

Financial Planning Working Party 1977/1978

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GENERAL INSURANCE ACCOUNTING

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INTRODUCTION

1.1 FOREWORD

In previous years much of the work undertaken by the working parties on Financial Planning has, in the event, been concerned with Management Accounting rather than Planning as such. The working party this session decided to look specifically at Accounting in its main report with a view to providing a base for subsequent work within the area of Financial Planning.

The paper seeks to provide a brief survey of current practice and understanding, and consequently is not intended to say anything new.

It is assumed that the reader is familiar with the main elements of general insurance accounts as contained in the revenue/profit and loss accounts and the balance sheet.

1.2 AN INDICATION OF THE PROBLEM

The accountancy systems of a general insurance company need to record the receipts of premiums and the payments of claims and it might be thought that since this information is available from the company's records there should be little difficulty in preparing a set of accounts. However, in addition to the more factual items in the accounts there are some items whose size may be subject to a considerable degree of uncertainty. In particular the amount set aside to provide for payment of outstanding claims and of incurred but not reported (IBNR) claims is liable to considerable error if wrong assumptions have been made regarding the run off of claim payments or of the rates of future inflation and interest (or the relationship between these two). Even for an item in the accounts such as investment income or expenses, showing what has already been received or paid out, there may be more than one method of allocating the total amount among the individual classes or other groups and different methods may give very different allocations. Indeed, in the case of a composite office different methods of expense analysis may give widely differing allocations of expenses between

and within life and non-life, although it is worth considering the extent to which we want to try to subdivide results: the affairs of a composite tend to be indivisible.

Whether we are considering the general business as a whole or any subset of it the "profit" as shown in the accounts is a residual amount after accounting for all other income and outgo. This residual amount of profit is likely to be small in relation to some of the items in the accounts and thus modifications to items in the accounts are liable to have a very significant effect on the apparent profit. Similarly, the apparent solvency margin may be substantially affected by the assumptions made in valuing the assets and the liabilities.

1.3. DIFFERENT TYPES OF ACCOUNTS

There is clearly, then, considerable scope for obtaining quite different pictures of the financial progress of the general insurance business, or some part of it, by preparing accounts on different bases.

The traditional form of general insurance accounts is that used for the annual published accounts of the company. Such accounts rightly tend to be on a somewhat cautious basis and the view they present of the financial progress during the past year is liable to be confused on account of adjustments for prior years not being separated from the current year's figures.

To help enable those within the company to obtain a more realistic view of what has taken place different sets of accounts may be prepared, and these are commonly referred to as management accounts. Such accounts are not subject to independent audit and there should be sufficient flexibility regarding the information contained in such accounts and the form of their presentation to cater for particular, and perhaps changing, needs.

Management accounts will include alternative figures to those shown in the published accounts, providing some measure of the extent of caution in the published figures and seeking to eliminate distortions and anomalies in these figures.

Published accounts of insurance companies are in most cases prepared on an earned basis, but management accounts may not necessarily be on this basis. For some purposes policy year accounting may be appropriate. Accounts on a policy year basis show the financial outcome to date of a block of business written in a period, usually a calendar year. This is the procedure adopted by Lloyd's in respect of all their business and by the companies in respect of MAT business. It can be helpful to subdivide the figures in such an account to show the contribution of the block of business to each revenue year on an earned or a written basis.

A policy year basis is particularly useful in following the experience of policies written in accordance with a specified premium scale without the need to adjust for various scales. However, it is less generally used than the earned year basis since the claims on a policy year basis are incurred over a longer period of time. As a result there is greater heterogeneity of claim costs and the ultimate position takes longer to develop than for the corresponding earned year.

For some types of business, the nature of the business and/or the lack of data regarding the period over which premiums are earned have dictated that the accounts be prepared on a policy year basis.

