TRANSACTIONS OF SOCIETY OF ACTUARIES
1961 VOL. 13 PT. 2

REINSURANCE

A. Are smaller companies setting retention limits as high as possible in the light of theoretical criteria, and, if not, what practical considerations have influenced their actions?

B. For the smaller company, what are the advantages and disadvantages of:
   (i) Placing all reinsurance with a company specializing in reinsurance and
   (ii) Arranging reinsurance on an automatic basis?

C. What kinds of catastrophe cover and stop-loss cover are smaller companies buying?

D. What methods of simplified handling of reinsurance have smaller companies adopted?

Toronto Regional Meeting

MR. WILLIAM H. AITKEN: It seems to me that companies specializing in reinsurance offer a very real service to smaller companies. At the same time, arranging reinsurance on an automatic basis provides for a real saving in expenses.

I believe that retention limits could be doubled if catastrophe insurance was available. Each year The Empire Life Insurance Company calculates the amount at risk and the expected insurance cost on the A24–29 Table. From 1956 to 1960 the ratios have been 58.0, 57.0, 66.9, 49.3 and 39.4 percent. It seems to me that the chief danger of surplus strain from mortality losses lies in this ratio. If reinsurance could be arranged to the extent of 75% of the losses beyond some arbitrary limit, then we could afford to operate on a retention of $75,000 or $100,000 compared to our present retention limit of $37,500. For example, the limit might be 120% of the average of the ratios in the preceding five years. From the preceding series the limit would be 65%. In 1958 this would amount to $564,000. As the actual death strain was $581,000 the reinsurer would pay $13,000. Presumably the premium should be about $3,000 per year plus or minus 100%.

The risk on double indemnity could also be included in the foregoing. Group is a little more difficult. Possibly it could be included on a modified basis or even omitted if it could be arranged for the group department to stand on its own feet.

Aside from an automatic arrangement, we endeavored last year to simplify the handling of in-force reinsurance by a recapture program. We received a great deal of cooperation from the various companies with which we have exchanged reinsurance and managed to cancel over $\frac{1}{3}$

of our in-force reinsurance. The balance between ceded and received was very close, being slightly one way by number and the other way by amount.

MR. DAVID A. LOGIE: I have nothing new to offer in connection with the theoretical criteria against which retention limits may be measured. However, I should like to draw attention to Rosenthal's paper on the subject in *RAIA* XXXVI. That paper contains an excellent survey of the theoretical considerations concerning limits of retention for Ordinary life insurance. In addition, there is a detailed explanation of a practical method which the smaller company actuary can readily apply to the calculation of the chance fluctuation funds which are theoretically necessary, having regard to the particular characteristics of his company's business, at different levels of retention.

The Continental Life increased its retention limits in 1951, 1955 and 1958. Prior to the two most recent increases calculations of chance fluctuations funds were made using the method set out in Rosenthal's paper. Over the seven-year period from the end of 1950 to the end of 1957 the Company's position changed as follows:

Gross ordinary insurance in force increased by......	52%
Assets increased by............................	68%
Free surplus increased by........................	229%

The relatively rapid increase in the level of free surplus suggested that a greater increase in the retention limit could reasonably be made than if regard were had only to the growth of the Company as measured by assets or insurance in force. In fact the limit was raised from $15,000, the level adopted in 1951, to $35,000 in 1958, an increase of 133%.

The work of making the calculations, using Rosenthal's method, is not onerous and it has the merit of forcing one to come to grips from time to time with a rather elusive problem. Of course the calculations do not automatically produce the ideal level of retention limit for a given company at a particular time and actuarial judgment is still required. Among the matters requiring judgment are:

(1) the setting of a fund limit within which chance fluctuations will not be embarrassing to the company, in the light of its financial position generally, having regard to the calculated probability that an adverse fluctuation will in fact exceed the amount of the fund,
(2) the selection of suitable proportions of lives in the various amount classes with a view to making a conservative allowance for anticipated changes in the pattern of the company's business in force,

(3) the allowance that should be made for mortality fluctuations other than chance fluctuations, and
(4) the reliance that can be placed on the ability of the company to maintain a desired standard of underwriting, taking into account the total selection process including the quality of the field force.

