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DEVELOPMENTS IN LIFE REINSURANCE

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1. INTRODUCTION

IN order to portray the changing role of life reinsurance it is necessary to describe many of the traditional areas of activity for the industry, so that an understanding can be gained of how current developments have usually emerged in a natural way from previous undertakings. Therefore, this paper, particularly in its early sections, summarizes techniques and procedures which have been covered in greater detail in previous papers related to the subject of life reinsurance. Current developments, which are naturally associated with some existing activity, are described under the appropriate heading. In this way we hope that those who have little experience of reinsurance will quickly grasp the main principles, whilst anyone fortunate enough to have been involved in the fascinating world of reinsurance will still find items of interest scattered throughout the paper.

2. LIFE REINSURANCE TECHNIQUES

2.1 *Historical development*

The U.K. life reinsurance industry has its origins in the latter half of the 19th century. In 1900 a Reassurance Agreement was made between several large offices, in order to control the procedures relating to original terms facultative reinsurance between those direct insurance offices. Although the Reassurance Agreement, 1900, does not apply to other types of life reinsurance, or to professional reinsurers, its provisions have had a marked influence over life reinsurance practices in the United Kingdom. The Agreement is still in force today.

2.2 *The requirement for life reinsurance*

Traditionally the professional life reinsurance offices have satisfied four main areas of demand, namely protection against adverse mortality fluctuations, protection against adverse morbidity fluctuations, financing support and the provision of insurance-related advice and training. Their activities in these areas have dictated the nature and style of reinsurance techniques and administration, which are described in detail below before these four specific areas are discussed.

2.3 *Reinsurance relationships*

The very earliest reinsurance arrangements were facultative and in their simplest form impose no prior obligations on either the reinsurer or the direct office. The direct office can choose whether or not to offer a case to another office who has the freedom to accept, decline or impose special terms for any case so offered. This method of reinsurance provides both parties with maximum flexibility of action and can function successfully for a large direct office with a high retention, which only needs to reinsure a very small proportion of its business. However, for a smaller office, requiring reinsurance on a relatively high proportion of its cases, the facultative system becomes very unwieldy, since full documentation, including underwriting papers, has to be despatched to at least one reinsurer on every case. Although the underwriting service provided by reinsurers for facultative business is extremely quick, there is still a slight delay for the direct office before it is able to issue acceptance to its agents.

In response to the problems posed by the facultative system of reinsurance, an automatic treaty system has been developed by reinsurers. An automatic treaty places an obligation upon a direct office to offer all cases, or those belonging to a particular class or classes of business defined in the treaty, which exceed its retention, to a specific reinsurer. The reinsurer must accept those cases falling within the treaty limits on underwriting terms determined by the direct office.

A third type of reinsurance agreement, which is a hybrid of the facultative and automatic treaty systems, also exists and is known as the facultative/obligatory treaty. Under this type of arrangement the direct office may or may not offer business within a defined category to a given reinsurer. However, the reinsurer is obliged to accept any business offered to it which falls within the treaty terms. This form of arrangement can lead to problems when early claims arise under policies which have been accepted by the direct insurer but which have not been advised to the reinsurer by the time of the claim.

2.4 *Classes of reinsurance cover*

Reinsurance covers can be broadly subdivided into two categories, namely proportional and non-proportional. Essentially, proportional reinsurance provides cover on individual specified policies whilst non-proportional cover seeks to protect the experience of the whole portfolio.

Under a proportional arrangement the subdivision of liability, for any given case, between the direct office and the reinsurer is fixed from commencement. Thus, ignoring other possible conditions linked to a treaty, the direct office and the reinsurer should share proportionately in the fortunes of business written under such an arrangement. The two most widely practised forms of proportional reinsurance are known as quota share and surplus.

Quota share arrangements involve a direct office in ceding a fixed proportion of every contract written, for the class or classes of business covered by the arrangements, to the reinsurer. An office might choose to employ the quota share method of reinsurance if it wished to limit its commitment of resources to any specific block of business because of, for example, unpredictable mortality experience or financing strain.

Under surplus arrangements direct offices retain the whole liability for cases up to a fixed retention amount. Those amounts in excess of the company's retention are reinsured as a surplus. It is not uncommon for the maximum reinsurance cover provided by a surplus treaty to be expressed as so many 'lines' of cover, which is simply an expression of the maximum cover as a multiple of the direct office's retention. Each 'line' of cover is equal to the office's retention.

Non-proportional reinsurance provides protection for the whole portfolio rather than for specified policies and, again, falls into two main classes; stop loss and excess of loss. The amounts of reinsurance cover provided by these types of arrangements are expressed more in terms of overall portfolio considerations, rather than case-by-case evaluation. A stop loss arrangement will require a reinsurer to pay amounts in excess of a fixed proportion of the expected death claims for a particular portfolio of business, for example those amounts in excess of say 120% or 150% of expected claims based on A67/70. A stop loss treaty would include a clause placing a limitation upon the reinsurer's liability, either expressed as a maximum percentage of expected claims or an absolute monetary amount. A stop loss arrangement is primarily intended to place some stability upon the overall results for a given block of business, rather than protect against a single large loss. Therefore, it is likely that a maximum limit would be set for payment under any single claim, large policies being covered outside the stop loss treaty.

At first glance stop loss arrangements appear to provide direct offices with an ideal form of reinsurance cover, offering a means of stabilizing their overall financial results, whilst avoiding the need for the documentation normally associated with case-by-case reinsurance methods. However, the theoretical premiums which can be calculated for this type of treaty are highly dependent upon the *true* underlying expected mortality rate and a small change here can produce a large change in stop loss premiums. There is a real danger that the existence of a stop loss arrangement will generate a change in experience, the underwriting and claims' handling standards within the direct offices involved may deteriorate since mortality losses for the offices are strictly limited by such treaties. Thus, reinsurers are compelled to incorporate substantial contingency margins within their premiums. The greatest drawback of a stop loss arrangement, however, is the fact that it is an annually renewable arrangement. Therefore, should a direct office suffer a particularly bad mortality experience in any year, leading to substantial reinsurance claims, then the charge for stop loss cover at the following renewal would undoubtedly be significantly increased. In such a situation, it is quite conceivable that the required reinsurance premium could exceed the mortality provision in the original gross premiums charged by the direct office. Put simply, a short-term method of reinsurance is totally unsuitable for long-term business and is generally not acceptable to control authorities. Hence, stop loss covers for life business tend to be arranged only in exceptional circumstances, although their use in non-life reinsurance is widespread.

Excess of loss covers are primarily designed to cater for possible accumulated losses arising from given natural 'catastrophes' or accidents. Such arrangements will normally stipulate that a minimum number of claims, say three, must arise from a given incident and that a minimum claim amount is reached before reinsurance recoveries are obtainable. In addition, such treaties will specify the maximum reinsurance claim payable from any given event and a maximum reinsurance liability for any one life. Excess of loss arrangements can be particularly valuable to direct offices, by limiting their exposure to extraordinary losses from major incidents. Indeed such arrangements are often referred to as 'catastrophe' covers.

