

PROFIT, CAPITAL AND VALUE IN A PROPRIETARY LIFE ASSURANCE COMPANY

A DISCUSSION PAPER

BY C. D. O'BRIEN, M.A., F.I.A., A.S.A.

[Presented to the Institute of Actuaries, 24 January 1994]

ABSTRACT

The paper first considers concepts of profit in economics, accountancy and the law relating to financial reporting. It then considers the nature of life assurance business and suggests the accounting standards appropriate to life assurance companies which would ordinarily result in accounts showing a 'true and fair view'. An analysis of the E.C. Insurance Accounts Directive shows that there may be circumstances where its provisions conflict with such standards.

The paper considers each of the statutory solvency method, embedded value reporting and the accruals method, and the author finds all of them to be inconsistent with accounting standards and the requirements of the Directive.

The author puts forward the 'Earned Profits' method, which applies accountancy principles in determining assets and liabilities and takes credit for outstanding revenue matching acquisition costs. This approach is then used in analysing the value of a life assurance company and measuring the rate of return on capital.

KEYWORDS

Accounting; Appraisal Value; Capital; Embedded Values; Life Office; Profit

1. INTRODUCTION

1.1 *Background*

1.1.1 Changes are imminent in the way in which the accounts of life assurance companies are prepared in the United Kingdom. The implementation in 1995 of the E.C. Insurance Accounts Directive will lead to a new format of the accounts; while the requirement for a 'true and fair view' and other provisions may well result, for proprietary companies, in a new approach to determining the profit which is reported.

1.1.2 Furthermore, a number of companies have been concerned that to regard as profit the amount transferred from the long-term business fund after an actuarial valuation, is not a satisfactory way of illustrating the outcome of the company's operations for its shareholders. Hence some companies have calculated embedded values and 'accruals method' profits as additional information.

1.1.3 The author has, for a number of years, watched these industry developments and been involved in their interpretation and implementation. As

many of these developments have been initiated outside the actuarial profession, he has sought to gain an understanding of the general principles underlying the initiatives, and his work has led to the development of a new approach to measuring profitability. The paper describes this work.

1.2 *Objectives*

1.2.1 This paper analyses concepts of profit as used by economists and accountants and, in particular, the accounting standards which have been developed and are now part of the legal framework of financial reporting. It considers the nature of life assurance business, and then suggests the specific accounting standards appropriate to life assurance companies, which would expect to result in financial statements conveying a true and fair view. It also reviews whether the provisions of the E.C. Insurance Accounts Directive are consistent with such standards.

1.2.2 The paper aims to develop a method of reporting the profits of proprietary life assurance companies, consistent with the above standards, and which could be used under the Directive. Existing methods of reporting are considered, together with an alternative which is designed in order to meet such standards and which reconciles accounting and actuarial principles: the 'Earned Profits' method.

1.2.3 The analysis is then extended to distinguish component parts of the value of a life assurance company and to reconcile such analysis with other valuation approaches. These include the identification of the capital base of a company, and hence provide a mechanism for calculating the rate of return being achieved for the shareholders.

1.3 *Plan*

1.3.1 Section 2 examines concepts of profit and value, from economic, accountancy and legal perspectives.

1.3.2 In order to determine a life company's profit, Section 3 assesses how the concepts should be applied. Subsequent sections then review various profit recognition methods: Section 4, the 'statutory solvency method'; Section 5, embedded value profits; Section 6, the accruals method; and Section 7, the 'Earned Profits' method.

1.3.3 Section 8 considers how the capital of a company can be determined and its value analysed.

1.3.4 Section 9 contains some concluding comments.

2. CONCEPTS OF PROFIT AND VALUE

2.1 *Profit and Value as Concepts in Economics*

2.1.1 Economists have inevitably been much concerned with profits and value. In an influential book, Hicks (1946) referred to the purpose of calculating income as being to indicate the amount someone could consume without

impoverishing himself. His conclusion was to define a man's income as being the maximum value he could consume during a week and still expect to be as well off at the end of the week as he was at the beginning.

2.1.2 This leads to deciding what is meant by 'well off'. Strictly, it would encompass emotional and other abstract considerations; but the economist's practical approach is to use wealth, being the person's command over goods and services. Hence income would be the goods and services consumed over the year plus the change in the person's wealth.

2.1.3 Alexander (1962) then considered the income of a firm, correspondingly defining it as the amount it could distribute to the owners of its equity and still be as well off at the end of the year as at the beginning. This involves 'maintaining capital intact', capital being measured 'realistically', with reference to the future earning power of the company.

2.1.4 It is helpful to define a capital measure as follows: first, regard the discounted present value of the expected future income of the firm as its assets; then calculate the liabilities as the discounted present value of outgoings. The excess of assets over liabilities is referred to in this paper as the 'Economist's Equity Value', being the economic value of the firm (in a general sense rather than in the view of one particular economist).

2.1.5 The calculations include expected income and outgo in respect of future activities, on existing contracts for the provision of goods and services not yet completed, and on future contracts (whether or not activity has already commenced). This is in addition to assets and liabilities already established from previous activities.

2.1.6 The calculations are intended to be 'realistic', so as to give a proper indication of value, but the estimates of income and outgo will be subject to uncertainty, which would typically reduce value as perceived. This reduction may be achieved either by:

- (a) discounting the 'best estimates' at a rate of discount which is increased to reflect the risk that the actual excess of assets over liabilities will be less than the best estimate, or
- (b) using estimates of income and outgo incorporating margins for uncertainty which reduce the value.

The critical point is that the combination of the estimates of income and outgo, and the discount rate, should produce a proper indication of value. However, perceptions of best estimates and risk (and attitudes thereto) vary, hence there is no unique proper valuation.

2.1.7 Recent developments in financial economics, such as the capital asset pricing model, have included analyses of risk and the discount rates which correspond to such risk, with the aim of refining the valuation process.

2.1.8 It will be seen that this valuation approach is very similar to what is commonly used by actuaries in placing a value on life assurance companies (Section 8.2).

2.1.9 Economists have used a number of definitions of profit, for example by making allowance for inflation or forgone interest. One possible 'economic' approach is to measure profit as the increase in 'economist's equity value', adjusting for additional capital supplied or dividends paid and, consistent with Hicks' concern to emphasise the 'real' increase in value, to adjust for the change in purchasing power. The profit calculated in this way would reflect changes in value arising from, for example:

- (a) the expected future benefit from pure research carried out, and
- (b) changes in the external market environment which affect the estimate of future sales.

2.2 *Profit and Value as Concepts in Accountancy*

2.2.1 Accountants have viewed profits and value from the rather different perspective of amounts to be included in financial reporting statements. The users or potential users of such reports are many, including current and potential shareholders, investment analysts, creditors and lenders, employees and management, the Government and other official bodies. The requirements of these groups differ: for example, a lender may prefer greater pessimism than others regarding future liabilities which are uncertain.

2.2.2 Nevertheless, it is possible to set out a number of general requirements for financial statements. The necessary characteristics referred to by the International Accounting Standards Committee (IASC, 1991) are understandability, relevance, reliability and comparability. Reliability involves faithful representation, substance over form, neutrality, prudence and completeness. Other writers have put forward further criteria. In some circumstances these conflict, illustrating the difficulties there can be in producing one 'ideal' set of accounts.

2.2.3 The IASC (1991) then sets out a framework for financial reporting, based on the above criteria, to meet the needs of the users as identified. It begins by defining assets and liabilities, the excess of the former over the latter representing the equity of the company. One part of the increase in such equity is the excess of income over expenses relating to 'ordinary activities', which would be identified separately and shown as profit in the profit and loss account.

2.2.4 Similar principles are being set out in the U.K. by the Accounting Standards Board, which is issuing a 'Statement of Principles', much of which is currently in draft form. Some key points from the Accounting Standards Board (1992) are summarised in §§ 2.2.5–2.2.8.

2.2.5 First, we have the following definitions:

- (a) Assets are rights or other access to future economic benefits controlled by an entity as a result of past transactions or events.
- (b) Liabilities are an entity's obligations to transfer economic benefits as a result of past transactions or events.

2.2.6 The excess of assets over liabilities, thus defined, represents the ownership interest in the entity, which we can term the 'Accountant's Equity Value'. A number of accounting principles are applied in determining the value to be placed on assets and liabilities; these are discussed further in Sections 2.3 and 2.4. The result is typically a value lower than the economist's equity value.

2.2.7 The following components of a change in the accountant's equity value are distinguished:

- (a) Contributions from owners in excess of distributions to owners (we can think of this as new capital minus dividend payments).
- (b) Other changes in equity:
 - (1) revenue gains (commonly called 'revenue') minus revenue losses (commonly called 'expenses'), to be included in the profit and loss account, and
 - (2) other gains minus other losses, regarded as a movement in the reserves of the company.

2.2.8 While any gain needs to be 'earned' for recognition in the financial statements, if it is to be included in the profit and loss account, i.e. § 2.2.7(b)(1), the evidence must be particularly strong. The following condition is of particular interest:

"... there is no material transaction, contract or other event that must occur before the change in assets or liabilities of the entity inherent in the gain will have occurred".

2.2.9 This emphasis on the capital values of assets and liabilities may appear different from the traditional transactions-based approach to measuring profit by comparing revenue and expenses. However, the two methods are consistent. The asset/liability approach identifies the excess of revenue over expenses as one, but not the only, component of the increase in the accountant's equity value.

2.3 *Accounting Standards*

Standard-setting

2.3.1 Formal standards in the U.K. began with the setting up in 1969 of the Accounting Standards Steering Committee, subsequently the Accounting Standards Committee. It issued Statements of Standard Accounting Practice, and in particular referred in SSAP2 ('Disclosure of Accounting Policies') to four fundamental accounting concepts: going concern; accruals; consistency and prudence. The comment was made: "they have such general acceptance in published accounts . . . and their observance is presumed unless it is stated otherwise". This and other SSAPs were adopted by the Accounting Standards Board (ASB) when it replaced the Accounting Standards Committee in 1990. Subsequently the ASB has begun to issue Financial Reporting Standards (FRSs), and has published other statements intended to indicate what is appropriate accounting practice.

2.3.2 In 1973 the International Accounting Standards Committee (IASC) was

set up, and it has aimed to develop and improve International Accounting Standards (IASs) to increase the international harmonisation of financial statements. In particular, IAS1 ('Disclosure of Accounting Policies') refers to three fundamental accounting assumptions: going concern; consistency and accrual. It also refers to the principles of prudence, substance over form and materiality as governing the selection and application of accounting policies.

Going concern

2.3.3 The 'going concern' principle emphasises that the balance sheet is not meant to be a valuation of assets on a liquidation basis. The auditor has, however, to assess if the going concern basis is appropriate.

Accruals

2.3.4 The accruals principle is intended to ensure that revenues and costs are allocated to appropriate periods. 'Matching' implies, for example, that if costs are incurred in period 1 relating to activities for which the revenue will be received in period 2, it would be wrong merely to record the costs and revenue in periods 1 and 2 respectively.

2.3.5 Prudence requires expected contingent losses to be accrued. SSAP18 ('Accounting for Contingencies') only requires accruals where it is probable that a future event will confirm a loss which can be estimated with reasonable accuracy. This differs from the approach of the economist, who would consider all contingencies and apply their probabilities, and hence might place a higher value on contingent liabilities. Similar comments also apply to IAS10 ('Contingencies and Events Occurring After the Balance Sheet Date').

Consistency

2.3.6 Consistency refers to the accounting treatment of like items within each accounting period and from one period to the next. It is intended to aid comparisons, but not to hinder the development of new accounting policies where appropriate.

Prudence in the context of uncertainty

2.3.7 Prudence requires that profits are not overstated. One difficulty is that the value of assets and liabilities may be uncertain. Hence, the Accounting Standards Board (1992) has suggested that, in dealing with uncertainty, prudence requires more persuasive evidence in order to recognise gains rather than losses; and for a given degree of uncertainty, a potential loss should be recognised at a higher amount than a potential gain. A recognised gain should be reasonably assured; the loss should be of an amount which it is reasonably assured is sufficient.

2.3.8 Solomons (1989) complains that prudence is sometimes interpreted as requiring that, where estimates have to be made, gains should be underestimated

and losses should be overestimated. That would be inconsistent with 'representational faithfulness'.

2.3.9 While there are differing views, it is clear that prudence is not intended to be 'excessive' in the sense of understating profits in a material way.

2.3.10 Accounting standards have also considered another element of prudence; the time at which revenue is recognised. This is an important subject, to which Section 2.4 is devoted.

Discounting

2.3.11 The use of discounting to reflect the time value of money is accepted in SSAP24 ('Accounting for Pension Costs'). In a discussion paper, the Institute of Chartered Accountants in England and Wales Technical Committee (1989) suggested that the recognition of the time value of money is sometimes needed in order to produce a 'true and fair view'. Indeed, discounting can assist in valuing an asset or liability for which there is no ready external market or an immediate cash alternative.

2.3.12 Where discounting is used to calculate a present value, the Technical Committee believed that the rate to be used would normally be a current rate, taking account of the riskiness of the asset and the costs of available finance.

Qualitative characteristics of financial statements

2.3.13 The information in financial statements is intended to meet the needs of users, and hence, in addition to the standards of a technical nature referred to in previous sections, there are some important qualitative characteristics of financial statements which have been set out by the Accounting Standards Board (1991): understandability; relevance; reliability and comparability. Of particular significance is reliability:

"Information has the quality of reliability when it is free from material error and bias and can be depended on by users to represent faithfully in terms of valid description that which it purports to represent or could reasonably be expected to represent."

