at the company level over all classes of business. The catastrophe equalisation reserves would be over a much smaller proportion of the book. Clearly, problems would be encountered in determining what comprised this class of business and also which loss events would trigger transfers from the equalisation reserve. The actuary is highlighted as being the professional best equipped to handle the calculation of equalisation reserves.

After this session, a report was given about the recent Loss Reserving Seminar run by the Casualty Actuarial Society in the U.S.A. This was followed by an update on the Professional Guidance given to U.K. general insurance actuaries.

On Thursday morning, we started with a plenary session on the Financial Condition of insurers. The papers were entitled:

(1) Dynamic Corporate Management—Maintaining Solvency over Time,
(2) Risk Based Capital,
(3) What Ratios Really Matter, and
(4) A Panel Session.

The paper on Dynamic Corporate Management is set against the backdrop of the industry's 1992 results, which showed a further operating loss which, when added to those of the two previous years, showed that the recent adverse phase of the underwriting cycle had been much more severe than the previous one. It is hard to believe that the latest results represent something of a recovery for the U.K. general insurance industry. With no significant annual profits yet declared, a growing number of underwriters are suggesting that their pricing is already adequate and are even hankering for increased market share. We have to price our products at least 12 months, and often many years, before we know how much they will have cost. Measuring the cost today is subjective, and so underwriters can choose, to some extent at least, their cost base. In those classes subject to severe weather fluctuations, the definition of profit is hard to come by—it can rarely be measured over one year, yet last year's profits will guide next year's prices. Our market is very easy to join. An office, an underwriter and some capital are all that is needed; no project to build a factory; no infrastructure to develop. The major distribution channel in the U.K. remains the intermediary network, which is usually open to new traders. With little to distinguish our products, price is left as almost the only criterion by which to make a choice. The key section in the paper covers the integration of solvency and planning. A business plan that is constructed in a vacuum will rarely come to fruition. Each company operates in a market where competition is rife and growth minimal—in the U.K. at least. For an individual company to generate relative growth or exceptional profits, it needs to be doing something better than its competitors. There needs to be a thorough understanding throughout the company of what competitive advantages are being developed and how they will be delivered.

Risk Based Capital (RBC) is a relatively new technique used to assess the capital necessary to write specific proportions of business. The paper examines the approach to be used. The discussion centred on whether this technique can be used to compare the strength of companies or used internally as a management tool. The 'success' of RBC in the U.S.A. was discussed, and much can be learned from the problems encountered there.

The paper on What Ratios Really Matter takes the view that ratios are used differently by principal users: security analysts; investors; and management. The example is given of the solvency margin, which may be taken by security analysts as indicating financial health and claims paying ability, but may be viewed by an investor as primarily indicating ability to respond to a hardening market. Security analysts are the first group looked at. They use and analyse ratios extensively. The ratios used relate to profitability, liquidity, reserves, and

what the paper refers to as 'overall' ratios such as the solvency ratio and growth in net premium. Simple ratios provide a means of subjecting a large number of companies to analysis, and this is useful for security analysis. However, it is also clear that the better security analysts spend considerable time evaluating company management and strategy.

A Panel Session followed to continue the debate about the financial condition of insurance companies. The discussion had an international flavour and identified future possible areas of industry development.

The next plenary session was about Mortgage Indemnity Guarantee (MIG) Business. The paper covers recent developments in the MIG market and provides an update on the previous research performed by this working party. The paper describes the introduction during 1992/3 of a new form of MIG policy, with new terms and conditions. This new contract covers 80% of each loss up to a maximum amount, which varies with the characteristics of the individual loan, but which is never more than 20% of the original property value. The introduction of the new contract prompted mortgage lenders to review their traditional individual contract MIG insurance purchases and to investigate alternatives, including self insurance, and the development of captive insurance vehicles. Reinsurance capacity remained scarce. Possible future product developments are described briefly.

Delegates were offered a choice of six topics at separate breakout sessions:

(1) Current Issues at Lloyd's,
(2) E.C. Insurance Directives,
(3) Medical Negligence,
(4) U.S. Legal System—Implications for U.K. Insurers,
(5) Catastrophe Excess of Loss, and
(6) Reinsurance Association of America Historical Loss Development Study 1991.