Whether we are preparing accounts on an earned or a written basis we can update each year the results of each earlier year to allow for any adjustments during the last twelve months in respect of each of the earlier years. This exercise of showing progressively updated results for each year as facts gradually replace estimates is sometimes referred to as sequential accounting. This form of accounting presupposes that each year contains merely the figures for that year, i.e., has no hidden adjustments - as in published accounts - for earlier years. The figures produced for this form of accounting provide comparisons not merely between successive stages of development for each year - which in particular enable the accuracy of the outstanding claims estimates to be monitored - but also between one year and another at corresponding stages of development.

1.4 EMERGENCE OF PROFIT

In accounting we are concerned with the earning and emergence of profit. The system of accounting we use affects the rate at which the profit emerges. The traditional approach of the accountancy profession is the reasonable one of not taking credit for profit which is considered not to have been earned but allowing for a future loss if this is expected. Thus an insurance company sets up an unearned premium reserve (UPR) (strictly a provision - see section 3.3) at the end of the year even if the claims and associated expenses which will arise when this premium is earned are expected to cost less than the UPR, but the company should set up an unexpired risks reserve (provision) in addition to the UPR to cover the total future claim and expense costs if the discounted value of these is expected to exceed the UPR. Technically, for accounts on an earned basis, the provision for unexpired risks is an allocation of the current year's profit, not a charge to the current year's profit.

Various types of management accounts will tend to treat the rate of earning of profit in different ways. At the one extreme we could take credit for the expected profit at the moment a policy was issued, as may be done in the course of making projections of the future. The other extreme would be to wait until every claim was finally settled before releasing any profit. In three-year accounting, a form of policy year accounting, based on business written in a year no profit is released before the end of the third year, although if at an earlier stage an ultimate loss is expected the loss should be made up by a transfer from the profit and loss account. In one-year accounting, profit is released as the premium is earned (as described later in this report) notwithstanding the uncertainty in the estimate of profit at this stage and subject in published accounts to any element of caution which will have the effect of holding up the release of some of the profit.

In comparing different methods of accounting we should bear in mind the effect of the methods on the emergence of profit. If we are drawing up a balance sheet for management purposes the method we use depends on whether we wish to take credit for the expected ultimate profit on the business written up to the date of the accounts or merely on the business earned up to this date. The latter method is the standard approach but there should be a clear understanding of what assumptions have been made in any particular case and confirmation that these assumptions are suitable in the circumstances to provide an appropriate picture of the company's financial position.

ACCOUNTING FOR PREMIUMS

- 2.1 In conventional one-year financial accounting, the measure of premium appearing in the revenue account is the earned premium. The earned premium is, essentially, the premium receivable in respect of the insurance cover given during the year. It corresponds directly, therefore, with the cost of claims incurred during the year, that is the cost of claims in respect of incidents during the year. In relation to management accounts, in particular, "year" may mean any relevant period. The earned premium for any period may be analysed as follows :

$$\begin{aligned}
 & \text{(i) earned premium} \\
 = & \text{(ii) written premiums} \\
 & \quad - \text{increase in unearned premium reserve} \\
 = & \text{(iii) premium debited} \\
 & \quad + \text{increase in pipeline premiums} \\
 & \quad - \text{increase in unearned premium reserve.}
 \end{aligned}$$

The written premiums are defined to be the premiums payable in respect of cover commencing during the period. The unearned premium reserve (strictly a provision - see section 3.3) at any date is that part of the premiums already written which is deemed to relate to cover to be given after the relevant date. The premiums debited are the premiums recorded in the accounting system of the company. This might, for example, mean premiums actually received. The amount of premiums debited is assumed to be capable of unambiguous audit, and is, therefore, an item of hard fact on which to base a number of estimates. Pipeline premiums are premiums written but not yet debited. The effect of adjusting for pipeline premiums is likely to be small and in practice they are often ignored. The increase in pipeline premiums and in the unearned premium reserve can, of course, be positive or negative.