2.3.14 The ASB then suggests that, to be reliable, information should have the following characteristics:

- (a) *Faithful representation.* Information must represent faithfully the events it purports or could reasonably be expected to represent; valid description with freedom from error is an essential part of reliability.
- (b) *Substance over form.* Events must be accounted for in accordance with their substance and economic reality and not merely their legal form.
- (c) *Neutrality.* Information must be free from bias.
- (d) *Prudence.* This is as referred to previously.
- (e) *Completeness.* Information must be complete within the bounds of materiality and cost.

2.3.15 The ability to measure the value or cost of an item with reliability is an

important requirement for it to be included in financial statements, particularly for items in the profit and loss account. However, there has also been a concern to establish methods of measurement which are reliable, to ensure that the need for faithful representation is met.

2.4 Prudence: Timing of Revenue Recognition Standards on the timing of revenue recognition

2.4.1 We need to consider at what point in a transaction it is appropriate to recognise revenue in financial statements. In practice there are various stages, such as the production of goods or services, the contract being made with the customer and the receipt of payment. Any right of the customer to return the product after sale may also be relevant. IAS18 ('Revenue Recognition') is helpful since, although not encompassing insurance, it describes two basic methods of recognising revenue from the rendering of services. Under the 'completed contract method' revenue is recognised when the contract is wholly or substantially completed, applicable largely where 'performance consists of the execution of a single act'. However, where more than one act is involved, the 'percentage of completion method' applies, by which is meant recognising revenue by reference to the stage of completion at the balance sheet date, provided that the outcome can be reliably estimated. The standard also refers to the effect of uncertainty which may lead to deferral of recognising revenue.

2.4.2 In the case of a long-term contract, the principles for determining the profit to be credited over time are set out in SSAP9 ('Stocks and Long-Term Contracts'). This was designed to apply to contracts such as the construction of a building, and it has not been regarded as directly applicable to insurance. The method is as follows:

- (a) Calculate revenue to date, in a manner appropriate to the business, and reflecting the work done to date.
- (b) Subtract the costs incurred to date.
- (c) Subtract any future costs (with inflation) not recoverable.
- (d) The assessment of revenue should be such that the profit reflects the differential profitability at different stages of the contract.
- (e) Profit equal to revenue minus costs should be credited, provided that the outcome of the contract can be foreseen with reasonable certainty.
- (f) If it is expected that there will be a loss on a contract as a whole, all of the loss should be recognised as soon as it is foreseen.

2.4.3 This is consistent with the emphasis of the Accounting Standards Board (1992) on the firm's 'performance' being a prerequisite for crediting profit. If the firm has not yet carried out the activities relating to fulfilling its obligations under the contract, then it cannot take credit for profit under the contract.

2.4.4 In the case of a long-term contract, the asset/liability approach, as in §2.2.5, may imply that the revenue expected from the whole of the contract would be included as an asset. However, liabilities include the value of the firm's

future obligations. If these were included at expected cost, this would imply taking credit for profits which will, in fact, arise from future 'performance'. Hence, future obligations should be included as a liability at the price at which the obligations are being supplied (Accounting Standards Board, 1992). Then, as the firm 'performs', incurring cost as it does, the corresponding liability, held at price, falls away and the profit being made from performance is credited.

2.4.5 Some writers have focussed on a 'critical event' as being the moment to recognise revenue (Myers, 1959). In some circumstances this is a useful practical rule to apply; but the argument in §§ 2.4.1- 2.4.4 indicates that it is not suitable where the firm is continuing to provide services throughout the duration of a long-term contract.

2.4.6 The accounting standards on the timing of revenue recognition would be breached by basing profit on the economist's equity value, which includes revenue and expenses relating to future activities.

Historic cost accounting

2.4.7 Traditionally, the balance sheet contains the value of assets used in the business at the price at which they were purchased, less depreciation. One justification of the historic cost convention is that it is consistent with the prudence and certainty which are sought, although some would argue that these features are less evident where the accrual of revenue has taken place (see §§ 2.3.5, 2.4.2).

2.4.8 Another justification is that historic cost accounting is consistent with the need to restrict profits to those arising from past performance. The role of the assets is, of course, to play a part (in conjunction with labour and with assets yet to be acquired) in the future production of goods and/or services. If the market value of the assets as a whole were used, incorporating the expected net cash flows from such production, this would lead to an equity value which reflected profits from future activities, unless there were some balancing adjustment in the calculation of liabilities.

2.4.9 Nevertheless, the historic cost balance sheet may be regarded as unreliable, and in some cases a company will revalue certain assets. Hence, there is concern that financial statements which incorporate a mixture of historic and current values fail to meet users' requirements. This is associated with the development of what we may call 'expanded accounting approaches' (see Section 2.5).

2.4.10 However, SSAP19 ('Accounting for Investment Properties') does indicate that properties held as an investment rather than for use in the business are to be included at their open market value. Changes in such values would be disclosed as a movement on an investment valuation reserve rather than through the profit and loss account (long-term insurance is noted as an exception).

2.5 'Expanded Accounting' Approaches

2.5.1 Below is a brief overview of a number of the approaches which have been

considered by the Inflation Accounting Committee (1975), Lee (1985), Belkaoui (1985), Solomons (1989), Accounting Standards Board (1993c) and others.

2.5.2 One alternative is to use the replacement cost of the asset, which takes account of inflation specific to the asset, since it was purchased. Alternatively, the realisable market value could be used; there are a number of possible approaches as to how realisation is assumed to take place.

2.5.3 'Present value accounting' would attribute to an asset a value equal to the present discounted value of the expected net cash flows from the asset. This seems nearer to the economic concept of the capital value of the business. However, assessing the value of individual tangible assets on their own is rather different from the value of the (tangible and intangible) assets together in the firm, being managed as an entity.

2.5.4 One valuation method which has attracted particular support is 'value to the business' (VTB). VTB is the loss which the firm would suffer if deprived of the asset, and equals the lower of replacement cost and recoverable amount. The latter is the higher of the present value of expected net cash flows from operations plus value when scrapped; and the asset's net realisable value if sold.

2.5.5 The Accounting Standards Board (1993b) has suggested that a suitable evolutionary approach would be to require revaluations of, *inter alia*, properties (excluding fixed assets specific to the business), and quoted investments. In contrast to the artificiality of the historic cost method, the truth and fairness of the balance sheet (it is not only the profit and loss account we are concerned with) is intended to be enhanced by such a change. These proposals are currently under discussion.

2.6 *Profit as a Concept in Law*

2.6.1 It is proper for the law to have an interest in the preparation of financial statements. Hence there are certain legal requirements on how profit is to be calculated in such statements. While these are based on what has become accounting practice, and while the intention is that they be economically meaningful, any contention that legal requirements had been breached would be tested against the law as it stands.

2.6.2 A critical legal requirement is the 'true and fair view', which phrase was used in the Companies Act in the U.K. in 1947. In 1978 it was enshrined in Article 2 (3) of the European Community Fourth Company Law Directive, which states:

"The annual accounts shall give a true and fair view of the company's assets, liabilities, financial position and profit or loss."

This requirement was incorporated into U.K. legislation, and appears in Section 226(2) of the Companies Act 1985.

2.6.3 Neither the Directive nor the Companies Act contains a specific definition of 'true and fair'. Seeking clarification, the Accounting Standards Committee (1983) obtained Counsel's opinion, which referred to 'true and fair' as implying that accounts must be accurate and comprehensive, with cost-

effectiveness being relevant in determining the amount of information which is sufficient to make the accounts true and fair. The opinion also referred to the need for accounts to contain enough information in quantity and quality to satisfy the reasonable expectations of the readers to whom they are addressed. Accountants would be able to guide the Courts on this; and complying (or not) with accepted accounting principles would be prima-facie evidence of meeting (or not) the true and fair requirement.

2.6.4 Since 'true and fair view' is now incorporated in European Community law, the legal interpretation would ultimately be a matter for E.C. courts.

2.6.5 The law itself also refers to a number of accounting principles. Following Article 31.1 of the Fourth Company Law Directive, Section 226(3) of the Companies Act 1985 requires the accounts to comply with the provisions of Schedule 4, of which Paragraph 9 requires the accounts to be prepared in accordance with the accounting principles known as: going concern; consistency; prudence; accruals; separate determination of assets and liabilities.

2.6.6 Article 31.1(c)(aa) requires for prudence, "only profits made at the balance sheet date may be included", which is consistent with profit reflecting performance and not anticipating profits from future activities (see Section 2.4). In the U.K. Companies Act 1985 the reference is to "only profits realised at the balance sheet date shall be included in the profit and loss account" (Schedule 4, Paragraph 12(a)).

2.6.7 Subsequently, the Companies Act 1989 introduced Paragraph 36A of Schedule 4 to the Companies Act 1985, which requires the accounts to state whether they have been prepared in accordance with applicable accounting standards; particulars of and reasons for any material departure from those standards are to be given. 'Accounting standards' are referred to in Section 256 of the Act, and are set by the Accounting Standards Board.

2.6.8 There may be circumstances where providing a 'true and fair view' is not the same as complying with accounting standards. This is recognised by Section 226(5) of the Companies Act 1985, which specifies:

"If in special circumstances compliance with any of these provisions is inconsistent with the requirement to give a true and fair view, the directors shall depart from that provision to the extent necessary to give a true and fair view. Particulars of any such departure, the reasons for it and its effect shall be given in a note to the accounts."

2.6.9 However, accounting standards have been drawn up with the 'true and fair' requirement in mind, and the law has increased the emphasis on such standards. Hence, it is not surprising to find the recent opinion of Counsel in Accounting Standards Board (1993a) that there has been an increased likelihood that the Courts will hold that, in general, compliance with accounting standards is necessary to meet the true and fair requirement.

2.6.10 It is also useful to quote the view of the Accounting Standards Board (1991):

"the application of the principal qualitative characteristics and of the law and appropriate

accounting standards should in all normal circumstances result in financial statements that convey what is generally understood as a true and fair view of such information”.

2.6.11 Insurance companies are permitted to prepare their accounts in accordance with Schedule 9A (rather than Schedule 4) of the Act, which exempts them from a number of the requirements, including some pertaining to the ‘true and fair view’ otherwise applicable.

2.7 *Review of Concepts of Profit and Value*

2.7.1 The economist’s equity value encompasses all projected income and outgo of the firm in calculating the excess of value of assets over liabilities on an appropriately discounted basis. One corresponding calculation of profit is the real (i.e. price-adjusted) increase in the economist’s equity value, allowing for new shareholder capital and dividends.

2.7.2 The accountant’s equity value is the excess of assets over liabilities calculated in accordance with accounting standards. In particular, it does not credit profit from future ‘performance’, and it emphasises the need for prudence.

2.7.3 The increase in the accountant’s equity value represents the increase in shareholders’ capital and reserves over the period. Part of the increase, adjusted for new capital and dividends, is recorded as profit in the profit and loss account (this is the excess of revenue over expenses); the remainder is regarded as a movement in reserves.

2.7.4 The economist’s equity value can be considered as being profit, as derived in §2.7.3, multiplied by some price/earnings (P/E) ratio.

2.7.5 The ‘expanded accounting’ approaches lie between the economic and standard accounting methods. They use some subjective valuations in the balance sheet, but, arguably, give more realistic measures of corporate performance.

2.7.6 The ‘legal’ approach is based on, and will typically, but not necessarily, be the same as the approach derived from accounting standards.

3. PRINCIPLES OF PROFIT MEASUREMENT IN LIFE ASSURANCE

3.1 *Introduction*

3.1.1 The users of financial statements encompass a number of categories (see §2.2.1). In life assurance, a key user is the Department of Trade and Industry, and there are regulations prescribing in some detail the statements to be submitted to it in connection with monitoring solvency and related matters (see Section 4.1). The basis of such reports is not necessarily that most appropriate to others such as investment analysts, and an important issue is whether and/or how alternative reports to meet other needs are more specifically required.

3.1.2 Sections 3.2–3.5 discuss aspects of long-term insurance which clarify the concept of profit in this business. Section 3.6 then considers how the standard accounting approach can be applied; Section 3.7 refers to expanded approaches and Section 3.8 considers the legal concept of profit.

3.1.3 A point of terminology can be cleared first. The value of liabilities under long-term insurance policies is termed 'reserves' by the actuary; but the accountant regards them, and the value of other liabilities, as 'provisions'. The accountant then views the assets of the company, net of liabilities, as forming the capital and reserves of the company, where reserves are undistributed profits and other increases in equity. In this paper, 'reserves' has the accountant's meaning, and 'actuarial reserves' indicates the actuary's usage.

3.2 *The Nature of Life Assurance Services*

3.2.1 Consider the services which a life assurance company provides to its policyholders, for it is these which lead to revenue being earned. They are: advising; administration; investment and insurance. Such services make up the output of the company (see O'Brien, 1991), although they would not usually be legally distinct parts of a policy or paid for separately.

3.2.2 Advising is part of the process leading to the policy being put into effect; administration includes quoting a surrender value and issuing a cheque for a maturity value. The investment service is such that managing the investments is done by the company rather than by the policyholder doing it himself.

3.2.3 The service of 'insurance' covers, for example, the guarantee that the full sum assured is payable on death immediately after the first premium is paid. It also covers the provision of other financial guarantees, e.g. that annuity instalments continue until death whenever that might be, or that the maturity value on a non-profit endowment policy will be paid regardless of the investment return achieved by the insurer.

3.2.4 Note that the supply of capital by shareholders is not a service to policyholders; it is the means by which the services can be arranged.

