

Actuarial reporting on non-life solvency

(A discussion document prepared for the 1982 Stratford GIRO seminar)

1. Introduction

- 1.1. At its 1981 Dublin seminar, GIRO members had the opportunity to discuss the subject of the solvency of non-life insurance companies and the work produced by three working parties: one looking at the underwriting and claim risks, another at investment and currency risks and the third with the remaining miscellaneous risks, mainly reinsurance. Following this meeting the GIRO committee members, plus the chairmen of the three working parties have met on a number of occasions with the objective of bringing together the threads of these papers, and the comments made at Dublin, into a single document for discussion at the 1982 Stratford seminar. This could possibly in turn have led to a subsequent Institute paper giving a view on what the profession could contribute on the subject of non-life insurance solvency.
- 1.2. It is only fair to report that there was found to be some difficulty with this objective. The problem arose from the vastness of the subject and from deciding to which of the many questions the working group's report should be addressed. In the end, it was decided to report back to GIRO with a short paper on the involvement of a UK actuary in reporting to company management on the adequacy of an insurer's capital resources. It should be noted that this is a substantially different topic from that of advising on what the statutory regulations should be.
- 1.3. The working group were also aware of other groups undertaking research into non-life solvency, in particular the work, initiated by the Finnish authorities, of a group of Finnish actuaries headed by Professor Teivo Pentikainen. This group planned and proposed an update to the solvency control system for Finnish non-life insurance companies. This report (in Finnish) was accepted by their Ministry and implemented in 1981. An English language version was produced in 1982.
- 1.4. Another group concerned was the consultative group of actuaries in the EEC whose brief is attached as Appendix A. To date the progress of this group has been limited to a description of the differences between the supervision of solvency in the different EEC countries. The UK solvency regime, like those in the other EEC countries, has to fit in with the non-life directives of the EEC. The non-life directive was promulgated in 1973 and called for a review from the EEC Commission by 1979 on the effects of the financial requirements imposed by the directive on the situation on the insurance markets of the Member States. This review has now been completed, albeit two yearslate, with the basic conclusion that some of the original fears of insurers on the directive's introduction have proved groundless. However, in some of the countries the directive had only recently been introduced into local legislation so that, as was pointed out in the report, it was in many cases too early to reach a conclusion. The recommendation was one of no change.

- 1.5. Our group observed that there was nothing in the directive which provided for a further review. There was also some scepticism about the ability of the bureaucracy to modify legislation given the difficulty of introducing it in the first place. There have been a number of suggestions for reasonably minor modifications from various quarters, but none have been taken up.
- 1.6. In any case the required solvency margin has to be covered by an amount which is equal to the difference between two very large items. The computation of these items has not been standardised, nor has the tax treatment of various reserves. These issues tend to overshadow any tinkering with the formula for the required solvency margin. There is a prospect of some rules for technical reserves, but the proposals still allow considerable latitude.
- 1.7. These facts pointed us away from suggesting, as the Finnish group could, improvements in the solvency control system. Instead we have considered the broad aspects of making actuarial reports to management on the adequacy of the technical reserves and the financial strength of the company as a whole. In this context we prefer to talk of financial strength, with the vagueness that entails, rather than solvency, which may have a number of precise meanings. Of course, if the profession can show that in practice it was able, and had the capacity, to present such reports in a way which enhanced managements' knowledge of the situation, then the production of reports by actuaries might be a useful adjunct to the supervisory process.
- 1.8. GIRO members might also be interested in Appendix B. This was a submission made to the Department of Trade on the question of the supervision of pure reinsurers. It could be argued that some of the points made are equally applicable to direct writers.
- 1.9. The remainder of this paper considers the question of actuarial reporting on the financial strength of a company under the following heads:-
  - i) the profession's awareness of the different aspects of solvency.
  - ii) the needs and uses of a professional report.
  - iii) the types of report possible.
  - iv) the possible establishment of actuarial standards.

## 2. The various aspects of solvency

- 2.1. The working group thought that it was important for the profession to show that it had a practical awareness of all the various aspects of solvency. This was an essential backdrop to the 'selling' of professional reporting. This view was given added weight by seeing the work of some continental actuaries taken, probably, out of context. These works were concerned with the mathematics of the claim process and could even ignore cycles and trends. There have been references to an actuarial view and a practical view as two

separate things. Also there have been references to getting different views from different actuaries. Although we cannot prevent the latter, we should as a profession have the framework to talk about the differences between the two views in a structured manner that could be understood and accepted by the layman.