- 2.2 While there may be some uncertainty in relation to pipeline premiums (Abbott et al, ref 1) the calculation of the unearned premium reserve is the principal means by which the rate of earning of premiums may be regulated. The usual methods used in financial accounts for calculating this provision are the 40% rule and the 24ths method. In the 40% rule

40% of the premiums written during the past year are provided for as unearned premiums at the year end. The implicit assumptions for this rule are as follows :-

- (i) all business is written for a term of one year;
- (ii) initial expenses and commission may be taken as 20% of written premiums;
- (iii) the business is written uniformly throughout the year;
- (iv) the premium may be taken as earned uniformly over the risk period; and
- (v) expenses, other than initial expenses, commission and claims expenses may be taken as incurred uniformly over the risk period.

The 40% rule is still in common use in tax calculations. For an expanding portfolio condition (iii) above is clearly not satisfied and application of the 40% rule would lead to the setting-up of inadequate provisions (assuming the other conditions were satisfied). The 24ths method, which is the required method for statutory returns to the Department of Trade, adjusts for this by incorporating, in place of (iii) above, the assumption that business is written uniformly throughout each month of the previous year. For business written during the Mth month before the year end, the unearned premium reserve is :-

$$\frac{(25 - 2M)}{24} \times P \times (1 - e),$$

where e is the proportion of premiums assumed to be consumed as initial expenses and commission and P is the written premium. (20% is a common value to take for e). In this method, assumptions (i), (iv) and (v) are retained and it is assumed that initial expenses and commission can be taken at some uniform rate.

- 2.3 Many refinements of this method are possible. If, for example, a material volume of business is written for terms other than one year, the provision for a policy with premium P written in the Mth month before the accounting date, for a term of N months ($N \geq M$) will be :

$$\frac{(2N + 1 - 2M)}{2N} \times P \times (1 - e)$$

In some classes of business there may be a large volume of business renewed on, say, 1st January or quarter days. For such classes it may be reasonable to make a minor adjustment to the provisions by taking, for all policies or for specific groups, the day rather than the month of writing of the risk. The above formula would then be modified, as follows, where the policy is written in the mth day before the accounting date, for a term of n days ($n \geq m$).

$$\frac{(2n + 1 - 2m)}{2n} \times P \times (1 - e)$$

The refinements mentioned in this paragraph could usually be incorporated only where a modern computer system was in use, allowing individual rather than grouped data to be processed.

Even if the additional accuracy is not considered to have any real value, these refinements might be used on a computer, since the extra cost should be very small.

Practice varies regarding the allocation of additional premium or refunds of premium in respect of endorsements and cancellations during the period of cover. Some companies relate the premium back to the last renewal date while others assume the premium relates to the date of debit or operative date, assuming for simplicity in each case that the premium is spread over twelve months from the date to which it is allocated. It would be possible to spread the earning of these premium adjustments on a more accurate basis, but if grouped data were being accumulated a large two-dimensional array would be required by operative month and next renewal month.

- 2.4 The analysis described above retains assumption (iv) of paragraph 2.2, that is that the premium may be taken as earned uniformly over the term of the policy. This assumption is not necessary for the concept of earned premium to be meaningful. Two examples mentioned in the literature where this assumption may naturally be modified are motor-boat insurance (Taylor - ref 2) and credit insurance (S. Benjamin - ref 3), and other examples are agricultural vehicle and mortgage guarantee business. In these examples the concept of an unearned premium reserve may be retained, the provision for claims still to be incurred in respect of premiums already written still being calculated by reference to the premiums actually charged.
- 2.5 Assumption (v) is unlikely to be of any great importance. General administration expenses which are not allocated to new business or claims are likely to be fairly small in amount, and any assumption other than uniform incidence is probably rather artificial.
- 2.6 A special case where pipeline premiums may be important occurs where the premium cannot be calculated exactly until the end of the policy year. This is often the case for employers' liability insurance where the premium may be a proportion of the wages and salaries paid in the policy year by the employer. Part of the premium is usually, in such cases, debited at the beginning of the policy year, and a significant pipeline element would usually have to be estimated.
- 2.7 Even for statutory accounts, if the premium actually received is, at the accounting date, regarded as leading to a provision which is inadequate for the claims still to be incurred, an unexpired risk reserve (provision) may be set up. Abbott et al (ref 1) define the future claims reserve (provision) as being the total provision required for claims not yet incurred on premiums already written. On the terminology described above, the future claims reserve is equal to the sum of the unearned premium reserve and the unexpired risk reserve. In other words, the unexpired risk reserve is the excess, if positive, of the future claims reserve over the unearned premium reserve. The term unexpired risk reserve has been used in the past with other meanings (B. Benjamin - ref 4; S. Benjamin - ref 3) but the definition given above now appears to be standard.