3.3 *The Nature of Revenue for Life Assurance Services*

3.3.1 The revenue received by the company for the provision of services cannot be equated to the sum of the premiums it receives and the investment return which it makes. This is because most of such sums is intended to be returned to policyholders in the form of claims, and they are what economists regard as transfer payments as distinct from transactions which reflect economic activity and are a potential source of profit.

3.3.2 Indeed, payment for life assurance services is made by a group of policyholders receiving, in aggregate, claim payments which are lower than the accumulation of the premiums they have paid, together with the associated investment return, net of tax. The difference is the monetary return which they are forgoing; it is the amount forgone which represents the payment for life assurance services and which constitutes the company's revenue. This is consistent with the theory underlying the calculation of the contribution of life assurance to national income.

3.3.3 The key issue in profit recognition is to determine how the revenue may be attributed to the different time-periods of the policy (before the termination of

the policy when the amount forgone and hence revenue are known), so that the time-profile of profits under the policy can be built up.

3.4 *The Nature of Liabilities and Assets*

3.4.1 The liabilities of a life company are largely the liability to pay benefits under policies in force. The payments are often many years in the future, with uncertain dates, depending on, for example, rates and timings of surrender and death claims. The amounts payable may also be uncertain, depending on, for example, future bonus rates and unit fund performance. There will also be uncertainty regarding the provision to be made for future expenses, where inflation is a further factor.

3.4.2 Of the assets, some will be held for the purpose of running the business in the sense of providing life assurance services (see Section 3.2). This includes buildings owned and occupied by the company, cars, computer equipment, etc. Typically, the value of such assets will be quite small in relation to the overall total of assets.

3.4.3 The nature of a company's liabilities is such that most of the assets are usually of an 'investment' nature. Some may well be 'investment properties' (see §2.4.10) and there are typically other investments such as fixed-interest securities and shares.

3.4.4 Intangible assets would include the value of a trained workforce and, in particular, a salesforce which may have a substantial capability for selling profitable policies. Such assets would not usually meet the criteria for inclusion in the balance sheet.

3.5 *Profit as Compensation to Shareholders*

3.5.1 Shareholders are exchanging capital for a future, uncertain income. They expect the profit to compensate them for the deferral and for the risks which make it uncertain. Fulfilling these expectations depends on the company being managed to produce the revenue which leads to profit.

3.5.2 The risks which the shareholders run include, for example, persistency, expense inflation and adverse changes in tax rates. If the risks are high the shareholders expect a higher reward, but it is not automatic. For example, the company may or may not have been successful in ensuring that its products are priced so that revenue from policyholders who do not lapse is adequate to compensate for the cases where a loss is made upon policies lapsing.

3.5.3 The *only* source of revenue (and hence, after expenses, profit) is that from policyholders in respect of 'life assurance services'. Profit-orientated management of the business will, if successful, increase revenue by raising the margins for revenue within premium rates, ensure revenue is increased by new business and not eroded by poor persistency, increase the investment return, contain the amount apportioned to policyholders, and control expenses and the amount of tax paid.

3.6 *The Application of Accounting Principles*

Going concern

3.6.1 By 'going concern' is meant writing new as well as maintaining existing business. Continued volumes of new business may be financially important to the existing business by spreading overhead expenses and possibly reducing taxes. It would be convenient, and consistent with accounting standards, to assume that future expenses and taxes are at levels which would be warranted by new business continuing at recent levels.

3.6.2 Strictly, this implies making a judgement about the business continuing for, say, 25 years and more, which may be difficult. Hence, an alternative interpretation of 'going concern' applied to long-term insurance, appears acceptable; if the result of some reduction in new business some years hence would be an increase in expenses or taxation, this should be assumed if it is prudent to do so.

Accruals

3.6.3 It is common for high expenses (including commission) to be incurred at the outset of the policy, and to be recouped from future premiums or investment income. In economic terms, costs have been incurred in year 1, services provided in year 1, but (some of) the related revenue is received in year 2 or later. The matching required by accounting standards can be achieved by establishing at the outset an asset reflecting the revenue which corresponds to the services relating to the costs incurred.

3.6.4 Hence, it is appropriate to make an adjustment to the assets and/or liabilities in order to advance the outstanding revenue matching acquisition costs, consisting of:

- (a) that part of such revenue which is as yet unrecovered acquisition costs, and
- (b) the profit element, if any, in such revenue (on a prudent basis).

The term 'deferred acquisition costs' is sometimes used in relation to matching, though it may be appropriate to restrict this term to (a) only.

3.6.5 SSAP18 ('Accounting for Contingencies') requires the accrual of future losses which are probable and can be estimated with reasonable accuracy. In dealing with life assurance risks, it is suitable for these to be considered on a group basis, and to require a prudent view to be taken of all contingencies, using probabilities as appropriate.

Consistency

3.6.6 In the financial reports for long-term insurance estimates are needed, particularly in assessing the value of liabilities. The assumptions underlying such estimates should consider the valuation of assets, and the consistency requirement does not prevent appropriate changes in the basis used.

Prudence

3.6.7 In assessing provisions for future expenses and payments under policies, the uncertainty may be significant. Accounting standards require prudence, which implies that there must be a margin for adverse experience. The higher degree of uncertainty in life assurance compared with other businesses also means that the accountant's equity value of a life company may be assessed below a 'best estimate' to a greater extent than other companies with lesser degrees of uncertainty.

3.6.8 However, the provisions must not be 'excessive', which would amount to holding 'hidden reserves'. Judging at what point this occurs is not easy.

Prudence and recognition of revenue

3.6.9 A long-term insurance policy involves the provision of services throughout the duration of the policy. Therefore, there is no 'critical event' at which all the revenue should be credited; it should be credited as the firm 'performs', i.e. as services are provided. In the author's view, the principles of SSAP9 can be applied, with revenue as discussed in Section 3.3, i.e. what is forgone by the policyholder.

3.6.10 SSAP9 has a requirement to assess the outcome of a contract with reasonable certainty before being able to take credit for revenue (see § 2.4.2(e)). However, it is in the nature of insurance that there may not be 'reasonable certainty' and it is more appropriate to consider blocks of business rather than individual policies in this respect. Hence, this aspect of SSAP9 should be relaxed when applied to long-term insurance.

3.6.11 If, however, the provision of future services is expected to generate a loss, then such a loss should be capitalised, in accordance with SSAP9, as referred to in § 2.4.2(f).

Valuation of assets

3.6.12 It would be appropriate to use market values for all assets of an investment nature, rather than merely investment properties.

3.6.13 Assets used for the operation of the business would, in accordance with standard accounting practice, be valued at historic cost, taking into account depreciation. However, such assets may be only a small proportion of total assets, and there is an argument that the nature of long-term insurance can justify market values being used (see § 3.6.17).

Discounting

3.6.14 In long-term contracts such as life policies, it is clearly appropriate to use discounting where relevant, for example in valuing the liabilities and in matching costs and revenues arising in different periods. On the basis of accounting practice whereby uncertainty is allowed for by margins in the estimates, the rate of discount should be the rate of return, net of tax, assumed (prudently) to be earned on the assets within the long-term fund. The rate of

return would cover changes in capital values of assets as well as investment income. For pensions business which is gross, but with shareholders paying tax on profits, the tax rate would be zero.

Reliability, including representational faithfulness

3.6.15 The accounts must faithfully represent the operations of the company, and be accurate and complete, subject to considerations of cost-effectiveness. It is in the nature of life assurance that estimates of future experience are necessary to place a value on profits which have been made and on any losses which are foreseen, but this uncertainty should not itself be regarded as leading to unreliability. However, the degree of uncertainty may affect what disclosures are made in the financial statements. Neutrality implies freedom from bias. Since the needs of one user (e.g. a regulator) may involve bias from the viewpoint of another (e.g. a shareholder), neutrality requires that the purpose (and intended audiences) of any given set of accounts be made clear.

Revenue and other gains

3.6.16 In life assurance, it would be artificial to have a division between profits arising from the excess of revenue over expenses and other gains (i.e. between (1) and (2) in § 2.2.7(b)). What policyholders pay as revenue is an amount forgone from monies which would otherwise be apportioned to them, and whether this arises from a realised or unrealised capital gain, or from premiums or investment income, is irrelevant. The whole of the increase in equity value should, therefore, be regarded as contributing to profit.

3.6.17 This then leads to the use of market value of all assets as being an acceptable standard accounting practice, although noting alternative possibilities for fixed assets specific to the business (see § 3.6.13).

Conclusion

3.6.18 The special circumstances of long-term insurance are such that specifically applicable accounting standards would be helpful. The author's suggested approach is to highlight the following:

- (a) assets are valued at market value (with alternative possibilities for fixed assets specific to the business),
- (b) liabilities are assessed prudently, but not excessively so; with a prudent view of contingent liabilities; and on a going concern basis (but some reduction in the size of activities could be assumed, with some resulting increase in the value of liabilities),
- (c) matching involves inclusion of revenue corresponding to acquisition costs not yet received from policyholders, on a prudent basis,
- (d) appropriate use is to be made of discounting,
- (e) profit recognised should not anticipate revenue in respect of services not yet provided,

- (f) if a loss is expected from the provision of future services, the value of the loss should be recognised as soon as it is foreseen, and
- (g) the financial statements should reliably and faithfully represent the operations of the company, without bias.

3.6.19 Use of the above suggested principles should, in all normal circumstances, result in financial statements which, in the author's view, can be judged to convey a true and fair view as generally understood.

3.7 An Expanded Accounting Approach

3.7.1 Typically, the expanded approach gives a higher value to fixed assets used in the business. However, it has already been argued that market value is acceptable for life assurance business; no higher figure would be acceptable as prudent in accounting terms.

3.7.2 The Inflation Accounting Committee (1975) recommended the use of 'value to the business' (VTB) as a form of current cost accounting. It referred to the practice of valuing life assurance company assets as the present discounted value of future income, and was satisfied that this was appropriate as VTB. However, this has been overtaken by the use of market values in financial reports.

3.8 Legal Concepts of Profit

Insurance Companies Act 1982

3.8.1 U.K. life assurance company practice requires companies to have a fund (the long-term business fund or long-term fund) wherein the life assurance business is transacted; and separately, an 'other than long-term business' fund which, in the case of a proprietary company, we can regard as the shareholders' fund. Section 18 of the Insurance Companies Act 1982 requires an actuarial valuation of the assets and liabilities of the long-term fund to be carried out periodically, following which there may be a transfer of some or all of the surplus as 'profit' to the shareholders' fund.

E.C. Insurance Accounts Directive

3.8.2 Insurance companies have been exempt from a number of requirements in the Fourth Company Law Directive and the Companies Act 1985. However, this will change following agreement of the E.C. Insurance Accounts Directive (IAD) in 1991, to be implemented in member states in accounting years of companies ending 31 December 1995 onwards. The U.K. and other governments are currently considering how to implement it (see Department of Trade and Industry, 1992, 1993).

3.8.3 Article 1 of IAD applies Articles 2 and 31 of the Fourth Company Law Directive to insurance companies. Article 2 requires that:

"The annual accounts shall give a true and fair view of the company's assets, liabilities, financial position and profit or loss."

3.8.4 Article 31 applies the principles of going concern, consistency, prudence, accruals, and separate determination of assets and liabilities. In particular, Article 31(c)(aa) requires that “only profits *made* [italics added] at the balance sheet date shall be included”, which is consistent with the need for profit in respect of future services not to be anticipated.

3.8.5 Under the IAD, a life technical account and a non-technical account have to be prepared. The former corresponds to the accounts of the long-term fund, the latter to the shareholders’ fund. The profit from life assurance activities in the life technical account is transferred to the non-technical account, and when added to net income in the shareholders’ fund gives the company’s total profit.

3.8.6 Assets are to be stated at ‘current value’, which is equivalent to market value after certain adjustments. The Directive accepts that, for the insurance industry, it may be useful for unrealised gains and losses to be dealt with in the profit and loss account. This is consistent with the argument in §3.6.16.

3.8.7 Profit is calculated after, *inter alia*:

- (a) life assurance provisions,
- (b) bonuses and rebates,
- (c) other technical provisions, and
- (d) the fund for future appropriations being monies where, at the balance sheet date, the allocation to policyholders or shareholders has not yet been determined. Inclusion of this item is subject to the discretion of the government.

Concerns regarding the Directive and Accounting Standards

3.8.8 In determining the value of life assurance provisions we note:

- (a) Article 42 of the Fourth Company Law Directive indicates that provisions for liabilities shall not exceed the sums which are necessary; this is applied to insurance companies through Article 1 of IAD (unless provided otherwise).
- (b) Article 27 of IAD states that the life assurance provision shall comprise the actuarially estimated value of liabilities including bonuses already declared.
- (c) Article 56 of IAD indicates that life assurance provisions must be such that any liabilities can be met as far as can reasonably be foreseen, and Article 59 requires the computation to be on the basis of recognised actuarial methods.
- (d) The preamble indicates that use may be made of actuarial methods customarily applied on the market or accepted by the insurance-monitoring authorities. This should be taken as referring to the underlying methods of calculation, and not necessarily to the numerical assumptions concerning interest rates, etc.
- (e) The preamble also refers to due regard for the actuarial principles in the Life Framework Directive, which are to be used for the prudential and financial monitoring of life assurance business.
- (f) The prudence and going concern principles (from the Fourth Company Law Directive) apply, except where IAD provides otherwise.

3.8.9 The degree of prudence permissible and/or required is open to debate, but:

- (1) (c) above may suggest greater prudence required than for non-insurance companies which are subject to (a); though this may still be consistent with the accounting standards appropriate to life assurance as a result of the greater uncertainty (see § 3.6.7),
- (2) while (b) refers to bonuses already declared, the Life Framework Directive mentions future bonuses, and (c) implies account to be taken of future bonuses (under some appropriate heading), and
- (3) (d) appears to allow use of the net premium valuation method.