- 2.2. Our first thoughts on the question of demonstrating our awareness of the subject were to write a paper. Our second thoughts after the first two meetings were to write a book. These thoughts remained theoretical as there was no volunteer. We also recognised that a book should have readers as well as writers and too long a discourse on the subject might be anti-productive for our particular purposes.
- 2.3. We were, however, glad to receive the report (380 pages) of the Finnish group. This covers many of the points that our working group found itself discussing. A summary of the paper prepared by Prof. Pentikainen for the ASTIN September colloquium in Liege is being circulated to the Stratford seminar of GIRO. However, it is apparent that the Finnish group's report is written for a regime which allows the build up out of pre-tax profits of large (over 80% of premiums) equalisation reserves, albeit restricting the distribution of such reserves to policyholders. The EEC regime would permit such a boost to the strength of an insurance enterprise. Indeed, as was discussed at the 1980 Cambridge seminar, such tax avoiding reserves are obligatory in some member states. Only if there were to be similar tax relief for equalisation reserves could the profession make a good case for their introduction as an obligatory legal requirement on a formula basis in the UK. At present there is difficulty in finding an appropriate and receptive target for presenting the case to. The supervisory authorities cannot change the tax situation and the tax authorities are not interested in continued solvency. This could limit the profession to making its views known on the subject, whilst acknowledging that dissemination of such views may not be all that productive in terms of changes in legislation. It may possibly help in the long-term just by having a view made known on the subject. Without the tax legislation, the equalisation reserve issue reverts to an assessment of the strength of an insurers free reserves.
- 2.4. The Finnish group have also been concerned about the trade off between reinsurance and capital employed. The point made is that the reinsurance (which is assumed to be giving reinsurers a profit) must on the whole be placed with external reinsurers. This produces in aggregate a flow of cash resources out of the country. Thus a suitable level of capital employed is a function not only of individual company solvency requirements but more general economic considerations on the effect on the balance of trade. These considerations have to be modified in the UK where insurers are aware of the need to maintain London as an international reinsurance centre and of the effects of retaliatory action by other countries on the terms of trade.
- 2.5. Probably the most important change of emphasis of the Finnish report to be given by UK insurers would be the fluctuation potential of the asset portfolio. Even if the assets are invested in very short dated fixed interest there may, for companies transacting substantial long-tail business, be a significant reinvestment risk. Our working group believe that this is one area which UK actuaries could usefully

research further. However, the interaction of asset movements and liabilities would have to be recognised. Also to be recognised is the fact that the accounting bases for insurance may not always be inviolate, especially if present falls in the inflation rate turn out to be the prelude for even greater inflation rates than those of the last decade. Furthermore, any proliferation of index-linked investments may affect the way in which the problem should be approached.

### 3. Objectives of professional reports

- 3.1. Various actuaries in the UK are already being called upon to report on part, or the whole, of the financial strength of a company. The most common situation is that an actuary has to report on the sufficiency of the outstanding claim reserves. It is relevant, however, that the question of sufficiency of one reserve cannot in logic be regarded as completely divorced from the more general questions surrounding the total financial strength of a company. Given no parameter risk (i.e. in this case the unlikely situation that we know with certainty the expected claims and distribution of those claims), we would require the 'safety margin' ratio in the claim reserve to be smaller for larger well-spread companies than for small companies concentrating on certain lines of business. We would also require larger margins for companies with lower solvency margins. The points made later on actuarial standards are of equal relevance to reporting on claim reserves.
- 3.2. It may be worth recalling that in discussing the strength of a company we are talking about the way the risk of insolvency is managed. As with all risk management, there are four tools available for managing the risk:-
  - i) The risk can be improved, for instance this might imply better management control systems, better management or (if possible) higher premium rates.
  - ii) The risk can be avoided or limited, for instance the risk of capital depletion from one particularly significant investment can be eliminated (as the admissibility regulations envisage).
  - iii) The risk can be transferred. For an insurance company this means reinsurance or, for reinsurance, retrocessions.
  - iv) The risk can be accepted. This means that an insurer has to have net assets commensurate with the risks accepted.

For a full report on the financial strength of a company, all these points must be considered. However, there are a number of aspects where it would be somewhat presumptuous for an actuary to give an opinion as an expert. It may be useful to distinguish between an actuarial report and a report by an actuary.

- 3.3. The brief may be limited to reporting on the sufficiency of the net assets, although he must make clear whether the sufficiency criterion is based on a dynamic or static view. The static view is an analysis of the assets and liabilities of the balance sheet and changes in those values as the liabilities materialise into actual

payments and the assets are used up to meet that outgo. A dynamic view takes into account the impact of new and reinsured business, the investment of the cash flow and the distribution of the emerging profit.

- 3.4. The report may be a purely 'actuarial' one in that it examines the underlying risk without reference to 'any statutory and accounting' constraints. A view at the other end of the spectrum is that the report should be on the ability of a company to continue to satisfy all legal requirements. Probably the best and more useful report is one which veers to a middle course taking a pure risk view but acknowledging the existence of the statutory constraint and the constraints that this imposes.