2.5 *Levels of retention*

In assessing levels of retention direct offices will be concerned to maximize the retained profit from their business, whilst preserving the solvency of their companies and some degree of stability in their bonus declarations and dividend payments to shareholders. Risk theory techniques exist which offer some assistance in setting retention levels but, as is so often the case with such methods, some very sweeping and questionable assumptions have to be made. Therefore, in practice, the establishment of levels of retention tends to involve a more empirical, pragmatic approach, taking account of a selection of factors.

Offices would consider the size of their capital and free reserves, the overall size of their portfolios, the nature and mix of their portfolios (including the distributions of sums assured and expected death strain), past mortality experience, premium margins, cash flow and cost of bonus. As a final, practical consideration, offices would no doubt also attempt to ascertain the retentions maintained by other direct offices of a similar size, maturity and possessing similar portfolios of business.

2.6 *Retrocession facilities*

A treaty reinsurer will often attend to all the reinsurance needs of the direct office, even where the sum reinsured exceeds the retention of the reinsurer. Thus, professional reinsurers have a need to reinsure elements of their business, in exactly the same way as do the direct offices. This onwards reinsurance is known as retrocession and can involve a reinsurer in placing business either with other professional reinsurers, or with direct insurance offices as reciprocity for business received from them. Some direct offices place a high value upon reciprocity but the cost effectiveness of such a policy must be carefully considered.

The direct office will not have specific systems to handle reinsurance business which will inevitably be on different premium rates from those of the office and may even be a class of contract not issued by the office. The number of cases offered will generally be small in number and the expenses of operating such reciprocal business can be high for direct offices. It could be argued that reciprocity allows an office to gain some useful experience of dealing with contracts slightly removed from its own product range but the cost involved in gaining such experience should be carefully assessed.

Due to these factors, it is becoming increasingly common for retrocession facilities to be arranged through fixed pools of offices, composed predominantly of professional reinsurers who bind themselves to accept business on terms determined by the 'leading' reinsurer. Such pools have usually been established to cater for specific types of contract, or business emanating from specific territories. However, certain pools, despite an apparent demand for their existence, have subsequently shared in very little business. Thus, it is likely that in future there may be pressure for more generalized retrocession pool arrangements, which will accept a broad spread of business, in order to achieve some economies of scale.

It is perhaps worth noting that automatic retrocession pools which include direct offices need to be arranged in such a way that business reinsured from a member office must not return to that office by way of retrocession, otherwise an office's retention for a given contract could potentially be unknowingly exceeded.

2.7 *Methods of reinsurance*

The two main methods of reinsurance are known as the original terms and risk premium methods respectively.

Original terms reinsurance requires a direct office to pay a reinsurer a proportion of the original office premium, with the reinsurer then accepting that proportion of the liabilities under the relevant contracts, including that proportion of commission (but not other management expenses), stamp duty, death claims, maturities and surrender values. However, it will almost certainly be the case that the reinsurer will pay additional commission, above its proportion of the original agent's commission, in order to reflect the extra expenses incurred by the direct office in marketing and maintaining the business. The original terms method of reinsurance is, therefore, conceptually very simple and relatively straightforward to administer in its basic form. However, original terms reinsurance does require the direct office to share with the reinsurer the profits (and losses) arising from all sources, including mortality, interest, loadings and surrenders. On the other hand it imposes on the reinsurer the need to follow the bonus declarations of the office, over which it has no control.

A slight variation on this method of reinsurance is extensively used when dealing with overseas offices, notably those on the Continent of Europe, who are often required by legislation to establish reserves gross of reinsurance. Here, the reinsurer is obliged to deposit an amount equal to the actuarial reserves, either in cash with a guaranteed rate of interest or in securities. This method of reinsurance is commonly known as 'deposit of reserves'. The deposit is technically owned by the reinsurer and deposited as security against specific liabilities. If such a deposit is made in cash, then inevitably the direct office will only be willing to guarantee a conservatively low rate of interest, perhaps only $\frac{1}{2}\%$ above the technical rate of interest. This restricts the contribution the reinsurer is able to make towards the acquisition costs of the office. Also, it is difficult for the reinsurer to allow for the risk of depreciation in the currency of the overseas territory (depreciation in currency is often compensated in the economy by higher interest rates). In addition, the reinsurer has no direct control over the investment of such cash deposits. For these reasons there has been a trend toward a preference for depositing securities, in order that the reinsurer can obtain a higher expected rate of return. Actuarial reserves will usually be calculated on a statutory net premium basis, without full adjustment for initial expenses. The reinsurer is effectively financing the new business strain of the direct office.

The main technical reason for reinsurance is to limit a direct office's potential losses from adverse mortality and the risk premium method of reinsurance has been developed to cope with this primary requirement. Under a risk premium arrangement a reinsurer covers only the mortality risk, receiving a premium commensurate with that risk alone. Thus a reinsurer is liable for any relevant death claims which may arise under risk premium reassurances but not for any commission payments, surrenders or maturities. The direct office accumulates the policy reserves for all the cases under a risk premium arrangement and the difference between the sum assured and the reserve is known as the amount at risk. There are two main ways in which the reinsured amount at risk can be calculated from year to year. First, a direct office may retain a fixed proportion of the amount at risk throughout the life of a policy. Thus the reinsured amount at risk decreases each year by the reserves associated with the initial sum reinsured and reinsurance is required throughout the term of a given contract. Secondly, a direct office may decide to retain a fixed amount at risk throughout the terms of relevant contracts. In this instance the reinsured amount at risk will decrease each year according to the reserves for entire policies. As a consequence, reinsurance cover may not be required for the full term of the original contract. Occasionally a third variation is employed, under which the initial sum reinsured is decreased each year by agreed arbitrary amounts.

Risk premium reinsurance rates are determined by the reinsurer, are age specific and are guaranteed throughout the term of the underlying contract. Reinsurance premiums are arrived at by multiplying the risk premium rate for the given age (usually as at the beginning of the policy year) by the reinsured amount at risk. Gross reinsurance rates are based upon basic rates of mortality (q's), loaded for mortality fluctuations, profit and expenses. It is common for risk premium rates to incorporate selection discounts in say the first two years for any contract, at levels such as 50% and 25% for the first and second years respectively. Risk premium reinsurance provides a direct office with basic mortality cover and allows the office to retain elements of the original premium relating to other policy features.