3.8.10 The fund for future appropriations (FFA) is referred to by the Department of Trade and Industry (1992) as largely a holding account to enable a smooth flow of surplus to emerge. However, the principle of representational faithfulness implies that a prudently calculated shareholders' interest in the company should not be 'hidden' in the FFA.

3.8.11 Under the Directive, a government may allow or prohibit the deferral of acquisition costs. IAD refers to Article 18 of the Fourth Company Law Directive which itself refers to:

- (a) expenditure incurred in year 1, but relating to year 2 or later, and
- (b) any income relating to year 1, but due in year 2 or later,

being shown under 'prepayments and accrued income' or 'debtors'. IAD provides for these to be classified as deferred acquisition costs.

3.8.12 Matching of revenue and cost is required to meet accounting standards, but this principle may be breached by:

- (a) prohibition of deferral of acquisition costs,
- (b) any constraints which prevent an appropriate deferral, or
- (c) permission to use a method which was inappropriate, but which was a customarily applied method, which is implied would be acceptable.

3.8.13 In calculating the provision for future expenses, in excess of margins, we might offset profits expected under some other contracts against such provision, subject to prudence. However, Article 59 requires the provision to be calculated separately for each policy (subject to approximation) which could lead to higher provisions than are appropriate in accordance with accounting standards.

3.8.14 The author's conclusion is that the Insurance Accounts Directive is inconsistent with the accounting principles for long-term insurance suggested in § 3.6.18:

- (a) It may permit the use of a basis of valuation of liabilities determined to meet certain other regulatory requirements, but which produce results that, in the context of accounting standards, are excessively prudent or a breach of representational faithfulness.

- (b) It permits use of a fund for future appropriations (if a government allows) which, unless its use is properly controlled, may lead to profit not being a faithful representation of events.
- (c) The deferral of acquisition costs may be constrained or prohibited, which infringes the accruals principle, or an inappropriate deferral method may be permitted.
- (d) The calculation of provisions having to be carried out for each policy separately may lead to greater prudence than appropriate.

3.8.15 There is also an area of doubt in that prudence cannot be weaker than defined by Article 56 of IAD; it is not clear if this is consistent with accounting standards (see §3.8.9(1)).

3.8.16 The conflicts with the suggested accounting principles can be reduced by appropriate framing of the legislation to implement the Directive.

3.8.17 The U.K. Government intends to permit the use of FFA and to require the deferral of acquisition costs (Department of Trade and Industry, 1993). However, it intends to allow maximum flexibility where possible: for example, there will be no constraint in the regulations on the use of FFA, and Zillmerisation appears to be permitted as a method of deferring acquisition costs.

3.8.18 However, the draft regulations (Department of Trade and Industry, 1993) suggest that the quantum of deferred acquisition costs will not be required to be disclosed where use is made of an actuarial method which makes an implicit allowance which cannot be quantified; it would then be necessary to explain qualitatively how the deferral has been treated. The author's view is that actuarial calculations ought to be capable of making the quantification.

3.8.19 Further, accounting and actuarial standards drawn up for, and agreed by, the life assurance industry could assist in ensuring an appropriate and consistent approach to the preparation of life assurance company financial statements.

3.8.20 If inconsistencies with standard accounting principles remain, the accounts would not be true and fair as normally understood. Now IAD requires its provisions to be overridden, if necessary, to achieve a true and fair view; but were a government to prohibit the deferral of acquisition costs, then a legal claim that the accounts were not true and fair would fail. The true and fair override is expected to be used in exceptional cases only, and could not, for example, be satisfactorily used by all companies in a country to defer acquisition costs where the government has prohibited it.

3.8.21 Hence, the legislation implementing the Directive may be such that a life assurance company's accounts would be deemed to be true and fair, notwithstanding the lack of compliance with the suggested accounting principles.

4. THE STATUTORY SOLVENCY METHOD

4.1 *Practice*

4.1.1 Section 18 of the Insurance Companies Act 1982 requires an annual

investigation to be made into the financial position of a life assurance company, the assets and liabilities of the long-term fund being valued in accordance with the Insurance Companies Regulations 1981 ('the Regulations'). Of the surplus, part (in a company writing with-profits business) would be allocated to with-profits policyholders as bonus, part (in a proprietary company) transferred to the shareholders' fund and part carried forward.

4.1.2 In such a valuation, assets are largely taken at market value, though, in some cases, assets are inadmissible and given nil value, and in other cases the value is restricted.

4.1.3 Liabilities are valued with "proper provision for all liabilities on prudent assumptions in regard to the relevant factors" (paragraph 54 of the Regulations), and there are some specific restrictions on, for example, the interest rate to be used and the avoidance of credit for profits on future lapses or surrenders.

4.1.4 In a company writing with-profits business, it is usual for the liabilities to be calculated with no explicit allowance for future bonuses, but using a net premium valuation method which implicitly makes some allowance. In calculating the surplus, the liabilities are compared with the 'balance sheet fund', which is less than the value of assets, the difference being an investment reserve. Over the year, premiums, investment income, expenses, taxation and claims impact on the revenue account and the balance sheet fund; realised and unrealised capital gains are credited to the investment reserve. At the time of the actuarial valuation, a transfer is made from this reserve of an amount which produces the surplus appropriate to the bonus rate to be declared.

4.1.5 The amount transferred to the shareholders' fund is usually regarded as the net profit in the Companies Act accounts. It is usual to gross up this net transfer for tax in order to show a pre-tax profit in the profit and loss account. There is no established practice to determine the tax rate to use. The artificiality of this procedure reflects the complex nature of life assurance company taxation.

4.1.6 In some cases there will be a transfer of monies from the shareholders' fund into the long-term fund. This may be shown in the accounts as a loss; some companies would rightly regard this as potentially misleading in certain circumstances and treat it as a transfer from reserves. There is no established practice regarding identifying such circumstances.

4.1.7 The profit transfer is, of course, a proper representation of the amount passed to the shareholders' fund. The Regulations constrain this amount; and methods of profit recognition which, by ignoring such regulations produce a higher profit figure, do not enhance the amount which can be transferred out of the long-term fund.

4.2 *The Statutory Solvency Method and Accounting Principles*

4.2.1 However, the profit transfer may well not be a profit which shows a 'true and fair view'. The reasons for this are:

- (a) *Regulatory assessment of assets and liabilities*; assets and liabilities are valued on a basis designed to monitor solvency.

- (b) *Link with bonus declaration*; for companies writing with-profits business, the profit transfer depends on the bonus rate declared.
- (c) *Impact of high initial expenses*; high initial expenses mean that profits are understated when new business is high. Some reduction in the value of liabilities may be made by Zillmerising initial expenses, but this can be inadequate.
- (d) *Nil value to surplus carried forward*; since surplus carried forward undistributed is not transferred, no credit is given for its value.

4.2.2 The method does not comply with a number of accounting standards; and conflicts with the author's suggested principles for life assurance business set out in § 3.6.18. This is discussed further in §§ 4.2.3–4.2.9.

4.2.3 The valuation of liabilities may be inconsistent with the going concern principle:

- (a) Section 61 of the Regulations requires account to be taken of the expenses of closing the fund, which may lead to liabilities being given a greater value than in a going concern valuation.
- (b) The actuary may be able to assume that future expenses would reduce to a 'care and maintenance' basis, i.e. leading to liabilities being given a lesser value than in a going concern valuation.
- (c) The actuary may, in valuing liabilities, take credit for tax relief emerging earlier on a closed fund basis than would actually be the case in a going concern valuation.
- (d) The actuary may take credit in the valuation for future increases in mortality deductions and management charges, in a manner which was less constrained than if he were carrying out a going concern valuation.

4.2.4 Matching requires an appropriate treatment of acquisition costs. The Regulations permit the use of Zillmerisation, which reduces the liabilities by effectively amortising acquisition expenses over the life of the policy. However, the amount of cost deferred in this way is limited to 3-5% of the sum assured, which may be less than the acquisition costs incurred. Neither is there any rationale for why the spreading of costs implied by Zillmerisation actually meets the requirements of the matching principle. Furthermore, the method is not applicable to unit-linked business, and in any event a company may use its discretion not to use a Zillmer adjustment.

4.2.5 The accruals principle may be infringed as profits may be made, but if the surplus in the long-term fund is carried forward it does not count as profit until actually transferred to the shareholders' fund.

4.2.6 The prudence in the valuation of assets and liabilities may be excessive and misleading because of the impact of the Regulations. These are designed to ensure that the company can continue its existing long-term contracts in a wide range of possible future circumstances without requiring further financing from shareholders; and, in the case of with-profits business, the net premium valuation focuses on a smooth emergence of surplus. While this may be satisfactory for the

regulators concerned with solvency and the meeting of policyholders' reasonable expectations, other users of accounts have a need for the accounts to reflect the operations of the company more realistically. From this standpoint the statutory solvency method may amount to holding hidden reserves.

4.2.7 There is a breach of representational faithfulness, as the shareholders are given no interest in the investment reserve which is effectively regarded as a policyholder liability. Arguably this is prudent; and it is certainly correct to consider the philosophy of the office with regard to how the investment reserve is used to support bonuses, and how the shareholders' share of surplus is determined. However, one would not expect to deduce that none of the investment reserve was attributable to shareholders.

4.2.8 Examples where current practice can produce misleading results are:

- (a) The office maintains bonuses despite expense overrun or declines in investment values; the investment reserve decreases; the profit transfer is unchanged, but no reference is made to the reduction in shareholders' interest in the investment reserve.
- (b) The office switches emphasis from reversionary to terminal bonuses and the profit transfer is reduced; however, the transfer from investment reserve is lessened, and no account is taken of the increase in shareholders' interest in the now higher investment reserve.

4.2.9 In the case of linked business, it is more likely that the actuarial reserves are prudent without being excessive. Companies have often ensured that product design and reinsurance arrangements enable surplus to be released to the shareholders as soon as possible. Nevertheless, the valuation might still have margins which are excessive from the viewpoint of true and fair reporting.

4.3 *The Statutory Solvency Method and the E.C. Insurance Accounts Directive*

4.3.1 In practice, a company may claim that the legal requirements of the Directive were met with, perhaps, only modest changes to the statutory solvency method. Indeed, use of existing methods of calculating actuarial reserves appears to be envisaged in the preamble to the Directive.

4.3.2 It was expected that the fund for future appropriations could be used as the place for the investment reserve, and hence companies could continue their existing practice of making transfers from the investment reserve such that the profit is the amount linked to the bonus declaration.

4.3.3 If deferral of acquisition costs is permitted by a government, companies with non-linked business may expect the current practice of Zillmerisation to be an acceptable way to make the deferral.

4.3.4 However, it is not clear to the author that only modest changes will be acceptable, bearing in mind also the requirements for assets to be at 'current value' (rather than using the present admissibility rules), liabilities on a going concern basis, and deferral of acquisition costs (if implemented) to be applied to

unit-linked as well as conventional business. It is also noted that the Directive has no specific line for surplus carried forward in the long-term fund.

4.4 *Pressures for Change*

4.4.1 Many U.K. insurance companies have been contemplating reporting under the Directive on a basis similar to the statutory solvency method (KPMG Peat Marwick, 1992). However, there are a number of pressures which are leading companies to consider other approaches.

4.4.2 An important concern of proprietary life assurance companies has been that their operations need to be better understood by investors, investment analysts and others, a perception which has been influenced by take-over activity. It is felt that such understanding would be more likely if the profit reported were capable of being used, in conjunction with a suitable P/E ratio, to produce a value of the company.

4.4.3 However, it has also been argued—particularly by a number of accountants—that the statutory solvency method is not consistent with established accounting principles and cannot satisfy the ‘true and fair view’ requirement of the Directive, which itself does not give a clear-cut view that current practice can largely continue. Hence, alternative standards are being sought.

4.4.4 Some companies have already presented figures on alternative bases, either in the body of, or as supplementary information to, their accounts, and this constitutes additional pressure on others to assess their position.

5. EMBEDDED VALUE PROFITS

5.1 *Introduction*

5.1.1 The embedded value is part of the total value of the life company. It is suitable to use the following definition of the embedded value, being that adopted by the Institute of Actuaries Working Party (1990a) in considering the publication of such values in parent company accounts:

- (a) the discounted value of those present and future surpluses which are expected to be generated in respect of presently in-force business within the statutory long-term business fund and to be transferable (after allowing for all relevant taxes) to profit and loss account, and
- (b) the value of net assets held outside the long-term business fund which are available for the purposes of the company’s long-term business.

5.1.2 Let us refer to §5.1.1(a) as the ‘shareholders’ value of long-term business’ (SVLTB), and to (b) as the ‘shareholders’ fund net assets’.

5.1.3 In calculating SVLTB, estimates are needed of future experience, for example investment return, tax, expenses, withdrawal and mortality rates; and bonus rates and unit-linked policy management charges. These are typically ‘best

estimates', where the margin for uncertainty is less than would ordinarily be expected in accordance with accounting standards.

5.1.4 SVLTB is produced from the profit stream by applying a discount rate regarded as appropriate to the valuation of such a stream by the shareholders. It therefore reflects the deferral of income and the risk relating to the emergence of this income.

5.1.5 It may be difficult to determine an appropriate single risk discount rate to reflect the uncertainties of the business. Indeed, different rates would be justified for different products. However, there is an alternative method of calculating SVLTB. Instead of using future assumptions which are best estimates, we can build in margins to reflect uncertainty which achieve the prudence required (see § 2.3.7), in conjunction with a rate of discount which is the return expected to be achieved on the investments of the long-term fund, net of tax (see § 3.6.14).