The workshop on Current Issues at Lloyd's contained a considerable amount of interest for the delegates. Lloyd's had undergone a considerable amount of change in the past 12 months. Corporate Capital, Newco and litigation had all been splashed over the daily newspapers. The workshop dealt with what Lloyd's could do in the future to address its current problems and what new features of the market could be expected in the next year or two.

The paper on E.C. Insurance Directives was presented to remind participants of the important issues arising in connection with the implementation of the Insurance Accounts Directive and the Third Non-Life (or Framework) Directive, and to inform them about E.C. discussions taking place on a proposed Winding-up Directive for insurance companies. The regulations implementing the Accounts Directive will very much follow its wording. Key issues include: the

degree of prudence required in provisions, when losses should be recognised, and cross-funding. The Framework Directive contains, *inter alia*, a number of financial rules. This will lead to some amendments to the asset valuation rules in the insurance company regulations and some other changes. It was noted that the Directive did not apply to pure reinsurers and branches of non-E.C. companies, so that a somewhat different regime will operate for them. Under the Framework Directive, E.C. insurers will no longer require authorisation to set up a branch in another Member State, and supervision will be by the home supervisor. Premium rates and policy conditions will not be controlled.

Some concern was expressed about whether there would, in fact, be a 'level playing field' or whether there would be a degree of regulatory arbitrage. The implications for the Policyholders Protection Act of insurers operating in the U.K. without supervision by DTI was also a subject of discussion. The two major issues in connection with the proposed Winding-up Directive are the priorities to be given to different categories of creditor (and, in particular, whether policyholders should have preferential status) and the related issue of a register of assets backing the technical reserves.

The Medical Negligence market in the U.K. is peculiar, in that historically it has been dominated by two 'mutual' insurers, known generically as medical defence organisations (MDOs). Since 1990, coverage for all National Health Service doctors, except general practitioners, has been provided by the NHS itself. These characteristics mean that it is effectively impossible to access any data which would permit an actuarial review, either from a reserving or pricing perspective for U.K. primary business.

The working party, therefore, chose to prepare a presentation discussing:

— the history of medical malpractice insurance in the U.K.,
— the current *status quo*, and
— systems operating in other territories.

Despite the limited access to data, it is possible to draw some broad conclusions relating to loss activity and premium rates. It is worthy of note that the MDOs are not insurance companies (either mutual or proprietary) and are not subject to insurance company regulations. Since 1990, NHS indemnity has been in force. There is a general sense that this situation will not hold in the long run, as the funding and management of the liabilities are not best served under this arrangement. The shape of any new 'market' is not yet clear. The working party did some research into the medical malpractice systems in Sweden and New Zealand. Unlike the U.K, these territories have no-fault systems. Funding comes from the state in New Zealand, and local authorities, via an insurance company consortium, in Sweden. There are arguments against the tort system, and it may be the case that the emerging U.K. system will be, at least partly, a no-fault one.

The paper on U.S. Legal System—Implications for U.K. Insurers discusses certain distinct areas. The structure of U.S. Courts is described as having two distinct systems:

(a) State Courts, and
(b) Federal Courts.

Most cases are filed in State Courts (typically 90%). State Courts are established in each state under the authority of the state government. Each state is free to determine its own court structure under its own constitution. No two states have identical systems. There are usually three layers of courts:

(1) 'Limited' or 'General Jurisdiction' Courts; where cases start,
(2) 'Intermediate' (Appellate) Courts; where appeals are first heard, and
(3) 'Supreme' Courts; which have final judicial authority.