A hybrid of the original terms and risk premium methods of reinsurance is known as the modified risk premium method of reinsurance. It is similar to the deposit of reserves system but with the important difference that the deposited reserves are the property of the direct office and not the reinsurer and all interest profit (or loss) accrues to the direct office. With original terms reinsurance, the reinsurer participates in the interest, expense and mortality elements of the contract; for risk premium, the participation is restricted to mortality only; whilst for modified risk, the reinsurer participates in mortality and expenses. The modified risk premium is derived by deducting the increase in reserves from the original office premium. The effect of this can be demonstrated in the following way. If P_x is the net premium for age x, then the following reserving relationship holds:

$$ {}_nV_x + P_x = v\,{}_{n+1}V_x + v\,q_{x+n}\,(1 - {}_{n+1}V_x). $$

The conventional net risk premium would be:

$$ v\,q_{x+n}\,(1 - {}_{n+1}V_x). $$

Substituting from the first equation, the net risk premium can be expressed as:

$$ P_x - (v\,{}_{n+1}V_x - {}_nV_x). $$

The difference between the gross office premium and the net premium represents the loadings received by the direct office, which under this method of reinsurance are passed to the reinsurer. Thus, the gross modified risk premium is simply:

$$ P'_x - (v\,{}_{n+1}V_x - {}_nV_x) $$

or simply the original office premium less the increase in reserves. This is equivalent to a conventional risk premium plus the loadings contained in the office premium.

Under the modified risk premium method the reinsurer receives his proportion of the total premium loadings, as under the original terms method, and similarly the reinsurer pays full commission. Again, reserves are generally calculated on a net premium basis, with incomplete adjustment for initial expenses. Thus, initial commission is far greater than the risk premium received by the reinsurer in that year but this initial loss by the reinsurer is recovered from the future loadings which are received throughout the term of the contract or from the release of reserves if the policy is surrendered.

This somewhat convoluted method of reinsurance is employed in circumstances where not only must a direct office establish gross reserves, but where those reserves must be the property of the direct office, or where the reinsurer is barred from investing in the necessary securities. The method has been used for certain unit-linked reinsurance arrangements, where the reinsurers have been unable to invest directly in the relevant unit trusts, for example, 'internal funds'. The method has also been employed for certain overseas business, linked to a local cost of living index, where once again reinsurers are not legally able to invest in the local index-linked securities.

It is perhaps worth stating that the methods of reinsurance noted in this section have not only been employed for individual life assurance business, but also in connexion with group life, individual permanent health insurance and group permanent health insurance, in all of which life reinsurers take an active interest.

3. REINSURANCE ADMINISTRATION

3.1 *Features of a reinsurance treaty*

The majority of reinsurance treaties contain a series of sections, or articles, generally in a similar order, covering the main provisions and limitations of the reinsurance arrangements. The following points include the major items found in reinsurance treaty wordings:

(i) *The scope of the treaty*. This article will specify which class or classes of business are to be covered by the treaty, distinguishing between standard and sub-standard business or business from specific territories if necessary.

(ii) *Retention and automatic treaty cover*. This stipulates the limits within which the direct office is bound to offer and the reinsurer bound to accept all business covered by the treaty.

(iii) *Liability*. It will be clearly stated when a reinsurer's liability commences and terminates under any given contract.

(iv) *Premiums and commissions*. Any required risk premium rates will normally be incorporated in a schedule attached to the treaty. Similarly, tables of commission rates will be shown in an appended schedule. The treatment of extra premium charges and the normal mode of premium payment would also be noted.

(v) *Documentation*. Traditional practice is that each reinsurance cession involves the creation of a definite certificate in duplicate, signed by both the direct office and the reinsurer, with a copy being kept by each party. Any requirements for proposal and medical papers would also be stated.

(vi) *Alterations*. The procedures for dealing with all forms of policy alteration, including lapse, surrender, revival, non-forfeiture and paid up, would be described.

(vii) *Claims*. Claim documents are normally supplied to the reinsurer, who binds himself to follow any payments made by the direct office within the terms of the policy. Small claims will normally be settled within the standard account although larger amounts will be settled immediately on request.

(viii) *Accounts*. These are generally prepared by the reinsurer on a monthly or quarterly basis depending on the volume of business.

(ix) *Errors and omissions*. Any errors or omissions which occur will not normally invalidate the overall agreement and will be corrected upon discovery.

(x) *Inspection of records*. The reinsurer reserves the right to inspect all records of the direct office which relate to the business covered by the treaty.

(xi) *Treaty alterations.* Alterations to a treaty, agreed and signed by each party, will usually be incorporated as addenda to the basic treaty. Occasionally suitable correspondence may be attached to a treaty, in order to document a minor treaty alteration or clarification.

(xii) *Duration of agreement.* Life reinsurance treaties are normally of unlimited duration but specify that they can be cancelled for new business by either party giving three months' notice. However, existing business under a treaty would continue until its natural expiry.

(xiii) *Arbitration.* A treaty must allow for the possibility of a serious dispute arising between the direct office and the reinsurer, and will document suitable procedures to be followed in such an event. It is standard practice for such wordings to state that each party will appoint an arbitrator and that the arbitrators will in turn nominate an umpire to oversee the proceedings. Any award would generally be by majority decision, and would be arrived at in the light of prevailing reinsurance practice and equity rather than by strict legal interpretation of the reinsurance agreement.

(xiv) *Profit commission.* If a profit commission arrangement has been negotiated, then the treaty will stipulate the procedures surrounding the calculation of profit commission. It will be usual for the treaty to state that a minimum number of cessions (say 200) must be in force for the relevant class of business before profit commisson will become payable. Any losses emerging will normally be carried forward to subsequent years until they are extinguished by emerging profits. Obviously, the actual rate of commission to be applied to the emerging profit would also be stated. A profit commission statement would take the following form:

Income	*Outgo*
Premium income for the year	Commission for the year
Reserve brought forward	Reserves carried forward
Loss carried forward (if any)	Loss brought forward (if any)
	Claim payments during the year
	Reinsurer's expenses
	Profit (if any)

Profit commission arrangements are most common under risk premium treaties where the reserve items mentioned above would invariably be taken as 50% of the relevant premium income. If profit commission arrangements are associated with original terms treaties, then the reserving basis will have to be carefully defined and appropriate allowance made for interest earnings on the income side of the profit commission statement. In the case of profit commission arrangements for permanent health insurance treaties, there is the added complication of establishing a suitable reserving basis for claims in course of payment.

3.2 *Administration procedures: case-by-case administration*

Traditionally each reinsurance cession has required the production of duplicate definite certificates, containing basic policy information, signed by the reinsurer and the direct office and a copy retained by each party. From the information supplied, the reinsurer would set up a computer record which would then be used as the source document for the production of regular accounts by the reinsurer. This means that all policy movements amongst reinsured policies, have to be notified to the reinsurer. A full listing of all policies reinsured would be produced regularly (probably annually) to enable a check to be made of the accuracy of the records. Accounts also have to be individually based and usually produced by the reinsurer. This means that files have had to be updated continually to allow for policy movements, such as new business, lapses, claims and surrenders.

In theory the use of automatic treaty arrangements, which specify all of the conditions governing reinsurance arrangements, together with the increasing spread of sophisticated electronic data processing systems, ought to have led to the demise of such obsolete administration methods. However, individually based systems still flourish and it is interesting to consider some of the reasons for this apparent anomaly:

(i) Reinsurers have been very efficient in operating the system.