5.1.6 The Institute of Actuaries Working Party (1990a) considered the valuation of shareholders' fund net assets on two bases: market value; and the discounted value of income from such assets. The majority favoured the former, consistent with normal accounting practice for working capital. However, there was also some support for the discounted income approach, which could also be applied to that part of the assets within the long-term fund which are needed to support the solvency margin requirements under the Insurance Companies Act 1982.

Embedded value profits

5.1.7 By embedded value long-term profit, we mean the profit transferred under the statutory solvency method plus the increase in SVLTB after the profit transfer. To find the total embedded value profit we add the profits within the shareholders' fund.

5.2 Compliance with Accounting Principles

Going concern

5.2.1 The method is used on a going concern basis, although the Institute of Actuaries Working Party (1990a) referred to the possibility that some assumptions applicable to a closed fund might be used.

Prudence (in the context of uncertainty)

5.2.2 The method uses a risk discount rate which, given the margin for prudence which may be built into the assumptions, is intended to ensure the outcome is prudent in the context of uncertainty.

Prudence: the timing of revenue recognition

5.2.3 SVLTB consists of amounts transferable to the shareholders' fund in the future from:

(a) amounts transferred previously into the long-term fund,

- (b) the present value of profits made from the provision of services in the past, but where a transfer to the shareholders' fund has not been made, because the Regulations, designed to protect solvency and policyholders' reasonable expectations, require greater amounts to be retained in the long-term fund than prudence in the sense of accounting standards requires (or because it is decided to retain surplus carried forward rather than transfer it to the shareholders), and
- (c) the present value of profits expected to be made from the provision of services in the future, on existing business.

In life assurance, services (as in Section 3.2) are provided throughout the duration of the policy, and hence revenue can be earned (see § 3.6.9), and profits made from providing services in the future, i.e. § 5.2.3(c).

5.2.4 The use of SVLTB or embedded values is contrary to standard accounting principles as a result of including profits from future services (§ 5.2.3(c)). Although some have argued that a discount rate with allowance for risk justifies the inclusion of an embedded value, the author's view is that the outcome of using the definition in § 5.1.1 would still result in reporting some profits which reflect future rather than past performance.

Discounting

5.2.5 SVLTB can be calculated using a discount rate which is that assumed to be earned in the long-term fund (§ 5.1.5), which would be consistent with accounting principles; although, typically, use is made of a risk discount rate, which is inconsistent with accounting practice.

Reliability

5.2.6 The need to incorporate profits to be made in the future on existing business highlights the significance of the (uncertain) estimates of future experience to a greater degree than if one is concerned only with profits made. The results are also sensitive to the risk discount rate used, the choice of which contains a substantial element of subjectivity.

5.2.7 It is complicated to forecast profit flows on a large portfolio of business in force. It is common, therefore, for SVLTB to be calculated using a model of the company based on representative policies. Establishing and maintaining such a model is a complex process, usually involving ongoing refinement. Calculation of embedded value profits, using the difference in successive years' SVLTB may, therefore, be less accurate than one would wish.

5.3 Embedded Value Profits and the E.C. Insurance Accounts Directive

5.3.1 The Directive requires the inclusion of profits which have been 'made', consistent with accounting principles. Since the embedded value includes the value of profits which have not been made, it conflicts with this basic requirement. Hence, the author cannot find any justification for reporting SVLTB as an asset or by an adjustment to the liabilities.

5.3.2 Further, the embedded value calculation does not identify the amount of deferred acquisition costs as required by the Directive, although it may be that some qualitative assessment of deferred acquisition costs would be acceptable (see Department of Trade and Industry, 1993).

5.3.3 It therefore appears that an insurance company cannot report embedded value profits under the Directive. This is, of course, not a conflict with present practice, where embedded values are used only in parent companies. However, Article 65 of the Directive applies the same principles to insurance holding companies which, following the above argument, will not be able to include the embedded value on the balance sheet or report embedded value profits. Therefore, it appears that there will have to be changes in the practice of certain companies (see Institute of Actuaries Working Party, 1990b).

5.3.4 The author regards this as an important conclusion, though it will doubtless be subject to debate.

5.4 *Further Comments*

5.4.1 The embedded value is an important constituent of the capital value of a life assurance company (see Section 8). The directors may wish to give supplementary information to the accounts which shows the embedded value, or embedded value profits, which are economically meaningful (Benjamin, 1976).

5.4.2 It has been argued by some that an embedded value profit should not be used in financial statements because it is derived as the difference between two capital values (i.e. the embedded value at the beginning and the end of the year), rather than based on revenue items relating to the accounting period. This is wrong, since the asset/liability approach, which focuses on capital values, is accepted accounting methodology. It is also incorrect to say that using a risk discount rate invalidates the use in accounts of embedded values, since they can be calculated without this (see § 5.1.5). The key issue is that the embedded value incorporates profits from future performance, contrary to accounting standards and the 'profits made' requirement of the Directive.

5.4.3 Having argued that SVLTB is inappropriate for use in financial statements because it includes profits from future performance, this objection does not apply if we restrict ourselves to items (a) and (b) in § 5.2.3, i.e. the capital base in the long-term fund and the value of profits made from past services not yet transferred to the shareholders' fund. This is termed the 'Shareholders' Accrued Interest'.

5.4.4 The inclusion of future profits in SVLTB may well mean that embedded value profits are more sensitive to changes in business and financial conditions than a measure which is restricted to profits which have been made.

5.4.5 It has been suggested that future profits would be excluded if the discount rate in the SVLTB calculation were increased. The outcome would certainly not be SVLTB as usually understood (see § 5.1.1); and there seems to be no method for determining the required discount rate, which would then govern the rate of profit emergence in a way inconsistent with the need for profits to

reflect performance in the activities of an accounting period. To place reliance on some rate of discount to divide profits between time periods is not a suitable way forward.

6. THE ACCRUALS METHOD

6.1 *Introduction*

6.1 In Section 6.2 the general principles of a margins approach to profit calculations are outlined; in Section 6.3 the problems inherent in this are detailed. Following an outline of the accruals method in Section 6.4, Section 6.5 contains the comments of the author; and his views on the method when compared with the requirements of accounting principles and the E.C. Insurance Accounts Directive are in Sections 6.6 and 6.7, respectively.

6.2 *General Principles of a Margins Approach*

6.2.1 The objective is to exclude from SVLTB the value of profits in respect of services to be provided in the future.

6.2.2 Say we start from a calculation of SVLTB where the future experience assumptions incorporate a margin for prudence in the context of uncertainty, and the discount rate is the expected rate of investment return in the long-term fund, net of tax. Say we define a 'planned profit margin' as the expected profit in respect of each life assurance service to be provided in the future on each policy in force at the valuation date.

6.2.3 Then:

- (a) in the stream of expected profit transfers, regard planned profit as an outgo, hence reducing future expected profits, and
- (b) re-calculate the present value of the reduced future profit transfers.

6.2.4 As a result of excluding profits expected to arise from providing services in the future, we have now the capital base and the value of profits derived from having provided services in the past, but retained in the long-term fund, i.e. the 'Shareholders' Accrued Interest' (SAI).

6.2.5 If the reported profit is to reflect the profit from services provided in the year, then this would be the statutory solvency profit transferred plus the increase in the SAI from the beginning of the year to what it was at the end of the year after the profit transfer has been made.

6.3 *Problems Inherent in a Margins Approach*

6.3.1 There is a fundamental problem in a margins approach; the use of planned profit margins as an assumption about future profit levels is too crude a tool to determine the revenue and profit of a past period.

6.3.2 Typically, a company does not actually plan the profit margins on each service. Nevertheless, this approach requires planned profit margins to be assessed. In a number of cases it can, perhaps, be guessed. For the renewal

administration service, it has been suggested that the planned profit margin is a proportion (say 25%?) of the expected expenses; but say the expenses increased in an unplanned way; does the planned profit margin increase to 25% of the new level, or does it decrease, the higher costs reducing profit? The problem is that we do not know what the actual profit on each service has been.

6.3.3 For some services it is difficult to see how even any guess at the planned margin could be made. What about the insurance service of the guaranteeing of maturity values on non-linked policies?

6.3.4 The margins approach ignores the reality that profits reflect both supply and demand. It is supply-orientated: it appears as if doing work or taking risks produces profit without considering 'demand', i.e. what the policyholder is prepared to pay for the services.

6.3.5 A margins approach would work if what policyholders forgo in their claim payments is calculated with reference to planned profit margins on all the relevant services. This does not happen in practice, and there is no way of verifying in arrears what has been the actual profit margin on each service, as not only the premium income, but also the claim payments, reflect the package of services combined together, rather than purchased separately, in a life assurance policy.

6.3.6 It is also unnecessary to use planned margins to measure profit. While the margins approach concentrates on allocating profit between several functions, this is not the real aim. The aim is to devise a system for allocating profit between time-periods not functions.

6.4 *The Development of the Accruals Method*

6.4.1 There was pressure in the U.K. to reconsider the method of reporting life assurance profits, partly because of the expectation that the E.C. Insurance Accounts Directive would require 'true and fair' reporting, which it was felt the statutory solvency method would contravene; and partly because of take-over activity indicating a need for investors to obtain a better understanding of the results of a life insurance company's operations.

6.4.2 There has been developed a method of recognising profits which was termed the 'Accruals Method'. These proposals have been issued in draft form by the Association of British Insurers (1992); they had originally been issued for comment in 1990. Responses from actuarial and accounting bodies to the proposals were strongly against them; and, indeed, it appears that most ABI members were also against. However, the method has been the subject of further study, and some practical and other issues have been discussed by Wright (1992).

6.4.3 One of the principles underlying the method is that profits should be recognised over the policy term in a way which recognises 'risks borne and work performed'. Under the method, the expected total profit is calculated using underlying assumptions which are 'an appropriate assumed future investment return' and 'prudent estimates of other elements of future experience'. Such profit is then respread according to 'work done and risks borne', the mechanism

for which is 'planned profit margins' on each of various types of work and risk.

6.4.4 The main components of work are said to be selling, administration, paying claims and investing the long-term business assets. Risks cover: first, those inherent in the insurance contract itself (e.g. mortality, morbidity, options and guarantees); and secondly, business risks such as escalating costs or unexpectedly high or low withdrawals. 'Planned profit margin' is defined as "that part of the expected total profit planned to be recognised in a particular period in respect of a particular assumption as to risk borne or work performed". When added to an underlying assumption, the result is known as a 'weighted assumption.'

6.4.5 In practice, the calculation of profit requires first the calculation of SAI on the lines of § 6.2.3. The following assumptions are used:

- (a) Weighted assumptions are made as to future experience, except that weighted assumptions need not be adopted in respect of elements of future experience which have a relatively minor effect on total expected profit.
- (b) Discounting is at the earned rate of investment return, with an allowance for tax.
- (c) Smoothing of investment returns is permitted in determining profits on non-linked business; and for linked business a smoothed unit price may be used as the starting point. The objective is to avoid results which are unduly influenced by asset values at the valuation date.

6.4.6 The net profit for the year is then the statutory solvency profit transferred plus the increase in SAI. The result is grossed up at the corporation tax rate to give pre-tax profit.

6.5 *Some Problems with the Accruals Method*

6.5.1 The accruals method suffers from the inherent problems of a margins approach, set out in Section 6.3.

6.5.2 In particular, no way is indicated to identify specifically the margins attributable to work done and risks borne at the outset, hence these are determined residually as the expected total profit minus the value of the planned profit margins deemed to arise after the outset of the policy. Some commentators have suggested that such margins may be 'thick' (i.e. large) or 'thin' (i.e. small), i.e. implying that the residual profit credited at the outset is relatively low or high. They have then said that the accruals method is capable of producing a time-profile of profits which is broadly similar to the statutory solvency method (using thick margins) or embedded value profits (with thin margins). This suggests that no real progress has been made in determining what is an appropriate way of reporting profits consistent with accounting standards.

6.5.3 The actuarial profession's response to the proposals, in September 1991, referred to planned profit margins as being an artificial device, there being no objective basis on which they can be chosen by a company's directors.

6.5.4 In with-profits business, the planned profit margins as disclosed are shared between policyholders and shareholders. The reduction from SVLTB to SAI relates only to shareholders, and hence reflects only the shareholders' proportion of such margins. The author's concerns are:

- (a) To avoid overstating initial profits, it must be ensured that the margins as published are sufficiently high that the profits attributed to shareholders from future activities are not understated.
- (b) He would expect that SAI, being profits made for shareholders, but not transferred, should relate to profits made for policyholders, but not declared; under the accruals method this relationship may be inconsistent with the company's practice on the sharing of profits between policyholders and shareholders.

6.5.5 Planned margins are applied to business risks, as referred to in § 3.5.2. However, these are not services provided by the company where the future profits are required to be excluded from SVLTB (see § 6.2.2). Hence planned profit margins are inappropriate; the margin for prudence in the context of uncertainty should be adequate.

6.5.6 The allowance for tax in the discount rate "should be based on the effective tax rates applicable to shareholders on the relevant investment returns". This is deliberately vague, because of disagreement amongst those formulating the proposals.

6.6 *The Accruals Method and Accounting Principles*

6.6.1 The conceptual flaws in the method—in particular the use of 'planned profit margins'—are such that it cannot be regarded as providing an appropriate accrual which satisfies the need for representational faithfulness and, hence, reliability.