- 2.8 In financial accounts the difference between the future claims reserve and the unearned premium reserve would be recognised only if positive. Management accounts are, however, usually intended to be realistic rather than conservative, and so there is no reason in this context to regard the unearned premium reserve as a minimum for the future claims reserve. The term unearned premium reserve (provision) equity has been used for the excess, if positive, of the unearned premium reserve over the future claims reserve. Given that management accounts will often not be primarily concerned with solvency and will tend to be set up on a less cautious basis than the statutory financial accounts it seems likely that this quantity often will be positive. The effect of adjusting for unearned premium reserve equity is to allow profit to emerge in relation to premiums written rather than premiums earned. The emergence of profit is, therefore, accelerated.
- 2.9 An unearned premium reserve, being an allocation of premium, might be otherwise thought of as a future claims reserve which is calculated, in one of the ways discussed above, by reference to the premiums actually charged. Taking premium as earned uniformly implies recognition that, in times of inflation, the premium earned early in a policy year is more profitable than that earned later in the policy year. One alternative method of calculating the provision for future claims would be to estimate the amount and timing of future claims, making some assumption about the rate of inflation, and discount these values at some assumed rate of interest to the accounting date. The treatment adopted for investment income is relevant here.
- 2.10 An approach of this sort is advocated for financial accounts by S. Benjamin (ref 3), but would in that context be a radical departure from past practice. It would, however, be a much less radical course in the context of management accounts, although the authors believe that most companies use some form of unearned premium reserve in management accounts as the provision for future claims.
- 2.11 In the formulae described above for the calculation of unearned premium reserves initial expenses and commission are deducted from premiums before multiplying by the ratio of outstanding term to original term. There is some disagreement about this deduction and for some purposes, since most expenses of an insurance company are in the short term fixed, it may be appropriate to include only commission in e. Because in a winding-up a proportionate part of the premium gross of commission would be repayable to the policyholder, even this can be argued against. This would introduce naturally the concept of earned commission. Since, however, the commission is usually payable in full when the premium is received, this concept does not seem very useful when looking at a company as a going concern.

ACCOUNTING FOR CLAIMS

- 3.1 The transaction of insurance business inevitably leads to claim payments by the insurance company and, indeed claim payments are usually the major form of outgo.

3.2 Claims are not reported, paid and settled as soon as they are incurred, and there can often be a considerable time between occurrence and settlement. Consequently, at any accounting date some claims which were incurred up to that date will still be unsettled at that date, and some may not even have been reported to the company (IBNR claims).

3.3 Accounts must make provision for future payments on claims which have been, or are expected to have been, incurred during the period covered by the accounts, and similar provision for claims incurred in previous accounting periods must also be made in published accounts. For some important classes of business these provisions form the major liability in the balance sheet as at the accounting date. Provisions in general insurance are commonly referred to as reserves although where the amount set aside represents the current expectation of what will be needed it would be in keeping with accounting practice to use the term provisions.

3.4 In any accounts there must be consistency in the treatment of claims and premiums.

If the accounts for a financial year show premiums earned in the year together with any adjustment, favourable or unfavourable, of previous years' earned premiums, then the claim cost which is accounted for must be that for the current year's incurred claims, as at present estimated, together with any adjustment in cost, favourable or unfavourable, in respect of previous years' incurred claims. This is the situation with published accounts.

If the accounts are on a current year basis, then the claims should follow the premium in excluding adjustments for previous years.