(ii) Reinsurance administration is generally a low profile, low priority task within a direct office. It is outside the mainstream of the offices' business and since reinsurance premiums are generally a very small percentage of the total business, it is not surprising that the benefits to be gained from specific systems to handle reinsurance within the direct office are always outweighed by more urgent projects.

(iii) Smaller direct offices, for whom reinsurance considerations are important, often do not possess the requisite computing facilities or software systems to produce adequate reinsurance data automatically.

(iv) Statutory reporting requirements have demanded that a substantial amount of both valuation and policy movements' data be made available to the reinsurer. Existing individual record systems cater for these requirements, albeit in a somewhat cumbersome fashion, whereas any revised, simplified system would demand development resources.

(v) Even when direct offices and reinsurers have possessed sophisticated computer systems, there have often been problems of compatibility between hardware and software systems. There has been an understandable reluctance on the part of reinsurers to develop a whole series of data transfer systems, each unique to a particular ceding office. Equally, reinsurers are not in a position to impose a standardized system on the direct market.

(iv) Reinsurers have to satisfy themselves of the quality of the reinsurance administration capabilities of direct offices before entering into any form of simplified, automated procedure.

However, changing circumstances, including the introduction of highly complex contracts such as unit-linked flexible whole life policies and revisions to statutory requirements, may well lead to considerably more interest being shown in simplified methods of administering reinsurance on a block or bulk basis.

3.3 *Administration procedures: block or bulk administration*

Two main forms of block administration are beginning to emerge.

First, summarized data may be supplied to the reinsurer via paper based means, i.e. in the form of typed schedules or computer produced tabulations.

This method of block administering reinsured contracts can be particularly suitable for risk premium arrangements. The valuation methods employed by reinsurers for risk premium business normally involve simply establishing reserves equal to some relevant proportion of the current annual premiums. Therefore, detailed policy information is not required by the reinsurers for valuation purposes. In fact little more is required than a summary of the total number of contracts reinsured, the current total amount at risk reinsured and the current total annual risk premium, subdivided between in-force business and new business reinsured during the given year. Individual policy information would be required for large cases in order to highlight possible accumulation of risk. Claims would be dealt with individually as under traditional administration methods.

However, it must be borne in mind that the direct office will be responsible for the production of accounts under this system and will also need to be able to calculate the amount at risk and risk premiums under each contract. This is a very important factor, especially when you realize that the directors of the reinsurance company have to certify in the Department of Trade and Industry (DTI) returns "that, for the purpose of preparing the return, (i) proper records have been maintained and adequate information has been obtained by the company, and (ii) an appropriate system of control has been established and maintained by the company over its transactions and records" and the actuary certifies that "in my opinion proper records have been kept by the company adequate for the purpose of the valuation of the liabilities of the long-term business".

This method of administration is being used, of necessity, in connexion with unit-linked flexible whole life business, where the contracts are potentially subject to so many frequent revisions that the cost of individual administration would be totally prohibitive. Needless to say, the terms negotiated for such treaty arrangements reflect the fact that the direct offices are undertaking the majority of the administration.

Original terms reinsurances, including term assurances, will normally be valued mathematically by reinsurers in their statutory valuation returns.

Therefore, sufficient policy information must be received by the reinsurer in order to carry out such valuation calculations. Using a paper based simplified method of administration this could be accomplished in at least two ways.

First, the direct office could simply provide the reinsurer with a listing of individual policy data, which the reinsurer would then enter into his own administration systems. This method leads to savings for the direct office, since the production of individual policy advices is abandoned, but there are few savings for the reinsurer. An alternative method would involve the direct office in actually producing valuation output for the reinsurer, relating to the appropriate reinsured cases. This method has significant savings for the reinsurer but involves the direct office in possibly a second valuation of its reinsured cases, i.e. one valuation on its own basis and one on that of the reinsurer. There is also the problem of timing; a valuation summary of the business in force at 31 December will be produced too late for incorporation in the end year accounts and returns of the reinsurer. However, with an automated valuation system, such problems can often be overcome and may not be particularly costly.

The second main approach toward block reinsurance administration which is beginning to develop for large accounts, is the transfer of reinsurance data via magnetic storage media, such as computer tapes or floppy discs. If reinsurance policy data can be isolated easily from an office's total files, then an extract of such information passed to a reinsurer on a tape or disc involves a direct office in relatively few administrative functions. However, there will be some inevitable initial development costs, in ensuring compatibility of tape or disc formats between the offices and in selecting the necessary data for transfer. In addition, such transfer systems have to be carefully monitored and kept up to date by both parties, in order to ensure that any adjustments to their computer systems do not interfere with the reinsurance procedures and also that any alterations to reinsurance treaty arrangements are adequately reflected in the data transfer system. Under this method of data transfer it is convenient for the reinsurer to continue to produce such items as accounts and risk premium amounts at risk schedules, since all necessary data will have been entered into his own data processing systems.

3.4 *New technology*

The majority of reinsurance business is concerned with mortality protection. The average premium per policy is therefore very small and expenses correspondingly high. There is thus a crucial need for maximum efficiency.

In common with virtually all companies, reinsurers must learn to make efficient use of the information processing products and systems which are emerging from the microchip revolution. It is likely that reinsurers will initially employ features such as on line processing, data base management, personal computing, word processing, electronic mail, telex, facsimile and videotex (viewdata) to solve internal business problems. However, reinsurers are likely to reap as much, if not more, benefit from harnessing the new information technology products to enchance their marketing strategies and quality of service to clients.

Developments in telecommunications capabilities and computer compatibility may eventualy lead to direct links between the computer systems of the direct offices and reinsurers. Whilst in the short term increased usage of such systems as telex and facsimile transmission could help to speed up service in areas where speed is of the essence, for example in connexion with underwriting decisions.

The rapid spread of micro computers in the office environment opens up a potential opportunity for reinsurers to provide their clients with specific software products which the reinsurers have already developed for their own purposes. For example systems to test the expected profitability of new product designs or systems to deal with the administration and valuation of permanent health insurance claims. It is possible that reinsurers will develop in certain specialist areas before their clients and thus may be in a position to provide such facilities either as part of their overall service, or for a specific fee.

Viewdata systems may well offer reinsurers a means of providing their clients with an efficient, cost effective information service. It would be possible for reinsurers to set up so called 'closed user groups', via which their clients could dial up 'pages' of information supplied and updated by the reinsurers. Such information could include data from underwriting manuals, new product information, summaries of relevant legislative requirements, taxation information and details of reinsurers' organizations and services. Such systems rely upon relatively inexpensive and widespread technology and could thus be attractive propositions to reinsurers and their clients.

It can be seen, therefore, that information processing developments could offer reinsurers the means not only of improving their own internal systems and procedures, but also of improving their service to clients.