MR. BRIAN O. BURNELL: Concerning section B, I feel that the best way of looking at this subject is to consider the advantages and disadvantages of a reciprocal exchange of reinsurance as against the advantages and disadvantages of professional reinsurance, from the viewpoint of the average company. The larger companies are not usually concerned with exchange, since reinsurance is a very small portion of their business. It seems to me that the two main advantages of exchange are keeping up the new business figures and keeping in touch with what other offices are doing.

Now, although it is a natural thing to look at new business figures, I feel very strongly that one of the main objects of a life company is to make a profit; profits all go to swell dividends for policyholders and stockholders. If a company can be sure that the business it is getting through exchange is of the same quality as the business it is itself writing directly, then I think that a lot may be said in favor of reciprocal exchange.

The requirement that business be of the same quality implies companies of similar size with a similar type of field force and also a similar type of management outlook. Exchange between companies of similar size will tend to ensure that the volume of business accepted and ceded will be much the same. However, it is not sufficient to look at that aspect alone; for instance, if the type of field force is not similar, the company may be giving off a high persistency type of business and receiving business of a poorer quality. The age distribution, the type of occupation, the social class and the general underwriting quality are all factors which affect the over-all experience (in particular, the persistency) and may make the balance of exchange very unequal indeed.

As far as management is concerned, a company must be satisfied that the integrity of the management of the partner company is the same as its own. The basis of reinsurance is the integrity of the individuals involved; it is a partnership, a matter of mutual trust. Managements concerned should also have the same outlook and social point of view regarding expansion. It is our feeling, as professional reinsurers (The Mercantile and General Reinsurance Company), that the requirement of getting back business of equal quality includes a search for one or two partners of like size, rate of growth, field force, management, etc.

The factor of keeping in touch with other companies is not so important here in North America since information is exchanged quite freely between companies. This is completely contrary to what happens in England and in the British Isles generally.

Turning to another phase of this subject, I feel that there is some element of cost saving in dealing with a professional reinsurance company, particularly if automatic treaties are used. Generally the number of staff required to administer an automatic arrangement is much less than that in a company doing a large volume of facultative reinsurance. This must inevitably reduce the cost of reinsurance.

There are other advantages in dealing with a company specializing in reinsurance; these people make their living from this type of business and so they are going to be in the market in both good times and bad. One could say that the business of the reinsurance company is also the business of the ceding company. Another important point is that through an automatic reinsurance arrangement a company can give acceptances for much larger amounts than its own retention. This is particularly valuable to companies which are not situated in the main insurance centers of the country.

One thing that we should point out from time to time is that if reasonable service is desired from professional reinsurers, the direct writing companies have to treat them reasonably kindly. It is no use expecting the professional reinsurer to be able to take all the borderline and other dubious risks at a "cut price rate" and not give them any of the high quality business. A bankrupt reinsurer is no help to anybody; the basis of a sound insurance market is a sound insurer, and a sound reinsurer.

Concerning section C, I think that the biggest problem one has to face when catastrophe cover is considered is the fact that it is not, at least to my knowledge, placed on a guaranteed rate. I think that the reinsurer probably would have the right to readjust the premium. There seems to be an inconsistency, to say the least, in reinsuring guaranteed contracts on a nonguaranteed basis. One might be heading for serious trouble if one goes through a period of poor experience.

MR. HERBERT L. FEAY: My answer to the question in section C is that I have heard of no market in which smaller companies can buy catastrophe and stop-loss coverage. I wonder why this is true, since I wrote a paper explaining how to calculate the premiums! Incidentally, the principles of this paper can also be used to determine the risk involved for a company for various retention limits.

One of the reasons that nonproportional reinsurance has not been developed is that there is no reinsurance company prepared to offer this coverage. There is a reluctance to incur the expense required for this new field that would disturb existing reinsurance agreements, especially when there is no pressing demand for new types of reinsurance.

If nonproportional reinsurance is to be developed, the smaller companies will need to establish that a substantial demand exists. No one small company can do this. However, if ten or fifteen companies or fraternal benefit societies organize on this issue, they probably can secure stop-loss reinsurance. Perhaps the smaller companies and fraternal benefit societies represented at the meetings held here can provide the means of establishing this organized demand.