If the accounts are on a series or policy year basis, the premiums will be the written premiums for those policy years commencing in the period under consideration and the claims will be those incurred during policy years commencing in the same period.

3.5 In published accounts the cost of the current year's incurred claims and the adjustments in respect of prior years are not normally shown separately. The sum of the above two items is all that is available and can be obtained only as the sum of -

- (i) claim payments in the year and
- (ii) increase in the outstanding claims and IBNR reserves.

In management accounts it is appropriate to eliminate all the adjustments for prior years so as to show the experience for the current year separately. The difference between the claims cost for the current year's claims as shown in the management accounts and the claims cost in the published accounts is then the total of the adjustments for all prior years.

If the adjustments for each prior year separately are obtained a revised assessment of the profitability of each prior year can be made. We should note, however, that for origin years long past the profitability may be of limited interest.

- 3.6 It is virtually never possible to forecast the cost of all the outstanding claims for any class of business with total accuracy. In some of the longer tail classes small variations in the assumptions underlying an estimate can produce big changes in the expected ultimate claim cost.

A small percentage error in the estimate of outstanding and IBNR claims can affect the year's underwriting profit as shown in the published accounts to a considerable extent. It is important that a company should seek to make appropriate provisions for outstanding liabilities at the end of each accounting period, and that as far as possible the provisions should be set up on a consistent basis from one year to the next.

- 3.7 Traditionally estimates have been made on a case by case basis, although some companies now use statistical estimates for some, but not necessarily all, classes of business.

It is not the intention in this paper to summarise or to describe the relative merits of the various methods of statistical estimating which have been put forward in recent years. No one method of statistical estimating so far described can be regarded as suitable in all circumstances, and indeed there are some circumstances in which it is doubtful if statistical estimates can ever be satisfactorily used.

Case estimating has the advantage of referring to the individual claim papers, but it has the disadvantage of being dependent on subjective judgment on the part of the estimator and this may result in inconsistencies from year to year or in consistent inaccuracies from year to year. Obviously case estimates cannot be used for those claims (IBNR) which have not yet been reported to the company.

Statistical estimating has an advantage that the assumptions on which it is based have been specified and hence are known, and this can lead to a reasonable consistency in the estimates from year to year. The method being used may be capable of modification to take account of particular features of the claims experience, although there is the disadvantage that not all these features may be known since the claims are not being investigated individually. More widespread use of statistical methods is likely in the future if their use can be justified to insurance managements, partly on the grounds of savings in costs, and if, in particular, they can be shown to produce satisfactory estimates of the outstanding liabilities.

It should not be thought that case estimating and statistical methods are mutually exclusive: some companies have regard to both before deciding on the claims reserve to adopt for a particular set of claims. Thus case estimates and statistical estimates can usefully complement each other.

- 3.8 Published accounts normally make an allowance in the outstanding claims and IBNR reserves for future inflation, that is, inflation between the latest financial year end and the dates on which future payments on incurred claims are expected to be made.

There is a large element of uncertainty regarding the future course of inflation, whether it be inflation according to one of the published indices or inflation as it affects a particular type of insurance business over a particular period of time. Rates of inflation differing from those which had been anticipated are a common reason for claims estimates ultimately proving inaccurate. Wrong assumptions regarding future inflation can produce very large errors in the estimate of outstanding liabilities. When such errors are adjusted for in later years' accounts the adjustments can be very large in relation to the underwriting profit for the current year, and in such circumstances the practice of publishing merely the overall underwriting profit without adjustment for prior years might appear of very limited value.

- 3.9 While the provisions shown in published accounts seek to allow for future inflation, they are very seldom discounted to allow for future investment earnings on the invested funds.

This practice may seem reasonable in published accounts, in which an element of caution is advisable. Undiscounted reserves do not take credit in advance for future investment earnings.