6.6.2 Other concerns are:

- (a) It is allowed that some weightings may be omitted, if they have a relatively minor effect on total profit, but this would place too high a figure on profit credited at the outset of a policy.
- (b) Investment smoothing, if used, may lead to overstating SAI, which would be imprudent.
- (c) It is not clear whether the going concern requirement is met by the intention that no credit is to be taken for any reduction in taxes deriving from future expenses or deficits, which is properly attributable to new business.

6.6.3 Reliability is also hindered by:

- (a) The process requires an estimate, not only of profits made, but also the expected total profit (to be spread), i.e. involving significant dependence on future assumptions.
- (b) It is envisaged that modelling techniques are to be used, similar to those in embedded value calculations (see § 5.2.7).

6.7 *The Accruals Method and the E.C. Insurance Accounts Directive*

6.7.1 The problems in meeting the requirements of accounting standards, together with the concerns on reliability, lead the author to conclude that the resulting financial statements cannot be regarded as showing a true and fair view, either in the usual accounting sense or in the way required by the Insurance Accounts Directive.

6.7.2 A number of discussions have taken place regarding how the use of SAI can be incorporated in the format of accounts in accordance with the Directive. The intended solution is that, for with-profits business, SAI is deducted from the fund for future appropriations; and, for unit-linked business, for it to be included as 'other prepayments and accrued income'. This inconsistency leads the author to question whether the balance sheet sensibly meets the needs of users and the 'reliability' requirement; arguably, it is not a 'true and fair' presentation.

6.7.3 In the life technical account, the increase in SAI is, in the case of with-profits business, reflected in the transfer to or from the FFA. For linked business it is regarded as technical income, being an accrual of future premiums and/or future fund management charges (it is not clear to the author how these items will be separated in practice).

6.7.4 SAI includes the value of deferred acquisition costs (DAC) attributable to shareholders. The value of DAC is not calculated explicitly by the accruals method, but disclosure of the amount may not be required in the U.K. in certain cases. However, those are circumstances where they are deducted from the long-term business provision in the balance sheet. It has not been suggested that this will be permitted where deferred acquisition costs are part of another item which is elsewhere in the balance sheet (see § 6.7.2), which would be inconsistent with the Directive.

6.7.5 In the case of with-profits business, no calculation is made of the value of deferred acquisition costs attributable to policyholders. It is not clear how this requirement is to be met: if by Zillmerisation within the long-term business provision, then the author's view is that this is inappropriate (see § 4.2.4) and, in any event, it introduces an inconsistency with the treatment of shareholders.

6.7.6 Other concerns are:

- (a) There are no specific lines in the draft Regulations issued by the Department of Trade and Industry (1993) to show either accrual of future premiums or accrual of future management charges. While it may be permitted, it appears quite wrong where they contain items more properly classified as a movement in deferred acquisition costs.
- (b) The specimen financial statements issued by the Association of British Insurers (1992) show an example of a unit-linked company, with surplus carried forward in the long-term fund being shown in the FFA. However, concern has been expressed by some that FFA should not be used for non-profit business; and the treatment of profits made, but retained to increase the long-term fund surplus, is not clear. Furthermore, a strengthening of the

basis of calculating liabilities in the Insurance Companies Act 1982 valuation would reduce surplus and lead to a higher figure for technical income, which it would be difficult to construe as either accrued premiums or management charges.

- (c) The inclusion in the accounts of figures on the statutory solvency basis and also on a 'realistic' basis leads to doubts concerning consistency within the accounts.

6.7.7 This conclusion is contrary to Counsel's advice given to the ABI, which indicated that, subject to the requirements for prudence and 'true and fair view', the accruals method could be accommodated within the Directive. However, the Counsel's opinion did not consider the arguments above.

7. A RESERVE-BASED APPROACH: THE 'EARNED PROFITS' METHOD

7.1 Introduction

7.1.1 This section sets out an alternative approach to calculating profits for presentation in financial reporting. Termed the 'Earned Profits' approach, it is based on economic, accounting and actuarial principles.

7.1.2 Section 7.2 contains an economic analysis of life assurance; Section 7.3 applies accounting principles to derive a calculation of profit. The actuarial calculation of liabilities is discussed in Section 7.4, some other issues in Section 7.5, and deferred acquisition costs in Section 7.6. Following a review in Section 7.7, compliance with accounting principles is referred to in Section 7.8 and the E.C. Insurance Accounts Directive in Section 7.9. Mention of alternative reserve-based methods is made in Section 7.10.

7.2 Economic Analysis of Life Assurance

7.2.1 We can regard the income of a life assurance company as:

$$\text{Premiums} + \text{Investment income} - \text{Taxation}$$

where:

- (a) investment income is deemed to include both realised and unrealised capital appreciation, and
- (b) taxation is shown as a deduction from income, but is net of tax relief on expenses and/or other outgoings.

7.2.2 Much of the income is not revenue in economic terms, but is, or will be, returned to policyholders in the form of claims (see § 3.3.1). Hence, we can regard part of the income as being 'apportioned' to policyholders to pay claims. Some of this apportionment will be to pay claims in the current accounting period, some will be set aside to pay future claims. We can regard the total of the amounts set aside as the 'Cumulative Policyholders' Apportionment' (CPA).

7.2.3 That part of income which is not apportioned to policyholders constitutes the company's revenue. This represents what is forgone, in aggregate, by policyholders receiving payments under policies which are lower than the accumulation of their premiums, with investment income net of tax (see § 3.3.2). Such revenue is the payment made by policyholders for 'life assurance services' (advising, administration, investment, insurance; see § 3.2.1).

7.2.4 The excess of revenue over expenses will produce the profit reflecting the year's 'performance', appropriate for financial statements. The expenses figure includes an increase in any provision for future expenses, where required in accordance with accounting standards.

7.3 Accounting Analysis

7.3.1 The accountant's equity value is the excess of assets over liabilities, where these are calculated in accordance with accounting standards (see § 3.6.18) and, in particular:

- (a) assets are at market value, and
- (b) liabilities on a long-term contract include the price of future services to policyholders (rather than merely cost), in order to avoid capitalisation of future profits (§ 2.4.4).

7.3.2 In considering the liabilities in more detail:

- (a) We include the value of expected payments to policyholders.
- (b) The price of future life assurance services is included, which equates to the revenue from such services.
- (c) If the price of future services were less than the cost, then the latter should be used in order that the loss foreseen be recognised.
- (d) We subtract the value of future premiums.

7.3.3 The accountant's equity value is the same concept as the shareholders' accrued interest. In the case of a proprietary company, with which this paper is concerned, this includes the shareholders' share of profits already made from life assurance services provided in the past, but not transferred to the shareholders' fund.

7.3.4 Hence:

SAI =

- (a) assets
- (b) – value of expected payments to policyholders
- (c) – value of revenue from future services
- (d) – value of excess of expenses over revenue from future services, if positive
- (e) + value of future premiums.

Let us refer to this as the 'current price approach' to calculating SAI, with the liabilities defined as the sum of items (b) to (e) above.

7.3.5 We can re-express certain items within § 7.3.4:

- (b) Value of expected payments to policyholders
= cumulative policyholders' apportionment
+ future apportionments to policyholders.
- (c) Value of future revenue
= value of future premiums
– value of future apportionments to policyholders.
- (d) Value of excess of expenses over revenue
= value of future expenses
+ value of future apportionments to policyholders
– value of future premiums.

7.3.6 Hence:

SAI =

- assets
- cumulative policyholders' apportionment
- [value of future expenses – (value of future premiums – value of future apportionments to policyholders)], if positive.

This is as we expect; that part of the assets which are not apportioned to policyholders, nor needed to meet a future expense liability, represents the interests of the shareholders.

7.3.7 Hence, SAI is the excess of assets over liabilities where the liabilities are the sum of:

- (a) cumulative policyholders' apportionment, and
- (b) provision for future expenses, if any.

Let us refer to this as the 'provisions approach' to calculating SAI.

7.3.8 The increase in SAI represents (in accordance with § 2.2.7):

- (a) monies transferred from the shareholders' fund into the long-term fund, minus transfers in the other direction,
- (b) the excess of revenue over expenses, i.e. profit, and
- (c) other gains minus other losses.

7.3.9 Hence, the increase in SAI is 'profit', assuming it is calculated before transfers between the shareholders' and long-term funds, and assuming all other gains and losses are passed through the profit and loss account.

7.3.10 On these same assumptions, i.e. items (a) and (c) in § 7.3.8 are zero, we can show the equivalence of the asset/liability and revenue/expense approaches. First, we can set out profit as being the increase in the excess of assets over liabilities as follows:

Increase in assets =

Premiums + Investment income – Taxation – Claims – Operating expenses.

Increase in liabilities =

Increase in CPA + Increase in provision for future expenses.

Hence:

Profit =

Premiums + Investment income – Taxation – Claims – Increase in CPA
 – Operating expenses – Increase in provision for future expenses.

In the above, ‘operating expenses’ are the expenses incurred in the year.

7.3.11 We obtain an identical answer by considering profit as the excess of revenue over expenses:

Revenue = Amount forgone by policyholders
 = Income [Premiums + Investment income – Taxation]
 – Apportionment to policyholders [Claims + Increase in CPA]
 Expenses = Operating expenses + Increase in provision for future expenses.

7.3.12 We can represent the financial transactions in a period (see Figure 1).

| | | |
|-------------------|---|----------------------------------|
| Premiums | Claims | } Apportionment to policyholders |
| | Increase in CPA | |
| Investment income | Operating expenses | } Expenses } Revenue |
| | Increase in provision for future expenses | |
| | Profit | |

Figure 1.

7.3.13 It will be noted that the earned profits method focuses on SAI (as does the accruals method), and avoids taking credit for the value of profits on future services which is included in the embedded value.

7.3.14 Accounting analysis is accustomed to consider revenue and expenses as arising from specific transactions in the year; this relationship is not very visible here. This is because the ‘transactions’ are continuous; throughout the whole of the year the company is providing services (e.g. investing assets).

7.4 Actuarial Calculation of Liabilities

Introduction

7.4.1 A key issue in determining SAI is the calculation of liabilities, using either of the two approaches set out in §§ 7.3.4 and 7.3.7. In each case an actuarial calculation is involved. Below, it is suggested how the accounting principles in § 3.6.18 should be applied.

Going concern

7.4.2 The going concern assumption must be used (see §§ 2.3.3, 3.6.1 and 3.6.2). In particular, the assumptions on taxation, expenses and investment return must be made accordingly.

Prudence

7.4.3 In the context of uncertainty, the principle of prudence must be applied in the sense referred to in §§2.3.7–2.3.10 and 3.6.7–3.6.8. To achieve this prudence, a ‘margin for uncertainty’ may be applied to future assumptions.

Discounting

7.4.4 The rate of discount is to be the assumed rate of return in the long-term fund, net of tax (see §3.6.14). This, in conjunction with the margins for uncertainty, is intended to produce appropriate values.

Prudence: the timing of revenue recognition

7.4.5 A key issue is to ensure that profits on future services are not capitalised. It is useful to contrast the liabilities, as referred to above, with the ‘minimum actuarial reserve’, which can be defined as the amount needed in respect of future payments to policyholders and future expenses, net of future income. It can be deduced that:

$$\begin{aligned} \text{Liabilities} &= \text{Minimum actuarial reserve} \\ &+ \text{Value of profits on future services.} \end{aligned}$$

7.4.6 Indeed, it is clear that the liabilities should not be merely this ‘minimum actuarial reserve’. Consider banks and unit trust management companies as examples of firms which provide financial services by contracts which generally last until terminated by the customer. At any point in time, the bank or unit trust company expects most customers to continue their contracts for some further time, and hence to make profits from providing services in the future. To find the ‘minimum actuarial reserve’, we would deduct the value of future profits from the current value of the bank deposits or units. However, such a deduction would lead to reported profits reflecting, not only past, but also expected future performance, and is inappropriate; it capitalises future profits similar to (in the author’s view) the embedded value calculation.

Reliability

7.4.7 It is important that the calculation be realistic in the sense of faithfully representing the company’s operations. The two approaches, ‘current price’ and ‘provisions’ are discussed below.

Application of the ‘current price approach’

7.4.8 This approach involves calculating a liability value which is similar (but not identical) to the value payable to another party to take on the obligations under the policy. This might be a reinsurer, or another long-term fund (under, say, a transfer of business in accordance with Section 49 of the Insurance Companies Act 1982). Such other party would then be responsible for providing the life assurance services (for which it would need suitable reward), together with payments to policyholders, but net of future income to be received.

7.4.9 The position is not quite identical to the reinsurance/transfer situations, as the other party is taking on a new obligation, with some additional effort and uncertainty, requiring appropriate compensation. An 'internal transfer value', i.e. what would be transferred to a comparable policy within the company, is nearer to what is being sought.

7.4.10 The use of 'price' in the underlying formula for this approach is a reflection of the relevance of both the supply of, and demand for, life assurance services, and it suggests the use of assumptions as would apply to the current pricing policy. However, in many situations it is not easy to apply this approach in practice, hence it is helpful to consider the second approach.

Application of the 'provisions approach' to unit-linked business

7.4.11 The provisions approach requires a calculation of the Cumulative Policyholders' Apportionment (CPA) and the provision for future expenses. The key issue clearly is how the CPA builds up over time; it is an 'intermediate value' on the way to a maturity value.

7.4.12 For unit-linked business, it is logical to regard the value of units allocated to policyholders as being the CPA. However, in some cases a penalty is applied where a policyholder surrenders a policy and receives less than the bid value of units. It is then appropriate to say that the value of units may be found from a formula applicable to the maturity value; but it is not a proper reflection of what has actually been apportioned to the policyholder to-date. For that purpose the surrender value is more appropriate.