- 3.5. The report may be needed:-

- i) for consideration of rights issues by listed insurers, in which case market 'attitudes' have to be added to the list of constraints.
- ii) for subsidiaries of non-insurance holding companies, which have to consider how much capital should be maintained down in the holding company.
- iii) for subsidiaries of insurance companies, where there are additional questions of management accountability, internal reinsurance agreements and the measurement of profit.
- iv) as a general aid for management in assessing whether it is managing risks in an appropriate way.
- v) as an internal audit for management and possibly for statutory authorities.

#### 4. Types of report

- 4.1. If a requirement were to be introduced for the profession to report on the financial solidity of a company, it is likely that no two actuaries would report on the subject in the same way. Whilst not wishing to constrain the profession, it would be helpful if one or two reports could be produced as standards on which future reports could be modelled. These reports would vary, inter alia, with the size and complexity of a company. Nevertheless it may be possible to follow a similar route through any report even though the emphasis may change with the information and time available to produce a report.
- 4.2. One view expressed in the working group was that the actuarial reporting should place considerable emphasis on the standard deviations of a company's claim ratios or, if the company was new, the deviation of market ratios. In this context it was thought desirable for the profession to be collecting data on cohort (policy year) claim ratios, both net and gross. Another thought was that this aspect may be limited to small specialist companies or to profit centres within a company. If the business was spread and protected, it is amazing how often the standard deviation in practice turns out to be 5% of premium.

- 4.3. Whichever style of report is adopted it is important for the report to state what risks are covered by the recommended solvency margin and what are not. When assets are being considered, one suggestion was that equities should be reduced by one third, whatever their value. This assumed that in a time period of a year, asset movements were random. Another view, which appears to assume a consideration of solvency for a period longer than a year, is to value the future income stream from the assets held (with allowances for inflation and dividend increases) at various rates of interest and to allow for increases in interest rates up to a top limit (which itself could be a moveable amount, e.g. halfway between current interest rates and 25%).

## 5. Actuarial standards or guidelines

- 5.1. The opinions expressed in the working group on the way forward for the profession varied. One stream of thought was for the profession to produce some 'standards' as a reference framework for actuaries producing reports. Another view was that the profession has first to prove its competence on solvency or financial strength by means of papers and books, or by producing practical reports for management; it is as a result of these activities and discussions thereon by the profession, the insurance industry and the DoT, that an actuarial consensus viewpoint may be derived. It is wrong for the profession to set out standards before it fully understands the problem.
- 5.2. Reconciliation of the two viewpoints may depend on the recognition of two points:-
- i) We may be in a Catch 22 situation. Actuaries have to prove their competence by practical work in writing reports etc. which may contain opinions on the sufficiency of reserves or capital resources. With no reference framework to support such opinions, the profession may find itself on weak ground if the sufficiency proves otherwise and there is no fallback to a position which states that the opinion was made in conformity with generally accepted professional standards. It is these standards which it is being suggested should be developed by the profession now but, it is argued, cannot be developed until we have sufficient experience of writing reports.
  - ii) There may be semantic problems on what is meant by a standard. This point is explored below.
- 5.3. There are already standards existing on the evaluation of both the assets and liabilities of a non-life insurance company. These are established under insurance company law and under accounting standards. Any accounts produced are, however, not designed to bring out the probabilistic nature of some of the figures contained therein and the complex problem of reporting on the factors affecting the companies financial strength. An actuarial standard should not be a minimum compulsory requirement of the type which sets out formulae and minimum values for the parameters of the formula. Thus it may be that 'actuarial standards' is an inappropriate phrase for the concept that we are discussing. Possibly actuarial reporting guidelines is a more appropriate phrase. The working party would like to hear suggestions and views on this.

- 5.4. Such guidelines would be capable of integration or reconciliation with those standards (i.e. accounting) already developed. It is possible that if the profession does not go ahead with developing its guidelines, then either the accountants or supervisors will take the initiative and refine their standards in a manner which may conflict with the profession's view.
- 5.5. The following suggestions are put forward as to the possible content of a document by the profession on reporting guidelines:-
  - i) the categorisation of assets and liabilities, with special reference to the categorisation already set out in the legislation.
  - ii) description of reserving methods that could (not must) be used and the conditions under which they may be considered appropriate.
  - iii) description of methods for assessing the adequacy of an insurer's capital resources and the conditions under which they may be considered appropriate.
  - iv) a listing of questions which the actuary should have asked or considered in making a report.
  - v) the production of standard tables which, after testing their validity if data are available, the actuary may use.