However, in management accounts we are seeking, inter alia, a more realistic estimate of the progress of the company during the financial year and of the company's position at the year end. In such circumstances it would be appropriate to use discounted reserves. Discounting will enable the estimated future investment income on the reserves to be capitalised so that the total estimated profit - underwriting plus investment - for the current year's incurred claims can be shown.

Let i be the rate of inflation and j be the net investment yield. The technical reserves will not prove to be inappropriate as a consequence of i and j differing from their estimated values underlying the discounted reserves provided $\frac{1+i}{1+j}$ remains unchanged.

The value of j will be liable to differ from its estimated value if the assets and liabilities are not matched by term at the date of estimating, and in particular if the funds are invested short.

- 3.10 It is usual to include in the claim payments the management expenses which have been incurred which relate directly to the handling of individual claims which have arisen.

Published accounts have not normally included a provision for the future expenses of settling incurred claims, although some companies now include such a provision and in the near future it will be a statutory requirement that all companies include such provision.

In general it is not justified to omit provision for the future expenses of settling incurred claims unless there are margins in other items in the valuation which compensate for the absence of this provision. If the valuation, for example in management accounts, has little or no hidden margins - and in particular we are considering here the case of discounted reserves - it is essential to make full provision for future expenses of claims settlement. The provision

should be sufficient to cover the total expenses of running off all the claims which have been incurred but which are not yet settled, and all settled claims which will subsequently be reopened, on the assumption that the company ceases to write new business.

ACCOUNTING FOR EXPENSES AND COMMISSION

- 4.1 The expenses and commission incurred by the company in carrying out its business form a substantial portion of the monetary outgo.
- 4.2 Expenses paid to external bodies such as loss adjusters are normally included as part of the individual claim costs. In a similar way internal claims handling costs associated directly with individual claims are usually included with the overall claim costs. Where provisions for future claims handling costs are set up, they may be included with the overall claim costs or, sometimes, included in the management expenses.
- 4.3 The expense item of the majority of accounts contains all other expenses of management. These can be divided into -
1. Direct expenses which are directly attributable to a class of business, such as the salaries of staff handling that product.
 2. Indirect expenses which are not directly attributable to a line of business such as senior management costs, general advertising, personnel and company secretarial services. These costs are generally fixed, i.e. they do not vary significantly with volumes of business written, although with a major change in the amount of business written they may do so. Essentially they are the costs of the business structure.
- 4.4 The direct expenses can be broken down in either or both of the following ways
1. They may be divided between fixed direct expenses which do not vary significantly with volumes of business transacted and variable direct expenses which do vary with the volume of business transacted. In practice in the short term nearly all expenses are fixed whilst in the long term most are variable.
 2. They can be split according to the incidence of expense, e.g. marketing costs are incurred at inception, the costs of maintaining a policy may be spread evenly over the balance of the period of insurance. There are difficulties with this approach as only the variable costs can be properly treated in this way and the other expenses relate not to a period of cover but to maintaining the business structure.

- 4.5 There are two standard ways of accounting for expenses which reflect a different treatment of the above constituents of expense. They are -
1. A total allocation method, paralleled by the total absorption methods used in rating bases.
 2. A contribution method, paralleled by the marginal costing methods used in rating bases.
- 4.6 In the total allocation method, usually the expenses that can be allocated to the profit centre, be it insurance division, class of business, geographical area, or whatever. The balance of expenses is then allocated on whatever arbitrary basis seems suitable - pro-rata to premium income, pro-rata to policy volumes, etc. This enables the account to show a "profit" or "loss" at the end of the day.
- 4.7 The above approach may, however, prove misleading. If on the strength of these accounts a decision is taken to discontinue the unprofitable profit centres, maintaining only the profitable ones, the indirect expenses and some of the direct expenses are not in fact reduced and still remain to be allocated. Thus the remaining profit centres bear a greater expense allocation and may even become unprofitable.
- 4.8 The contribution method is used to deal with this problem. In this method expenses are deducted only at the level at which they are incurred. For example, the expense of the clerk handling Private Car business would be deducted from the Private Car account; from the contribution made by the Private Car account, Commercial Vehicle account and Motor Cycle account in total would be deducted the cost of the Motor management; from the contribution of the Motor account, Liability account, Personal Accident account, Fire account and Pecuniary Loss account in total would be deducted the cost of senior management.
- Thus at any particular level it can be seen whether the unit is making any contribution to meet the higher level expenses. If it is doing so then discontinuance of that profit centre causes a greater overall loss.
- 4.9 The major weakness of the contribution principle is that each of the lower profit centres may make some contribution but the total may still be in deficit. The target for each profit centre has to be to produce a contribution of a certain level which will be based to some extent on the ability to produce that level and to some extent on the total overhead expense which has to be met.