Either party can appeal to a higher court in a civil case. Appeals are usually made on grounds of errors in trial procedure or errors in the judge's interpretation of the law. Most appellate courts are required to issue written decisions, and one judge will be designated to write an opinion. This may be re-drafted several times until the majority of the court agrees with it. Judges who disagree with this 'majority opinion' can issue a 'dissenting opinion'. The precedents created by opinions are often unclear. Actions may be brought by one person or on behalf of a larger group. The aims are to co-ordinate claims or a larger number of plaintiffs, and create a more level playing field between plaintiffs and defendants; and to ensure all potential litigants get a share of compensation where funds are limited. Punitive damages may be awarded to punish the defendant as a deterrent to future wrong doing. This is insurable only in some states, but may involve insurers in 'bad faith' actions. The wealthier is the defendant, the larger the award. In fact, most of these awards are significantly reduced on appeal, but settlements may still be substantial. Nearly all cases filed against insurers are on a contingency fee basis. Lawyers can get up to 35% of the award; this leads to 'ambulance chasing'.

Future possible reforms include:

— sliding scale for contingency fees (e.g. only 10% for large awards),
— specific jury instructions on punitive damages,
— raise standard of proof for punitive damages, and
— defendants' wealth should not determine the size of the award.

Consumer groups will oppose most of these proposals.

The paper on Catastrophe Excess of Loss starts by giving an introduction to the subject of excess of loss reinsurance. The *Collins English Dictionary* defines a catastrophe as 'a great and sudden disaster'. The paper concentrates on natural

events such as windstorms and earthquakes, rather than man-made disasters or 'catastrophic' latent claims such as asbestos and pollution. Historically the term 'catastrophe' has been used in insurance terms to refer to events with a low frequency and high severity. The paper considers how large a loss has to be before it is considered to be a catastrophe.

Reinsurance is considered firstly from the viewpoint of the levels of reinsurance which effectively apply, and secondly in terms of the types of excess of loss policy: Risk XL and Catastrophe XL.

The history of coverage, both *horizontal* and *vertical* is considered. Capacity is currently limited, despite the recent influx of Bermudan capital. One reinstatement at 100% is the current horizontal coverage available, with increased demand for insureds to retain more by way of coinsurance, increased unreinsured deductibles, plus in some cases, franchises and warranties. Lists of exclusions and general conditions are more detailed than ever before. The catastrophe reinsurance market should remain hard for the foreseeable future. Exposure measures are considered principally for direct reinsurance and for retrocession, describing requirements or measuring exposure, explaining what is available and describing the types of model that should be used. Catastrophe rating is considered to be the most important part of the paper. Pure premium rating can be considered in terms of rate on line (ROL), and curves relating ROL to the level of layer are a very useful tool. Rating curves can be derived using market expectations, past loss experience and engineering or geographic modelling, each of which is described. The general formula for the pure premium for a layer with a given number of reinstatements is shown (on the assumption of total losses only and using a Poisson distribution). Particular cases of the formula are given, with discussion on relative costs for different numbers of reinstatements. The notion of independence (one of the requisites for Poisson) is considered.

The paper on the Reinsurance Association of America (RAA) Historical Loss Development Study 1991 was originally written for the London Market Actuaries Group in order to improve understanding of the data and their main features.

The paper outlines the contents of the RAA study, the definition of the data that are requested and problems associated with collating the data. The methodology used by the RAA to construct graphs of claim development is discussed. The paper then goes on to analyse the different classes of business within the study and discusses trends and patterns seen within the data. In conclusion, the paper deals with the appropriateness of the available patterns, and their usefulness to actuaries and other professionals in estimating outstanding claim liabilities (including IBNR) when their own data are sparse, immature or non-existent.

The next plenary session discussed the paper on Insurance Futures. This is a new concept recently given prominence by the launch of such contracts by

the Chicago Board of Trade (CBOT) on 11 December 1992. Insurance futures and options are derivatives based on the size of a loss ratio index compiled by the Insurance Services Office (ISO) in America. These contracts could potentially provide access to a whole new source of capacity for the insurance industry. Investment in these contracts can act as a proxy for conventional proportional and non-proportional reinsurance of U.S. catastrophe business. Insurance futures will also provide speculators with the opportunity to enter and leave the insurance market at a low cost. Significant trading in insurance futures could damp the underwriting cycle, since participants could withdraw easily when conditions were unfavourable. Options on insurance futures operate in the same way as traditional options, but are based on the insurance futures index. LIFFE is considering whether to launch U.K. and European catastrophe contracts.