4. MORTALITY PROTECTION

Reinsurers have always been very active in providing mortality protection but this goes very much further than the mere provision of cover above the direct office's normal retention. This involvement has concentrated on the area of the underwriting of risks not acceptable by the direct offices at standard rates.

4.1 *Historical development of underwriting services*

Since the end of the Second World War, professsional reinsurers have taken the lead in the United Kingdom in the underwriting of policies for impaired lives. At that time, anyone who was diabetic was virtually uninsurable. There was evidence, however, that certain categories of diabetics presented a relatively favourable picture. One of the professional reinsurers devised a series of criteria for the acceptance of these lives, subject to the payment of 'appropriate' additional premiums. The support of a number of offices was sought, and obtained, for the establishment of a diabetic pool, principally for the collection of statistical data. All the underwriting and administration for the pool was undertaken by the reinsurer and the various offices shared in the financial results of the pool. The pool commenced in 1949 and has provided the industry with invaluable experience. Similar pools for business relating to policyholders with abnormal blood pressure and those with histories of coronary heart disease were also established in 1953 and 1957. Developments in medical science and increasing expertise within the underwriting departments of direct offices have led to a lessening of the importance of these pools but their influence has been significant.

The criteria for inclusion in these pools were necessarily strict in order to protect the statistical validity of the experience. There were a number of cases which were not acceptable for inclusion in the pools but for which the reinsurer was willing to offer terms. From these humble beginnings, professional reinsurers have established experienced underwriting departments, capable of assessing a huge variety of impairments. There is no doubt that the activities of the professional reinsurers in this field have not only led to the acceptance of a wider range of impaired lives for insurance purposes but have also reduced the levels of extra premiums charged for many impairments. Because of their undoubted expertise in substandard underwriting, reinsurers are able to offer terms for business which the principal office may be unwilling to retain for its own account.

4.2 *Research and underwriting manuals*

In order to provide direct insurers with sources of reference for underwriting decisions, it has become common practice for reinsurers to publish comprehensive underwriting manuals. Initially such manuals dealt with the extra risks for life assurance contracts arising from medical impairments. However, manuals are now also available which examine the specific risks associated with permanent health insurance and the risks associated with a wide spectrum of vocations and avocations.

The various underwriting manuals of the major reinsurers are completely rewritten and republished at periodic intervals, depending upon the amount of material within them that requires revision as a result of changing circumstances. In between the major revisions to such manuals, the reinsurers publish selected up-dates to sections which require urgent alteration, as a result of changes in say medical science or business practice. The production of these manuals is a very daunting task requiring detailed analysis of numerous medical research papers as well as discussion with consultant medical officers in their specialist fields. The interpretation of a multitude of statistical as well as medical data inevitably results in a high level of actuarial involvement.

As well as distributing reference manuals to their clients, reinsurers are always willing to offer underwriting advice on specific cases, even when reinsurance is unlikely to follow.

4.3 *'Shopping' of risks*

At one time, the majority of direct offices in the United Kingdom would not only tend to arrange their reinsurance treaties with specific reinsurers but each office would also tend to offer its larger facultative risks to the same reinsurers. Underwriting is a very imprecise science and it is quite common to find that two experienced underwriters disagree about the appropriate level of extra premium for a particular risk. It is not surprising, therefore, that increasing competition in both the direct market and the reinsurance market has led to the practice whereby a number of direct offices will offer their substandard cases to several reinsurers. The cases will eventually be placed with those reinsurers who offer the most competitive terms. This practice has become known as the 'shopping' of risks.

The 'shopping' of risks obviously provides the direct offices with a means of obtaining the most competitive rates available for its larger, non-standard risks. However, the offices obviously incur a significant extra expense in copying and distributing all of the necessary policy documents and medical papers to a number of reinsurers and there is an inevitable delay whilst the office waits for the various replies. The office also runs the risk of reducing its own underwriting expertise as its own involvement is reduced. Substandard cases are expensive for the reinsurer to administer, involving highly trained staff as well as the company's chief medical officers in the underwriting process. 'Shopped' cases inevitably have a reduced completion ratio and the expenses per completed case are correspondingly higher. In simple financial terms it is unlikely that this business is profitable to the reinsurer except in the context of protecting a valuable treaty connexion or in the hope of developing a new treaty connexion with the office.

4.4 *Large risks*

Underwriting of life assurance business has largely concentrated upon the extra risks associated with medical impairments or dangerous pursuits or pastimes. An additional feature, namely the financial justification for cover, has become more significant since reductions in premium rates for term assurances have led to a situation where extremely large sums assured can be obtained for quite unexceptional premium payments.

Particular care needs to be taken when underwriting contracts for large amounts. There have certainly been instances where subsequent investigations have revealed that proposals for large amounts have been accepted when the financial affairs of the proposers were in a parlous state.

Reinsurers have a key role to play in the establishment of appropriate standards in this difficult area. The need for this is clearly illustrated by a number of court cases involving suicide or murder when very large insurance policies have been in existence.

4.5 *Claims underwriting*

The title for this section would seem to be a contradiction, in that underwriting is traditionally an exercise carried out before a policy formally commences, let alone becomes a claim. However, both as a check upon underwriting standards and as a control against possible fraud, it has become advantageous to have the involvement of underwriters in the claims administration process.

The investigation of early death claims, say those occurring within the first two years of the commencement of a policy, by underwriters can be beneficial. It is possible that such measures will highlight defects in the original underwriting procedures or perhaps misrepresentation by the policyholder.

Fraudulent claims from beneficiaries presenting papers which purport to prove that lives assured died whilst abroad have been uncovered in the past. The reinsurers, because of the essentially international nature of their business, have connexions in most countries around the world who are able to help with the validation of these documents and with any investigations which may be necessary.

4.6 *Group life*

Smaller offices have a very real potential problem in writing group life business in that free cover levels available in the market will often be greater than their own retention. If an office is to maintain credibility in the market and protect its involvement in pensions business, it needs to overcome this problem.

In return for an appropriate share of the business, a reinsurer will be able to support an office in offering free cover levels in line with those generally available. In equity, this should be on a quota share basis but other means of sharing the business are often negotiated.

Most reinsurance companies now have significant group life portfolios. Whilst a number of direct offices may be content to write this business on a break-even basis in order to retain their substantial pensions accounts (or gain favour with the larger brokers in the hope of receiving pensions business as well), the reinsurer cannot afford to be as relaxed since he is rarely involved in pensions business.

The group life portfolios of reinsurers have been subjected to detailed analysis and a sophisticated rating approach has evolved. Whilst parallel work was undoubtedly being undertaken in a number of direct offices, the reinsurers were amongst the market leaders in this respect. This has resulted in a movement towards a more sophisticated rating approach for group life taking account of occupational and residence factors, as well as past claims experience. Reinsurers have provided advice to direct offices on the use of such techniques and their advantages.