- 4.10 Throughout this paper it is to be seen that one of the major problems with accounting is the separation of the various years which go to make up the total revenue account. It is unusual in the case of expenses to distribute them to other time periods with the possible exception of claims handling expenses.
- 4.11 Commission is accounted for in much the same way as premium, as soon as the premium is paid the commission becoming due. Because the commission and some other expenses are payable at outset, the unearned premium reserve is calculated using a premium with a deduction for commission and initial expenses (see sections 2.2 and 2.11).

ACCOUNTING FOR INVESTMENT INCOME

- 5.1 The underwriting activities of the insurance management generate underwriting profits (or losses) arising over a period of time from the excess of premium income over claim and expense outgo. Since premiums are received in advance of claim payments the same activities create an insurance fund which is available for investment to produce investment earnings, sometimes referred to as an investment return, consisting of income and capital appreciation and depreciation. This investment return depends on the manner of investment, on the delay before premium is received and available for investment by the company and on the volume and nature of the business written.

For instance long-tailed business such as liability builds up relatively large technical reserves as a base for investment earnings. Moreover classes of business operating in high expense ratios/low claim ratios produce lower investment profits than low expense ratio/high claim ratio classes.

Insurance management is also responsible for the granting of credit to agents and the collection and payment of money. The speed with which money is collected and the delay in paying money makes an important contribution to the investment profits of the company.

- 5.2 However, in published accounts the total investment income earned on shareholders' and policyholders' funds is traditionally shown in the profit and loss account, with the revenue account showing what is known as the underwriting result.

There are a number of reasons behind this method of accounting.

- (i) There is normally no segregation of the assets covering the insurance fund and shareholders' capital and reserves. Thus there are practical problems in deciding on the investment profit attributable to insurance management.

- (ii) Assuming that there is segregation of assets, responsibility for variances from budget is not uniquely attributable to the underwriting management.
- (iii) The estimating of outstanding claims involves a degree of uncertainty. The investment income earned on the fund provides a margin against any shortfall.

5.3 It is generally accepted within the actuarial profession that for the purpose of management accounting these arguments are outweighed by the necessity of considering the total contribution of a block of business to the overall profit of the company in order to assess the relative merits of different areas of business and to plan for the future.

The most straightforward method of allocating investment income to the revenue account is to spread the total investment income earned, over shareholders' and policyholders' funds in direct proportion. This has the advantage of simplicity, but it does not recognise the different characteristics of the cash flow between different types of business. For example the delay in receipt of premium may vary substantially, and the rate of return on the long-term investments held for a liability account could be very different from the short term rate of return on an accident fund's assets. Some of these disadvantages can be overcome by identifying separate assets for the funds relating to each type of business. This would normally prove to be too cumbersome in practice.

Investment income constitutes only a part of the total investment return. However, if we attempt to allocate the total return the effect of fluctuating market values of many investments could produce wide variations from year to year, making planning difficult.

5.4 The use of notional rates of interest to allocate investment return is widely held to be a solution to these problems, and has been discussed in depth in York paper 1 (ref. 5). In particular, it smooths out the effect of fluctuations in market values, and can reflect the different investment conditions of different types of business. The only disadvantages of the method appear to be that it is somewhat removed from reality, and that the underwriter of any particular type of business will often see himself as getting less than his "fair share" of the total investment income. However, this method seems to enjoy the widest degree of acceptance.