7.4.13 It may be that the surrender value is lower than an appropriate 'intermediate value', because it reflects the special costs involved in administering the surrender transaction. Hence, such costs could be added to the surrender value to determine the CPA.

7.4.14 The surrender value reflects, in comparison with premiums paid by the policyholder, with investment income, net of tax, what has been forgone by the policyholder who surrenders. It therefore determines what is the revenue from such policyholders; a key item that we have sought to measure.

7.4.15 However, if the surrender value were markedly low, it may be that this, together with future premiums, would be insufficient to pay the benefits on maturity (and future expenses). Further, it may be insufficient to pay the expected values upon surrender at some future times. Clearly, the liabilities cannot be less than the 'minimum actuarial reserve' needed in respect of future payments to policyholders and future expenses, net of future income (§ 7.4.5). The 'minimum actuarial reserve' calculation takes into account future surrenders and lapses.

7.4.16 There is, though, an argument that the surrender value will exceed the minimum actuarial reserve. The latter is net of expected profits from future services to policyholders; since a policyholder who surrenders does not receive such services, he would not expect to pay for them. We can also note the example in Bangert's (1973) paper, where the surrender values exceed the minimum actuarial reserve.

7.4.17 There will also be instances where, arguably the CPA should be less than the surrender value. The latter, where generous in some sense, may be regarded as excessive for an 'intermediate value', say, if there are initial units granted at the outset before acquisition costs have been recovered. Hence the CPA to be used in accordance with the provisions approach may need to be lower than the surrender value, in order that it equates to the underlying calculation of liabilities as in the current price approach. This is discussed further in § 7.5.3.

7.4.18 Further, with one exception, the liabilities should not be negative. Negative liabilities imply that monies are due from the policyholder to the life company and, since the financial statements are reporting past not future performance, such monies 'owing' can only be in relation to past services. The only area where this would ordinarily apply is the outstanding revenue from services provided at the outset of the policy, i.e. matching acquisition costs. Hence, assuming there is a separate calculation of this amount (see Section 7.6), the liability itself, in respect of any policy, should not be negative.

Application of the 'provisions approach' to with-profits business

7.4.19 In with-profits business, it is now typical to consider the entitlement of the policyholder at maturity as the asset share (albeit with different possible methodologies), subject to some smoothing. Many offices now calculate the aggregate asset shares of business in force, and this may be a suitable 'intermediate value', representing the progression to the maturity value, being the ultimate CPA of the policy.

7.4.20 The office's bonus policy and the way in which it meets policyholders' reasonable expectations are clearly relevant. For example, it may be that future payouts will exceed asset shares, perhaps for a transitional period. This needs to be reflected in the calculation of liabilities.

7.4.21 Some companies operate on the basis that, in the early years, policyholders are entitled to less than the asset share, this being reflected in surrender values which are lower than asset shares (calculated after transfer of profit under the statutory solvency method). In such cases the CPA may, at early durations, be less than the asset share, to reflect the pace at which the policyholders' entitlement grows; this would be reflected in profits emerging more quickly than under the statutory solvency method.

7.4.22 The liabilities must not be less than the minimum actuarial reserve and, in calculating the latter, account must be taken of the bonuses expected to be payable in the future, including terminal bonuses. It would contravene 'representational faithfulness' to exclude such bonuses.

7.4.23 The above calculation of CPA, with reference to some or all of asset shares, surrender values, minimum actuarial reserves and adjustments, may give a value which is lower than the assets within the long-term fund. Such surplus needs to be apportioned between the policyholders (to form part of CPA) and the shareholders (to form part of SAI).

7.4.24 In determining the surplus to be apportioned to the shareholders:

- (a) the proportion of surplus must be prudent and not lead to overstatement of SAI,
- (b) the company's profit-sharing rules and its interpretation thereof will be of fundamental importance,
- (c) the company's constitution and the Insurance Companies Act 1982 may be constraints,
- (d) the impact of the valuation basis used under the Insurance Companies Act 1982 may be relevant and could be taken into account,
- (e) part of the surplus may be regarded as internal working capital of the company, and some might regard it as inappropriate for this to be attributed to shareholders,
- (f) part of the surplus may reflect 'high' current asset values, which some may regard as imprudent to assume will be maintained, and
- (g) part of the surplus allocated to shareholders may relate to pensions business, and may need to be netted down for tax.

7.4.25 Where the CPA calculation uses asset shares, care is needed to identify if this effectively includes bonuses not previously allocated to policyholders, as the shareholders' share in relation to any such additional bonus should be assessed.

7.4.26 One possible approach would be to attribute to shareholders:

- (a) the shareholders' share of surplus which corresponds to the terminal bonus accrued within asset shares, and also reversionary bonus not yet declared, and
- (b) the excess of assets over the sum of (a) and the total of asset shares; multiplied by the proportion of distributed surplus last allocated to shareholders, without adjustment for the impact of the Insurance Companies Act 1982 valuation basis, but with a deduction for tax on pension profits.

Application of the 'provisions approach' to non-profit business

7.4.27 For temporary assurances where no surrender value is payable, then the minimum actuarial reserve is appropriate for calculating the liability.

7.4.28 For annuities, the provisions approach is not straightforward to apply; and the current price approach may be more helpful. Certainly, for immediate annuities where there is a relatively competitive market in what is single premium product, the 'price' of providing future services and policyholder benefits may be assessed this way.

7.5 Further Comments

7.5.1 In the earned profits method, assets are shown at market values, or some other (close) figure in accordance with the suggested accounting principles in §3.6.18. The key issue then is the determination of liabilities.

7.5.2 While the concept of apportionments to policyholders is more easily considered in the context of unit-linked business, it can be adapted to with-profits business (much of which is now sold on a unitised basis).

7.5.3 It is arguable for both unit-linked and non-linked business that, in some cases, the use of a 'generous' surrender value would, if used as the CPA, understate profits. In principle this is correct, and reference may be had to the current price approach, and the outcome may be that the CPA is below the surrender value. If this were to be used in financial statements:

- (a) It would have a lesser degree of prudence than if the surrender value were the minimum CPA.
- (b) There would be some concern that not all such profits have been 'made', but that some future profits are being capitalised.
- (c) It is questionable whether the degree of prudence required by Article 56 of the Insurance Accounts Directive has been achieved.

7.5.4 In computing the liabilities, one would expect unit-linked business to make use of programs already used for the Insurance Companies Act 1982 valuation, but with different assumptions in some instances regarding future experience.

7.5.5 For non-linked business, use may be made of asset share calculations, perhaps derived by modelling techniques. Alternatively, a policy-by-policy actuarial reserve calculation could be used, subject to checking that the 'minimum actuarial reserve' condition does not apply.

7.5.6 The liability calculation can be generalised as a 'prudent realistic actuarial reserve'. 'Realistic' here implies a faithful representation, rather than a basis to produce the minimum actuarial reserve which capitalises future profits; the prudence is in accordance with accounting standards. The outcome reflects the value of the benefits which have accrued to policyholders (with an allowance for future expenses).

7.5.7 A general contingency or closed fund reserve would not be part of the liabilities for this purpose; in some cases a mismatching reserve may be.

7.5.8 In the case of with-profits business, it is implied that much (perhaps all) of the SAI is invested in equities, hence producing some volatility in the reported profit.

7.6 *Deferred Acquisition Costs*

7.6.1 The suggested accounting principles require assessment of the outstanding revenue matching acquisition costs (ORMAC).

7.6.2 Consider a unit-linked policy with nil unit allocation in the first 24 months, positive from month 25. In essence, during the first 2 years the policyholder is paying for the services he has received by forgoing what would otherwise be the crediting to him of his premiums and investment return. What he forgoes at the outset (his first monthly premium) is inadequate revenue to the

company for the services provided at the outset, hence he continues to pay over the first 2 years. It is as if the policyholder has a debt to the company.

7.6.3 Outstanding revenue implies that monies are 'owing' from the policyholder. If CPA is positive (from month 25 in the above example), this may be taken as indicating that there is no revenue outstanding, as there cannot be monies owing if the company has already apportioned monies to the policyholder.

7.6.4 Hence ORMAC is what will be receivable from the policyholder until the time when CPA becomes positive (say, the 'A' date). This is essentially the value of premiums and the associated investment return, net of tax, expected to be received between the balance sheet date and the 'A' date. However, we must subtract that part of this sum which does not relate to services provided at the outset, i.e.:

- (a) claims expected to be paid in this period, being an apportionment to policyholders, and
- (b) expected revenue relating to services provided in this period, comprising expenses expected to be paid and profits made on such services. Such profits may be estimated from a knowledge of the profit profile in subsequent periods.

7.6.5 Hence we calculate the present value of premiums and investment income, minus tax, claims, expenses and profit relating to the period up to the 'A' date on each policy. This may be done on a policy-by-policy basis or by a formula method.

7.6.6 A prudent view should be taken of premiums which would not be payable as a result of the policyholder withdrawing from the contract or the policy being terminated by the relevant contingency (e.g. death) occurring.

7.6.7 Discounting of values to the balance sheet date is at the rate of return assumed to be earned in the long-term fund, net of tax.

7.6.8 If the 'A' date is between due dates of premium payments, then an appropriate part of the premium due prior to the 'A' date should be included in the calculation.

7.6.9 The ORMAC calculation may include an element of profit, to be excluded from what is shown as deferral acquisition costs (DAC). However, prudence may lead a company to take credit for no greater amount than the DAC.

7.6.10 The method has been described in the context of a unit-linked policy. However, it is equally applicable to other policy types, even if the charging mechanism is less explicit. Indeed, with-profits business is increasingly operated either on a unitised basis or using asset shares, which makes it more similar to unit-linked contracts.

7.6.11 There will be cases where acquisition expenses are high, but the CPA at commencement is positive, hence implying (on the above analysis) that there are no deferred acquisition costs and, possibly, a substantial loss. It is suggested that

DAC be calculated as the lower of the outstanding loadings in the premium rate basis specifically matched to acquisition costs (although this may be difficult to determine objectively) and the amount needed to result in no loss being made at the outset; it is difficult to argue that a profit has been 'made'. An alternative approach is to reduce the CPA from a 'generous' level, but this results in the concerns of § 7.5.3.

7.6.12 It is implied that credit is taken for relevant margins over probably not longer than 3 years; and it is written off over this period.

7.6.13 Zillmerisation is an actuarial process which, in the author's view, does not match revenue and costs as required by accounting standards. In particular, it is difficult to see that the policyholder is still paying for the services provided at the outset of the policy some 20-plus years later. Hence, this does not appear to be a suitable method for use in 'true and fair' reporting.

7.7 Compliance with Accounting Principles

7.7.1 The method complies with the suggested accounting principles for long-term insurance set out in § 3.6.18, and on this basis gives a true and fair view as usually understood.

7.7.2 The objections to the statutory solvency method (§ 4.2.1) do not apply:

- (a) The valuation of assets and liabilities is not constrained by the Insurance Companies Regulations.
- (b) Value is given to the shareholders' interest in the investment reserve, and hence current bonus rates are not given an undue emphasis.
- (c) High initial expenses are catered for by deferring acquisition costs.
- (d) Account is taken of carried forward surplus in so far as it is attributable to shareholders.

7.7.3 Reliability is enhanced as a result of:

- (a) The dependence on future assumptions is reduced by the absence of a need to assess the total expected profit under policies (as required by the embedded value and accruals methods); although, necessarily, there is a need to assess revenue to be received in the future which matches acquisition costs, and checks must be made that the liability is not less than the minimum actuarial reserve; and that, if future losses are expected, they are capitalised.
- (b) A policy-by-policy valuation may be able to compute the liabilities without extensive use being made of corporate modelling.

7.8 Compliance with the E.C. Insurance Accounts Directive

7.8.1 The earned profits method is compatible with the Directive:

- (a) provided deferral of acquisition costs is permitted,
- (b) provided that the calculation of liabilities has the degree of prudence required by Article 56, and
- (c) with assets shown at 'current value'.

7.8.2 The actuarial liability would be shown amongst:

- (a) life insurance provisions,
- (b) technical provisions for life assurance policies, where the investment risk is borne by policyholders,
- (c) provision for bonuses and rebates, and
- (d) the fund for future appropriations.

7.8.3 For a company writing with-profits business, one possibility is to show in (a) the mathematical reserves under the Insurance Companies Act 1982 valuation, subject to a deduction of any actuarial reserves which conflict with the 'going concern' requirement, and possibly certain others. The remainder of the liability would be shown in (d). For linked business the liability is in (a), except for unit reserves in (b).

7.8.4 Deferred acquisition costs may be shown as an asset item or deducted from the liabilities; the excess of ORMAC over DAC may be shown under 'prepayments and accrued income: other' or deducted from the liabilities.

7.8.5 The author's view is that the requirements of Article 56 imply that it is appropriate for the liabilities on each policy to be not lower than the current surrender value.

7.8.6 This approach, unlike some alternatives, results in a balance sheet which, with suitable disclosure, is helpful to users and, in the author's view, meets the 'true and fair' requirement.

7.9 *Review*

7.9.1 This method, which the author has termed the 'earned profits' method, sets out to determine the profits earned by the company from services provided for the period in question, the key points of which are:

- (a) assets at market (or 'current', in accordance with the Directive) value,
- (b) liabilities calculated prudently (but without excessive prudence), as the cumulative policyholders' apportionment plus a provision for future expenses, and
- (c) inclusion of outstanding revenue matching acquisition costs.

7.9.2 Revenue is calculated as the excess of premium and investment return over what is apportioned to policyholders to pay current benefits and secure accrued benefits; the excess over expenses constitutes profit.