The methods employed tend to follow three major steps. First, a specific group life scheme would be costed using tabular rates, ideally with a subdivision between staff and works members. Secondly, the initial costings would be adjusted by reference to occupation and location information. The statistical justification for such adjustments is population data to be found in publications such as the Registrar General's Decennial Supplement. Areas of the United Kingdom are categorized usually into four broad mortality bands; light, intermediate, heavy and very heavy. Occupations are generally subdivided into two staff groups, whilst works members tend to be further subdivided into three categories.

Following this adjustment for occupation and location, the third, and final, process in the rating system would be to adjust this 'best estimate' of mortality to take account of the actual claims' experience of a scheme over say the last five years. This would be accomplished via the use of credibility theory.

The above processes can sound somewhat daunting but in practice most offices find the system to be relatively simple to apply. Without such a rating system there must be a real danger that offices using an 'aggregate' rating method will attract a disproportionate volume of business from higher risk occupations and areas of the country.

4.7 *Smoker/non-smoker policies*

Premium rate differentials for smokers *vis-à-vis* non-smokers have become relatively widespread within the United Kingdom term insurance market. Such developments began a year or two earlier in the North American market and reinsurers, with their international operations, were already aware of the opportunities and problems surrounding this innovation.

Reinsurers, therefore, took an early interest in advising their clients on the marketing, actuarial, underwriting and administration aspects relating to smoker/non-smoker differentials. Publications have been produced by reinsurers in order to inform direct offices of the considerations associated with this type of business and, in general terms, reinsurers have been concerned that a well ordered, controlled approach to this business should develop within the market and that some of the problems which had been experienced in North America arising from a misinterpretation of available statistics, should be avoided in the United Kingdom.

5. FINANCING

For a relatively new life office, or an established office entering a period of rapid expansion, the burden of heavy initial expenses can be particularly onerous. The need to pay high initial commissions and the establishment of valuation reserves, which probably do not make adequate allowance for initial expenses, can both place restrictions upon the capacity of an office to write substantial quantities of new business without additional financial resources. Solvency margins can also bring their own difficulties and this is discussed later in this section. Reinsurers have, on a selective basis, become involved in financing specific products for their clients, usually via adjusted reinsurance treaty terms.

5.1 *The development of financing methods*

In order to obtain sufficient financing support direct offices will require reinsurers to pay a commission level which will not only cover the original commission paid by the offices to their agents or brokers, but also the management expenses incurred in writing the business together with a share of the profits emanating from the business. A significant part of these expenses will be incurred immediately the policy is issued, even if premiums are payable monthly. If a reinsurance arrangement is to be effective, then it will have to reflect this fact. The reinsurer, however, will want to protect himself against a poor lapse experience by the direct office and will often seek to recover a part of his commission on early lapse.

The treatment of reinsurance commission payments for statutory reporting has had a direct influence upon the conditions under which financing treaties are operated. If a proportion of the financing commission is repaid in the event of the early lapse of a policy, then the direct office is required to establish a definite valuation reserve for this liability in respect of *all* such policies reinsured, i.e. an amount equal to the repayment required if all policies were to lapse on the date of the valuation. Unfortunately, the direct offices cannot treat any commissions paid by themselves to intermediaries as an asset, even though a certain proportion can be reclaimed following early cancellation.

In order to ensure that these two features do not cancel out the benefits of a commission-based financing arrangement a number of different devices have evolved. The standard practice, however, is for reinsurers to link the recovery of their commission payments to the recovery arrangements of the direct offices *vis-à-vis* their intermediaries. If the intermediary defaults then there is no direct liability for the direct office to repay the reinsurer. This practice avoids the requirement for the direct offices to establish a liability to their reinsurers for such commission. This method is often referred to as 'following the fortunes'.

The essentially different nature of unit-linked business has given rise to a financing arrangement which is unique to that class of business. The direct office will invariably recover its initial commission and expenses from the policyholder in the early years of the contract through specific deductions or by the use of capital units. The financing needs of the office in respect of a specific unit-linked policy are thus very short term in nature (although those of the office itself may be of much longer duration). The following type of financing arrangement is therefore employed where short-term capital support is required.

The reinsurer would advance a sum of money to the direct office on the security of a given block of business. The direct office would repay this commission, with interest, from the money it 'collects' from the policyholder from the deductions it makes under the terms of its contract. In order to overcome the valuation difficulties described above, the repayments would be made from *in force* policies together with any recoveries received from intermediaries. The reinsurer would be very cautious in the amount he is willing to advance on the security of the given block of business but this is no obstacle to the arrangement because the quota share reinsured is simply increased to give the direct office the level of financing required. This can be done without financial penalty as the following description will show.

A separate 'deficit account' is established for each month's production. Commission is advanced on the security of a block of new business issued in that month. Interest is added to the deficit account at an agreed rate and repayments are made each month as premiums are collected from the policyholder. When the deficit account reaches zero, the financing arrangement for that month's production is cancelled. The amount advanced will be such that the reinsurer is virtually certain to be repaid during the 'non-allocation' period of the contract using conservative (i.e. high) lapse rates.

In essence the arrangement is like a bank loan providing capital assistance at a rate of interest which is fixed at commencement and operates very much like a bank overdraft with the very important difference that the loan is repaid solely from future valuation margins. The direct office does not have to treat this loan as a liability for valuation purposes. The converse of this is that the reinsurer should take no credit whatsoever for future repayments which he expects to receive from the direct office. It is thus important to recognize that this is shareholders' money which is being advanced and they will expect a rate of return well in excess of that available from risk-free government securities.

For obvious reasons, the method is often referred to as a 'banking arrangement', although it should be recognised that the financing is always accompanied by risk premium reinsurance of the underlying contracts.

When considering any form of financing arrangement a reinsurer would evaluate several factors. First, the reinsurer would obviously wish to be satisfied with the security and integrity of any company it sought to assist with a direct financial involvement. Secondly, a reinsurer would like to see that a direct office was itself taking some financial stake in any proposed venture. A reinsurer would not be happy to finance completely the expansionist designs of a specific office, since some responsibility for such a move must rest with the shareholders of the office concerned. Thirdly, having decided that it would be willing to join in a financing arrangement with a direct office, a reinsurer would then set about arranging terms such as to provide it with its desired rate of return on capital employed but at minimum cost to the direct office taking account of the taxation differences which may exist between the two offices.

5.2 *Taxation influences*

The basic method of taxation assessment for United Kingdom life offices involves a charge on investment income less expenses. However, if a higher tax charge would result from assessing tax on gross profits, then that method must be used. The majority of established United Kingdom life offices have investment income in excess of management expenses and are said to be in a 'net' taxation position, being able to calculate premium rates allowing for both interest and expenses net of tax. However, new or rapidly expanding offices may well find that their management expenses exceed interest income. Such offices are said to be in a 'gross' tax position and, in so far as they are unlikely to return to a net state in the near future, should allow for interest income and management expenses gross of taxation for a period when producing premium rates.