A more radical approach, dealt with in Hythe paper C (ref. 6 section 4.2) involves allocating the future expected income on the cash flow associated with the current year's business. As has been mentioned, the difficulty with most accounts is the confusion of time periods. This method of determining investment income attempts to assess the income which will accrue to business earned in a particular year. Profits are effectively brought from future years into the current year, that is, the method seeks

to recognise the expected profit in the year the premium is earned. The effect is similar to holding discounted claims reserves (see section 3 of this paper) but all items of income and outgo are effectively discounted. Although the method is actuarially attractive it has practical difficulties, not the least that of gaining understanding and acceptance by a predominantly non-actuarial management.

THE LINK WITH FINANCIAL PLANNING

- 6.1 This heading really needs a paper of its own. We set out here a few brief remarks.
- 6.2 Accounting is fundamentally concerned with assessing the financial outcome of business which has already been written. Financial planning relates to the future. Using assumptions of our choice we can project the experience of the past, using suitable accounts figures as a base, in order to forecast what will happen in the future provided the assumptions underlying the forecast are borne out in reality. Given the historic data on which a projection is to be made, the process of projection is likely to be straightforward once the assumptions have been decided. As an example, we can easily project accounts on a policy year basis to assess the profitability of a future block of business, given assumptions including those regarding the level of premiums, future rates of inflation and claim frequency, and possible changes in the size or composition of the portfolio. This type of projection has to be submitted to the DoF by companies when notifying their intention to make an increase in motor premium rates. As another example, we can take the published accounts for the company or for a particular subset of the business, and estimate how the corresponding published figures for 1, 2 or more years hence are likely to look on the assumption, say, of a particular claims experience.
- 6.3 Financial planning has regard to the long term financial progress of the company, not merely the size of next year's premium rate increase, although the latter can be influenced by the company's objectives and strategy in respect of the former. Financial planning must take into account both what the company's true financial position might be at any future time, as will be shown in future management accounts, and how its financial position might correspondingly appear in future published accounts.
- 6.4 We should note that by no means all the information and statistics used in financial planning are obtainable from accounts. We might, for example, use portfolio movement statistics to assess the likely effect on portfolio size of a given change in premium rates. We might look at distributions of claims by amount as an indication of how total claim cost is affected by random variation. Many types of ratios such as claim frequency, average claim amount and claim cost per policy year or per unit sum insured might be needed in planning. Simple models (the simpler the better) might be used on a regular and/or one-off basis to assist in projecting into the future.

6.5 Finally, financial planning must be undertaken with full realisation of the problems of reconciling conflicting company objectives (ref 6) which cannot be solved merely by reference to figures, and that unexpected economic, social and political developments in the future may have a substantial effect on the financial well-being of the company.

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General Insurance Accounting

Notes for discussion

Consideration should be given by the Delegates to the following points prior to the Seminar.

1. Accounting for Premiums

- (a) To what extent is it practical to allow for pipeline premiums and losses and profits on unexpired premium provisions in the production of management accounts?
- (b) As a corollary to (a) how many companies do make allowances for these items?

2. Accounting for Claims

- (a) What is considered to be a 'consistent' basis for valuation?
- (b) To what extent do statistical methods really produce an expense saving over individual case estimates?
- (c) How do companies assess the future claims handling provision? Should the expenses be allocated on a per claim or per amount basis?

3. Investment Income

- (a) To what extent should assets be divided? Should they be separated on the basis of:
 - (i) Shareholders capital.
 - (ii) Other reserves.
 - (iii) Technical Funds.
- (b) In assessing profit to what extent should a class of business be charged for using capital because it is in a loss situation?

4. Return on Capital Employed

- (a) Are we right in removing equity in outstanding claims for management accounts or should we consider the outflow of surplus on Sydney Benjamins basis?
- (b) Should policyholders finance their own inflationary growth or should they provide a reasonable return to the shareholders? Is there a need to educate the investing public?