Insurance futures act in a similar way to proportional reinsurance. Provided the loss experience of a particular company is correlated to the experience of the whole industry, the company may offset a desired proportion of its losses by buying an appropriate number of futures contracts. Insurance options act in a similar way to excess of loss reinsurance. Losses above a certain level will be offset by the increase in value of the contracts. Cover can be arranged in layers by buying and selling appropriate options contracts. A major problem with insurance futures and options is that an insurer's loss experience may not be correlated with that of the industry. To some extent this may be allowed for, but it is a significant disadvantage.

During the conference an insurance futures game was held to help delegates become more accustomed to what actually happens in a futures and options market.

The final day of the conference started with the opportunity for participants to select another of the breakout sessions.

This was followed by a plenary session on reinsurance. The paper was entitled Reserving for Outwards Reinsurance. This is one of the most difficult areas of reserving for an actuary. There has been no guidance given to actuaries in this field and no research had been performed to date. The paper starts by giving an introduction to the concepts of modern reinsurance theory and practice. This is followed by suggesting alternative methods of projecting for these loss recoveries. Severe problems had been experienced in the reinsurance market since the late 1980s. As a major centre for international reinsurance, Lloyd's and the London Market have suffered considerably. With large volumes of retrocession (reinsurance of reinsurance) business being transacted, it was quite common for an inwards loss to produce 5 to 10 times the initial amount of gross loss as it spiralled around the market. Could chain ladder type methods be used to foresee the ultimate outcome? The paper documents how alternative methods are often of considerable help in projecting the claim.

The final session was about U.K. Issues. Three papers were discussed:

(1) Distribution and Sales of U.K. Personal Lines General Insurance Products,
(2) Household Rating, and
(3) U.K. Environmental Pollution.

The paper on the Distribution and Sales of U.K. Personal Lines General Insurance Products was very topical, given the recent publicity for the Royal Bank of Scotland's Direct Line company. Many other companies had followed a similar pattern of development as either aggressive or defensive measures. Many new approaches had to be learned by actuaries as the centre of attention switched to a more outward looking perspective—to the purchaser of the insurance.

The Household Rating paper investigates a variety of issues. One of these is an analysis of rates by postcode. This recent change to rating by postcode has led to significant differences in published rates for specific postcode areas for buildings insurance. This may be attributable to differences in loadings for items such as expenses, commission, past losses and reinsurance costs. The purpose of the investigations was to understand how economic conditions in general, and the recession in particular, affect claims experience. This would enable companies to reflect expected economic changes in their pricing levels and underwriting criteria.

The paper on U.K. Environmental Pollution concentrates on current issues. Particular references are made to the impact of the Environmental Protection Act upon the valuation of property investments for major financial institutions including banks, insurance companies and pension funds. Emphasis is placed on the need for environmental surveys before undertaking a purchase of such assets and the absence of any real insurance protection against getting this wrong.

There is a new wave of policies being introduced to protect insureds against environmental pollution. Whilst insurance companies will continue to pay for 'sudden and accidental' claims under their Public Liability policies, there is a need for certain industries to have specific environmental impairment covers for certain sites. For example, it may be difficult for a company which has historically been seen as a potential polluter (for example the oil companies) to obtain a level of insurance. The principle of Environment Impairment Liability is that the site is subject to strict risk management controls, and the cover is not available until these controls have been independently assessed. The main problem at present is the uncertainty created by the Cambridge Water Company case. At the time of writing, this is currently in the House of Lords, and a judgment is expected in November 1994. This case will become the standard against which all others are judged. Current liability cases are assessed against petitions made in the late 19th century. These are clearly difficult to interpret with some of the newer industries and against the background of E.E.C. legislation. Environmental impairment is a political issue. The main

concern of U.K. insurers is that they, unlike insurers in the U.S.A., should not be landed with the bill for cleaning up polluted sites. The alternative to arranging for the cost to be met by insurers—in effect, by imposing a form of indirect taxation by way of increased insurance premiums—would be to meet the cost out of general insurance.

The conference ended with a review of future plans, conducted by the Chairman.

A good time was had by all. Thanks are due to the rapporteurs who prepared the notes on which this compilation is based.

C. J. W. CZAPIEWSKI