The portfolios of most professional reinsurers contain a preponderance of mortality risk business (risk premium, term assurances, group life) rather than investment-related contracts. Such business generates relatively low amounts of interest income and, therefore, reinsurers traditionally tend to have an excess of management expenses over interest income, placing them in a 'gross' taxation position. Obviously a reinsurer will take account of his taxation status in all relevant financial calculations. This is a distinct disadvantage in a number of areas, the most obvious being term assurance. There are some situations, however, where reinsurers can take particular advantage of their status to offer advantageous terms for contracts such as single premium endowment bonds.

Reinsurers can calculate the terms of trade for such single premium endowment bonds using rates of interest better than fully net and thus offer particularly attractive terms to their clients. In this situation, the reinsurer is accepting a reduced price for his unrelieved expenses rather than full value at some distant date in the future when the expenses would be relieved in the normal course of business. The reinsurer will want to use the enhanced rate of interest in his valuation returns and needs to ensure that the taxation assumptions will be valid for the duration of the contract. For this reason, the enhancement of interest is restricted to short-term contracts. Even then, the reinsurer must severely limit his production.

Taxation is a very important factor in reinsurance arrangements particularly where the direct office and the reinsurer are in different tax positions. A simple example will illustrate this point. If the reinsurer is only able to assume partial tax relief on expenses, an initial commission of £10 may be viewed as having a real cost of £8 whereas for the direct office, in a conventional tax position, the £10 commission has a perceived value of only £6.50; it would be far better to allow the direct office to retain £8 as a premium rebate.

5.3 *Direct marketing campaigns*

Direct marketing techniques, such as the mailing of existing policyholders, the use of newspaper advertisements and the mailing of affinity groups, have become more prevalent in the United Kingdom. The precise methods employed for the various forms of direct marketing have become far more refined and sophisticated. This is a high risk, high reward area. Substantial expenses are incurred with no guarantee that an adequate volume of business will be generated. The gearing effect, however, is substantial and a small increase in response rate can be highly profitable. Direct offices which enter this field in an *ad hoc*, ill conceived manner, are extremely unlikely to achieve success in competitive markets.

Reinsurers have accumulated considerable knowledge and expertise in the field of mass marketing, not only from their activities within the United Kingdom, but also from their operations in North America, where such an approach to obtaining business has been commonplace for many years. Therefore, the major reinsurers are well placed to offer advice to direct offices on the procedures and practices of direct marketing. In addition, reinsurers have contacts with professional consultants operating in the field of mass marketing and are able to make direct offices aware of their services.

Financing arrangements have been established by reinsurers in connexion with direct marketing campaigns. Reinsurers have shared in the initial launch costs of such campaigns in return for a proportionate share of the reinsurance resulting from the direct marketing drives.

5.4 *Mortgage-related business*

There are occasions when reinsurers are approached by direct offices to assist in the provision of top-up mortgage funds. Reinsurers will assist in such arrangements in return for a share of the reinsurance resulting from the policies taken out to secure such mortgages. If a reinsurer provides mortgage funds for a block of business, then the reinsurer will usually require the direct office to act as agent for the reinsurer who will be the named mortgagee.

Reinsurers are not involved in large volumes of mortgage financing, since it is often possible for them to obtain higher rates of return on their capital. In addition, it is necessary for reinsurers to establish adequate administrative systems to deal with the legal, financial and technical aspects of mortgage work, which is a not inconsiderable overhead.

5.5 *Solvency margins*

Solvency margin requirements for long-term business came into force in the United Kingdom during March 1984. The solvency margin requirements apply not only to direct offices but also to reinsurers in the United Kingdom. Basically, long-term solvency margin requirements are to be calculated as 4% of actuarial liabilities plus 3 per mille of capital at risk (defined as sums assured less actuarial liabilities). Undoubtedly these solvency margin requirements generated considerable discussion and concern within the direct insurance offices. However, this was surpassed by the concern expressed by the life reinsurers.

The portfolios of life reinsurers are inevitably heavily biased toward pure mortality risk business, rather than investment-related contracts. Thus, the capital at risk element of the solvency margin calculation is particularly onerous for reinsurers. As a result of the combined representations of the major U.K. life reinsurers, they obtained a dispensation from the Department of Trade and Industry, reducing the capital at risk requirement from 3 per mille to 1 per mille for all business. These solvency margin requirements still bear heavily upon reinsurers but the valuable dispensation undoubtedly reduces the demand for reinsurers to maintain unrealistically high capital resources.

The 3‰ element of the solvency margin affects all companies with significant term assurance portfolios. However, since companies are allowed to deduct reinsurance up to a limit of 50% of the capital at risk, they may well seek to transfer part of their solvency margin requirements to the reinsurer by increasing the proportion of term assurances reinsured. However, if direct offices seek to alleviate their solvency margin strain in this way, the reinsurer will need to obtain sufficient profit from the business to service the additional solvency margin which he will have to demonstrate (albeit at the reduced level). Reinsurers already find term assurance rates particularly difficult to follow. Rates are extremely low, often being costed on a marginal basis by the direct office. The technical basis will usually allow full tax relief on expenses, notwithstanding the fact that the contract itself does not generate this tax relief and depends on excess interest earnings being available from elsewhere in the office. Reinsurers have very little full premium business and are only able to earn partial tax relief on their expenses.

It should be noted that the statutory solvency requirements, although in tune with E.E.C. legislation, do not in fact apply to reinsurers in the majority of E.E.C. countries outside of the United Kingdom. This somewhat anomalous situation arises since reinsurers in most European countries are not governed by insurance legislation but by the normal requirements for trading companies. Thus, as with stamp duty, United Kingdom reinsurers are put at a competitive disadvantage *vis-à-vis* their E.E.C. colleagues in the reinsurance industry. Direct offices can, however, be sure of the security of U.K. based reinsurers in the knowledge that they are closely supervised.

6. MORBIDITY PROTECTION

6.1 *Permanent health insurance*

During the last fifteen to twenty years, reinsurers have been particularly active not only in providing reinsurance cover for direct offices' permanent health insurance portfolios but also in helping to train and educate the staff of those offices entering the permanent health insurance market for the first time. The reinsurance techniques which had previously been evolved for life reinsurance mortality protection purposes were employed, with necessary adjustments, for morbidity protection. Thus, facultative and treaty systems, quota share and surplus methods, original terms and risk premium classes of reinsurance, have all been adapted to permanent health insurance business.

Reinsurers have emphasized the need for newcomers to the permanent health insurance market to appreciate fully the important distinctions between the management of life insurance portfolios and permanent health insurance portfolios. In particular, reinsurers have produced specific underwriting manuals for permanent health insurance business. Such manuals have clearly demonstrated the different factors which have to be taken into account when determining appropriate terms for given medical impairments for permanent health insurance compared with the more familiar life assurance products. In a field of insurance where experience has only recently started to accumulate to any significant degree, reinsurers underwriting manuals have proved to be of great value to direct offices.