23rd September 1982

Terms of Reference for the Sub-Committee on Solvency Margins of the  
Consultative Group of European Communities Actuarial Associations

1. To carry out a study of the actuarial factors which are relevant to the determination of the appropriate solvency margin for insurance undertakings, both life and non-life.
2. As a first task, to review the purposes of solvency margins, and identify the factors which should be taken into account in evaluating different components of the solvency margin and the total margin. These factors will be related to the assets as well as to the liabilities and will extend from those factors which might be regarded as largely technical to those related to the overall financial management of a company.
3. To propose definitions of the technical data (statistical and other) which should be available, in comparative form, in the different countries, for various branches of insurance, in order to carry out consistent evaluations of the different components of the total margin.
4. In relation to each of the factors identified in 2 above, to consider:
  - (a) the theoretically correct method for calculating the corresponding component of the solvency margin required;
  - (b) how effective a particular level of solvency margin is in relation to variations in these factors; and
  - (c) the consequences for the insurance industry of the requirement of a particular level of solvency margin.
5. In carrying out its work the sub-committee should consider the extent to which limited or overall models of the insurance undertaking would be of assistance, and make recommendations thereon.



6. The sub-committee should bear in mind that deciding the level of solvency margin required by an insurance undertaking belongs to overall company management, subject to regulations enacted by national and European Community authorities, which are also political decisions. The actuarial profession, however, can have an important role in the preparation of these decisions, at company and national levels, by making available results such as those described under 4 above.
  7. To put the Consultative Group into a position to respond to requests for views on solvency margins from European Community Institutions or the Comité Européen des Assurances, or other qualified organizations, after clearance by the Group with the National Associations.
  8. To report to the Consultative Group and make proposals on action required, it being understood that the sub-committee may take urgent action in consultation with the Officers of the Consultative Group.
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Consultative Document by D.o.T. 11 March 1981 -

Reinsurance Supervision

1. We would agree that, in principle, the nature of reinsurance is similar to that of insurance. As in the case of direct business, we regard the technical reserves and the provision for outstanding claims and IBNR in particular, as key figures. The effective monitoring of outstanding claims for direct business is helped by the production of run-off information. We would expect substantial technical and commercial problems to arise if there were to be similar requirements to produce fixed format statements for reinsurance business.
2. The commercial problems arise from the fact that reinsurers are competing for business in an international environment. Any resolution of the technical problems which required UK reinsurers to request additional data from ceding companies would place these companies at a competitive disadvantage. We recognise in this context that the international nature of the business is not restricted to the source of the business and its subsequent retrocession, but also to the fact that many authorised UK reinsurers are part of company groupings with authorisations in a number of countries.
3. The technical problems arise from both the nature of the data received in connection with reinsurance business accepted and in its subsequent analysis. Thus the data received, in many cases on a "minimum information" basis, will vary according to the accounting system adopted and the ability or willingness of the ceding company to give the relevant information. With the advance of telecommunications technology the passing of original data from one computer file to another will become much more common and the present emphasis on reducing the information needed or used in a reinsurance contract will become much less necessary. That time is still some way off. The analysis of the data will depend on the nature and type of the contract, the currency of the transaction, the existence or otherwise of specific clauses in contracts (e.g. indexation), the inclusion or otherwise of belated premiums in the "claims" analysis and whether it is gross or net of retrocession.
4. We conclude from the above that the concept of a fixed format of reporting the run-off of reinsurance business would suffer a number of significant disadvantages. We believe, however, that your objectives could be better met by an introduction of some flexibility in the treatment of reporting. In particular it would be useful to aim at a questionnaire format which presented essentially a check list of items to be covered in which the company would explain how it arrived at its technical reserves for the different parts of its business. We have in mind the style of reporting which is used by the Actuary in Schedule 4 of the Annual Returns.

5. We would recommend an experimental period with the co-operation of the reinsurers to draw up a useful questionnaire; it should include an option and an obligation for the company to report on some items in a different but similar manner if the standard questions are inappropriate. At a later stage, we would expect the companies would display the data which they used. Again, we have in mind the relationship between the actuarial Schedule 5 and Schedule 4.
6. Such a questionnaire could ask the company to describe the main groupings of business which it uses, the method of obtaining a reserve figure for each group, the method of allowing for IBNR, the method of comparing with previous years, the treatment of currency differences, etc. In particular we believe it would be useful to ask if any expert or independent check, especially a statistical check, had been applied either by someone from inside or outside the company.
7. We believe that the combination of a questionnaire and the possibility of expert independent checks could represent the most useful way forward to achieving your objectives without giving rise to problems in commercial competition. The subject of expert opinions could be developed further. We are aware of developments in the United States on certification by 'loss reserving specialists', but for the present we are advocating opinions rather than certificates. Furthermore the provision of an opinion would, under our suggestion, be voluntary. We would expect however that the larger companies operating in the market would be the ones who would establish such opinions as good practice.
8. We would be happy to discuss both the questionnaire and the nature of the opinion further.