Los Angeles Regional Meeting

MR. WILL R. MULLENS: In the Business Men's Assurance Company we recently completed a survey of about 100 companies of less than $400,000,000 in force to test the relationship of retention to total capital and surplus at organization and, at points where retentions were increased, the total capital and surplus and the total ordinary in force. I will send a copy of the results of this survey to anyone asking for it. Less than 7% of the companies replying said they used any sort of formula. It appears that practical considerations are of primary importance in setting retentions. Each company must resolve the problem in light of its own unique situation.

MR. ROBERT C. TOOKEY: I agree with Mr. Mullens that no single formula can be devised to provide a satisfactory specific answer to the problem of retention limits. The individual circumstances and objectives of the particular company are of primary importance. Factors to be considered, in addition to the mathematical and practical considerations discussed in Mr. Irving Rosenthal's paper (*RAIA* XXXVI), include:

1. Amount of capital and surplus and the ability to raise additional surplus.
2. Total amount and distribution by size of policy of insurance in force and of new business.
3. Nature and training of agency organization and of underwriting organization.
4. Philosophy of management with respect to permissible fluctuations in operating profits.

The new company usually sets conservative retentions in order to minimize the risk of mortality fluctuation occurring in the early years when the company is undergoing marked financial strain involved in even normal operations. After the critical early years are passed, retention limits can be increased. A five-year surplus depletion projection can be used to establish an average surplus for the period and retentions for standard risks can be related to such surplus. The practical approach has been to estimate the level of retention limits which will enable the company to retain a reasonable proportion of business written. Supplemental tests may then be made to determine the effect of slightly higher or lower limits on volume retained and on potential fluctuation in mortality.

Practical considerations become of even greater importance in the matter of retention limits on the higher ages and substandard classifications. Most new companies do not retain substandard business during early years because: (1) there is a lack of experienced underwriters, (2) more pronounced mortality fluctuations are likely to be experienced on such business and there is greater risk of early claims, and (3) substandard business is normally only a small part of the total volume of business and the potential mortality profits otherwise retained are not of major consequence to the new company.

At the Lincoln National, we believe the advantages of using a professional reinsurer include:

1. Experience of the reinsurer in a specialty business assures sound decisions and equitable treatment of ceding companies.
2. Extensive retrocession outlets for jumbo risks.
3. Prompt underwriting service.
4. Wide range of collateral services for clients, including training of personnel, supplying of forms, manuals, and executive advice, and the provision of intercompany contacts between two or more clients with common problems and objectives.
5. Lower unit expenses arising out of volume operation.
6. Financial strength of the reinsurer provides long-term guarantees for the ceding company and its policyholders.

The advantage of a particular geographic proximity which has sometimes led to special reinsurance relationships between two or more nonprofessional reinsuring companies is largely lost now that modern communications are so efficient. There may still be special situations as in the case of the wholly owned subsidiary or the company controlled by a large life insurance company, where professional reinsurance company services are not used.

MR. ALAN RICHARDS: At Pacific Fidelity we carry a quarter-million-deductible maximum payment one million dollar coverage with respect to a catastrophe affecting two large office buildings in Los Angeles wherein are concentrated a substantial proportion of the lives insured under one large group life policy.

MR. G. PHILIP STREATFEILD: At Beneficial Standard we carry catastrophe reinsurance on our retention under a travel accident policy which we write. Our retention is $35,000 on any one life. The catastrophe insurance covers the excess loss in any one accident over $100,000 and extends up to $1,100,000.

MR. ALEXANDER MARSHALL: At West Coast Life we carry catastrophe insurance on our group life and AD & D and on our individual A&S. Current group life and AD & D catastrophe coverage provides $4,000,000 for each accident after the first $100,000 with a $20,000 limit per person per accident. Certain occupational groups are not included automatically in this coverage. On individual A&S, the catastrophe accident coverage provides 80% of the excess over $10,000 per person up to a maximum payment of $100,000 per person by the reinsurer. We have been very much interested in securing catastrophe reinsurance on our ordinary life business for some time. We have not been successful in securing such coverage at a rate we consider reasonable. We believe this is an area of major importance to the small and medium size companies and believe it is a coverage that eventually will be provided. It may be that some European or Canadian company will finally have to lead the way in this area.