Reinsurers have also taken a keen interest in promoting high standards of claims' underwriting and claims' administration. Reinsurers have stressed the need for direct offices to establish effective claims' handling procedures early in their involvement with permanent health insurance business. It is tempting for offices to delay the establishment of thorough claims' procedures, since significant volumes of claims do not normally develop immediately for newly emerging portfolios. Reinsurers have assisted in developing a forum for representatives of direct offices to discuss mutual problems relating to permanent health insurance claims' control. Via such meetings or seminars, direct offices are able to monitor developments in the permanent health insurance claims field, for example, the tendency of more offices either to employ full time claims' investigators or to hire private investigators in order to highlight potentially fraudulent claims.

As in the case of life assurance, reinsurers have been active in assisting direct offices in technical features of permanent health insurance business, such as policy conditions, premium rating and valuation (including the valuation of claims in course of payment).

The existence of a relatively well developed social welfare system within the United Kingdom, including the National Health Service, has undoubtedly had a restraining influence upon the growth of the permanent health insurance market in the past. Very different social conditions apply in many other countries of the world and U.K. reinsurers have been active in pursuing business in selected overseas territories. In fact, the experience gained by reinsurers in more sophisticated health insurance markets of the world has proved to be of value in helping them develop sound methods for adoption in the U.K. market.

6.2 *Medical expenses insurance*

Government policy and changing social attitudes have led to an expansion in the market for private medical expenses insurance. This has been particularly noticeable in the area of group covers, where increasing numbers of employers have added private medical expenses cover to their overall remuneration packages. Such covers were originally restricted to senior executives but in many cases have now been extended to cater for relatively junior staff. In response to the increased demand for medical expenses cover, several insurance companies have either already entered, or are considering entry, into this market. Reinsurers have often had extensive experience of this type of business in other territories, particularly in North America.

In the United Kingdom, medical expenses business is currently classified as short term, general branch business for statutory purposes and thus has to comply with the financial and statistical reporting requirements attaching to such categorization. However, the actuarial and underwriting expertise built up in connexion with permanent health insurance in the United Kingdom leads to the use of such 'long term' insurance staff resources in the development of medical expenses insurance within composite offices. Such experience is of value not only in establishing sound rating and reserving practices but also in creating an effective system of claims' control.

7. TRAINING AND ADVICE

It is probably no exaggeration to state that the major reinsurance offices will attempt to provide their clients with training and/or advice upon virtually any subject relating to the writing of long-term business. Traditionally, such services have been supplied to their clients free of charge by reinsurers.

An important field is product design and development for life, permanent health insurance, group life, unit-linked and pension business. A particular example of this is unit-linked business. The rapid expansion of this business in the United Kingdom has led to an increasing demand for advice on the subject from reinsurers. Not only have reinsurers become involved in explaining specific points relating to product design, but they have also developed profit testing program facilities, in order to allow their clients to assess the anticipated financial returns from their new contracts.

Increasing competition and increasing complexity of product design (highlighted by the introduction of flexible whole life policies) has led to earlier and more detailed discussions between direct offices and reinsurers when new products are to be launched and are likely to require a reinsurance facility. As noted in § 3.2, reinsurance administration systems for variable unit-linked contracts, such as flexible whole life policies, have to be considered at an early stage, in order to ensure that risk accumulation, statistical and accounting requirements are all adequately managed. Reinsurance considerations, far from being somewhat troublesome afterthoughts to product development, must be treated as integral features of overall product design and evaluation.

An equally important field is the theory and practice of underwriting for all forms of long-term business. As well as the provision of underwriting manuals and advice on non-medical limits, etc., reinsurers have been active in offering training facilities to clients. Reinsurers with their concentration of substandard risks are able to offer an exposure to the underwriter which would take many years to achieve in his own office. Such training not only enhances the reputation of the reinsurer involved but also provides them with the added confidence that their clients are following similar underwriting philosophies and practices to their own.

Other topics on which training and/or advice is provided include administration procedures and techniques, legislative requirements, taxation considerations, investment/financial factors and the conduct of long-term business in overseas territories. In short, reinsurers attempt to provide their clients with a comprehensive advisory service and, if they are unable to provide some specific form of assistance, they will attempt to introduce their clients to those professional advisers who possess the necessary knowledge or expertise.

8. THE FUTURE

The future of life reinsurance must be closely related to that of the direct market itself and this is likely to see some significant changes in the future. There are already signs that the U.K. financial services sector is entering a period of change and restructure, akin to that occurring in the United States. There would seem to be a move towards the provision of a wide variety of financial services, such as banking, investment, broking and insurance, via large, conglomerate institutions, often formed from mergers of previously independent companies. Indeed, most of the major banks already have an involvement in the insurance market through ownership of insurance companies or large broker operations. We are also experiencing a period of rapid change in the stock market institutions.

The creation of large financial institutions may well eventually have an important impact upon the life reinsurance market. It is conceivable that the appearance of such large organizations will lead to a contraction in the overall life reinsurance market, not only due to their own likely high levels of retention, but also due to the possible contraction in the number of small and medium-sized offices who may find it difficult to compete with the larger institutions. We are unlikely to see the establishment of many new companies.

If such a development does materialize, then reinsurers may well feel tempted to diversify their activities, rather than risk contraction. This would be difficult to achieve since a move into the direct insurance market would be fraught with difficulties associated with competing against one's clients. In any event, a number of major U.K. reinsurers are already owned by direct writing offices. However, the expertise contained within the offices of major reinsurers could lead them to consider moving into such areas as investment advice, actuarial advice, management consultancy, computer-related advice, computer software development and underwriting advice.

A more likely development, however, is greater involvement in overseas markets particularly in the third world. Reinsurers are already active in assisting new companies through the difficult initial stages of their development by providing technical advice on underwriting, premium rates, administration, accounting, etc., in return for reinsurance business.

A number of companies have become involved in mass marketing, having recognized that this is a very effective way of generating new business. Existing policyholders are clearly a very fruitful source of new business but mass marketing has also sold to large sectors of the market that have been largely ignored by traditional sales techniques; the over 50's market is a clear example of this. We are likely to see much greater use of this sales medium in future.

Reinsurers will have to provide high level technical advice and substantial finance if they are to benefit from this growth.

The traditional broker market is under pressure as companies develop their own direct sales forces. Thus, we are likely to see some deceleration in the development of ever more sophisticated products and less emphasis on keen pricing as service becomes a more important factor.

An attempt has been made in this paper to provide a summary of existing life reinsurance practices and procedures, and to give some indication of current and likely future developments within the industry. It is possible that life reinsurers are entering a period of significant change, which could radically affect the nature and scope of their activities. It will certainly be necessary for reinsurers to undertake careful strategic corporate planning in order to ensure that their capital and human resources are employed in the most effective manner. The greatest strength of reinsurers has always been the high quality of their staff, and ultimately this and the quality of their service will be the key to their future prosperity.

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