7.9.3 Judgement is needed in assessing profits on this basis. Inevitably there is no unique correct method. However, it is felt to be a suitable way forward, being derived from accounting principles applied to long-term insurance as understood from an actuarial and economic perspective.

7.9.4 An example of the earned profits profile for a with-profits endowment assurance policy is given in the Appendix. The CPA is calculated as:

- (a) value of policyholders' accrued benefits, including reversionary, but not terminal bonuses, plus

- (b) value of policyholders' accrued terminal bonus, plus
- (c) policyholders' share of excess of assets over the sum of (a) and (b),

where, in this example, (b) + (c) amounts to 90% of the excess of the value of the assets over (a). SAI is calculated as the excess of assets over CPA; earned profit is the statutory solvency profit plus the increase in SAI after such profit has been transferred. It will be noted that the profit profile avoids the sudden increase in the final year when terminal bonus is paid on maturity; the effect is spread over the policy term.

7.9.5 Under this approach, the surplus which has arisen from the company's experience is, in a with-profits office, shared between policyholders and shareholders. This ensures that there cannot be an SAI without there being available to policyholders a corresponding sum which reflects their share of surplus above their entitlement to guaranteed benefits and reversionary bonuses already declared.

7.9.6 The earned profits under a unit-linked policy are similar to the profile under the statutory solvency method except that:

- (a) The inclusion of ORMAC would typically eliminate artificial initial losses and may create a profit at the outset.
- (b) Emergence of subsequent profits would be slightly quicker where there are non-unit actuarial reserves, as the assumptions are made more 'realistic'.

7.9.7 Since the shareholders' accrued interest is the excess of assets over liabilities in accordance with accounting standards, we can analyse it as comprising:

- (a) the excess of market value (or 'current value') of assets over the value in accordance with the Regulations,
- (b) the excess of assets over liabilities in accordance with the valuation under the Insurance Companies Act 1982, i.e. the surplus carried forward,
- (c) the excess of liabilities in accordance with the Regulations (including any investment reserve) over the CPA and provision for future expenses in accordance with accounting standards, and
- (d) outstanding revenue matching acquisition costs, including the amount of deferred acquisition costs,

where, in the case of with-profits business, the values are those attributable to shareholders.

7.9.8 The accruals method does not incorporate the above analysis, which helps explain the apparent failure to treat deferred acquisition costs as required by the Insurance Accounts Directive or the relevant U.K. regulations (§§ 6.7.4, 6.7.5).

7.10 *Alternative Reserve-Based Methods*

7.10.1 An alternative approach to the calculation of liabilities could be used; it may be possible to develop some different 'realistic' basis. Further, the DAC (or

ORMAC) item may involve margins over a longer period over which it is then run off.

7.10.2 Another possibility is for the allocation of the liabilities between the items listed in §7.8.2 to be altered, provided that the terms of the Directive are met.

7.10.3 Any alternatives could be compared with the suggested accounting principles for life assurance in §3.6.18.

8. THE ANALYSIS OF CAPITAL AND VALUE

8.1 *Traditional Valuation Approaches*

8.1.1 The valuation of a company is effectively the determination of the economist's equity value described in Section 2.1. This involves the discounting of future income and outgo on a basis which appropriately reflects the risks involved.

8.1.2 In practice, the valuation may be made by multiplying the latest (or next expected) earnings by a price/earnings ratio as is felt suitable.

8.1.3 For life assurance firms reporting profit transfers in accordance with the Insurance Companies Act 1982, the P/E approach is usually regarded as misleading, because the earnings are artificial. Hence the 'actuarial valuation' method has been commonly used (see Section 8.2). However, the P/E approach can be used with earnings which are realistic (see Section 8.5).

8.2 *The 'Actuarial Valuation' Method*

8.2.1 The embedded value is calculated as part of the company's value (see §5.1.1), and consists of the shareholders' fund net assets and SVLTB. To obtain the total value of the company, we add in the present value of expected profits from new business to be written in the future. This methodology has been commonly used in take-overs and other assessments of value.

8.2.2 We have now seen that SVLTB can be divided into:

- (a) the capital base in the long-term fund, together with the present value of future profit transfers from services already provided (SAI), and
- (b) the present value of future profit transfers from services to be provided in the future on existing business.

8.2.3 We can also divide SAI into:

- (a) undistributed surplus in the long-term fund, on the statutory solvency basis used in the valuation under the Insurance Companies Act 1982,
- (b) the excess of surplus on the prudent realistic basis over the statutory solvency basis, and
- (c) outstanding revenue matching acquisition costs,

where in each case, for a with-profits office, we are considering the values attributable to shareholders.

8.2.4 We can now build up the value of the company (see Figure 2, where, in each case, the shareholders' interest is considered).

8.2.5 As we progress down the table, the risks increase. It is usual to emphasise the lower risks and discounting in embedded values compared with goodwill; but we should be similarly conscious of the differing risks in SAI and the remainder of SVLTB; and the extent to which SAI consists of outstanding revenue matching acquisition costs. Different discount rates may apply to the components (see Mehta, 1992).

| | | | | |
|--|---|---|---|---|
| Shareholders' fund net assets | | | | |
| Surplus carried forward in ICA 1982 valuation | S | S | E | T |
| Excess of surplus on prudent realistic basis over statutory solvency method | A | V | M | O |
| Outstanding revenue matching acquisition costs (incl. DAC) | I | L | B | T |
| Present value of profits on future services on existing business | | T | E | A |
| Present value of profits on future new business | | B | D | L |
| | | E | D | V |
| | | V | E | A |
| | | A | V | L |
| | | L | A | U |
| | | U | L | E |
| | | E | | |

Figure 2.

8.2.6 The present value of profits on future services on existing business is the difference between SAI and SVLTB.

8.3 *Capital*

8.3.1 The capital and reserves of the company are the shareholders' fund net assets plus SAI. However, there are constraints on the SAI since, to the extent that it is not distributable surplus, it must remain in the long-term fund; and, indeed, this is prudent to provide the support to continuing business, against adverse experience.

8.3.2 Reference is made in Burrows & Whitehead (1987) to net worth which is essentially based on a realistic assessment of assets and liabilities and appears to equate to shareholders' fund net assets plus SAI.

8.4 *Rates of Return*

8.4.1 The rate of return on capital from the long-term business, consistent with measurement in accordance with accounting principles, is as follows, where the increase in SAI is after the transfer of statutory solvency profit to the shareholders' fund:

$$\frac{\text{Statutory solvency profit} + \text{Increase in SAI}}{\text{SAI}}$$

8.4.2 The appropriate measure of the total return on capital is:

$$\frac{\text{Increase in (SAI + Shareholders' fund net assets)}}{\text{SAI + Shareholders' fund net assets}}$$

8.4.3 The above formulae would be adjusted for any changes in capital, and movements between the shareholders' fund and the long-term fund.

8.4.4 Alternative calculations could be based on total value, embedded value or SVLTB; they will be meaningful, provided that the nature of the calculation is understood.

8.5 *P/E-Based Values*

8.5.1 Earned profits as calculated in Section 7 are also realistic earnings which could be used in conjunction with some P/E ratio to value the company.

8.5.2 However, the value to shareholders depends on the valuation basis which determines when surplus is released. If 'realistic' earnings are used then, other things being equal, the P/E ratio will be reduced to reflect the deferral of surplus release (see Coleman, Edwards & Torrance, 1992). A company with a strong valuation basis would have a relatively low P/E ratio; it would have the security of greater backing assets, which means that dividends may be less volatile and the need for capital injections less likely.

8.5.3 Where management has an objective of increasing the value of the company, it will take decisions on product design and pricing accordingly. However, it is helpful to have an understanding of the relationship between value and the profit which is reported.

9. REVIEW

9.1 *Summary*

9.1.1 The accounting standards used in long-term insurance should reflect the nature of the business and the way in which revenues and expenses arise. In particular, revenue is what policyholders forgo by receiving a return which is lower than the accumulation of premiums and the associated investment return, less tax; this is their payment for 'life assurance services' (advising, administration, investment, insurance and financial guarantees). The paper suggests what are appropriate accounting principles which, in all normal circumstances, would produce financial reports showing a 'true and fair view'.

9.1.2 The E.C. Insurance Accounts Directive will require insurance company accounts to show a 'true and fair view', although it appears that practices inconsistent with the suggested accounting principles may be permitted in certain circumstances.

9.1.3 In the U.K., a life assurance company's net long-term profit is usually regarded as the transfer from the long-term fund to the shareholders' fund. This 'statutory solvency' method does not comply with appropriate accounting standards. However, it may be that only minor modifications would enable it to meet the requirements of the Directive.

9.1.4 Embedded values are an important part of a life company's value. However, the embedded value includes profits from the provision of life assurance services in the future on existing business which have not yet been 'made', contrary to accounting standards and the requirements of the Directive.

9.1.5 The accruals method proposed by the Association of British Insurers is considered by the author to be flawed, and also contrary to the requirements of the Directive.

9.1.6 The 'Earned Profits' method is proposed, under which the profits reported are those made from the services provided for the period in question. It is consistent with the proposed accounting principles, using assets and liabilities determined on a prudent basis in a way which it is felt meets the requirements of the Directive. Credit is also taken for outstanding revenue which matches acquisition costs.

9.1.7 The capital value of the company includes the embedded value and the value of expected profits from future new business. The embedded value includes net assets in the shareholders' fund, the Shareholders' Accrued Interest (SAI), and the value of profits from future services on existing business. The rate of return can be appropriately calculated using the shareholders' fund net assets and the SAI as the capital base.

9.1.8 If the value of a company is assessed using 'realistic' earnings such as earned profits, the P/E ratio must reflect the deferral of surplus arising from the valuation basis.

9.2 *The Policyholders' Perspective*

9.2.1 This paper was prepared to consider specifically issues relating to

proprietary companies. Nevertheless, the principles developed in this paper regarding the determination of revenue and the matching with costs may be applied to mutuals; it is implied that their accounts would show nil profit or loss being made.

9.2.2 There are further issues, not covered in this paper, regarding how best to illustrate the position of a mutual, in particular its capital base, financial strength and the prospects for future payments to with-profits policyholders. There are similar issues regarding the future payments to policyholders in proprietary companies. Much has also been written and discussed on this subject (see in particular Lyon, 1988), but there is scope for further development.

9.3 *Accounting and Actuarial Standards*

9.3.1 It is important that statements of accounting and actuarial practice are drawn up which can be used by long-term insurance companies reporting under the regulations drawn up to implement the E.C. Insurance Accounts Directive in the U.K. The author suggests that the 'Earned Profits' method be developed to assist in the design of such standards.

9.3.2 Consideration should be given across the E.C. to the implementation of the Directive and, in particular, the profit recognition methods which have been proposed.

ACKNOWLEDGEMENTS

The author is grateful for the assistance of several actuaries, accountants and economists; and in particular would like to thank David Bartlett, Icki Iqbal and David Purchase for their help. Responsibility for the contents of the paper remains, of course, with the author.

REFERENCES

- ACCOUNTING STANDARDS BOARD (1991). Statement of principles; the objective of financial statements & the qualitative characteristics of financial information (Exposure draft).
- ACCOUNTING STANDARDS BOARD (1992). Statement of principles; Chapter 3, The elements of financial statements; Chapter 4, The recognition of items in financial statements (Discussion draft).
- ACCOUNTING STANDARDS BOARD (1993a). Foreword to accounting standards.
- ACCOUNTING STANDARDS BOARD (1993b). The role of valuation in financial reporting (Discussion draft).
- ACCOUNTING STANDARDS BOARD (1993c). Statement of principles; Chapter 5, Measurement in financial statements (Discussion draft).
- ACCOUNTING STANDARDS COMMITTEE (1983). Legal opinion on 'true and fair', *Accountancy*.
- ALEXANDER, S. S. (1962), revised by Solomons, D. *Income measurement in a dynamic economy*, in *Studies in accounting theory* edited by Baxter, W. T. & Davidson, S., Sweet and Maxwell.
- ASSOCIATION OF BRITISH INSURERS (1992). Draft proposals on accounting for shareholders' profits in long-term insurance business.
- BANGERT, R. M. (1973). Valuation of a life assurance company for purchase. *J.I.A.* 99, 131.
- BELKAOUI, A. (1985). *Accounting Theory*. Harcourt Brace Jovanovich.

- BENJAMIN, S. (1976). Profit and other financial concepts in insurance, *J.I.A.* **103**, 233.
- BURROWS, R. P. & WHITEHEAD, G. H. (1987). The determination of life office appraisal values. *J.I.A.* **114**, 411.
- COLEMAN, A. M., EDWARDS, B.A. & TORRANCE, D. M. (1992). Maintainable earnings and actuarial methods for valuing life insurance companies. Paper presented to the Institute of Actuaries of Australia.
- DEPARTMENT OF TRADE AND INDUSTRY (1992). Implementation in the United Kingdom of the E.C. Council Directive on the accounts of insurance undertakings. A consultative document.
- DEPARTMENT OF TRADE AND INDUSTRY (1993). Draft Regulations to implement in the United Kingdom the E.C. Council Directive 91/674/EEC on the annual accounts and consolidated accounts of insurance undertakings.
- HICKS, J. R. (1946). *Value and Capital*. Oxford University Press.
- INFLATION ACCOUNTING COMMITTEE (1975). Inflation Accounting., H.M.S.O.
- INSTITUTE OF ACTUARIES WORKING PARTY (1990a). Recognition of life assurance profits: the embedded value approach.
- INSTITUTE OF ACTUARIES WORKING PARTY (1990b). Recognition of life assurance profits: the embedded value approach. A survey of current practice.
- INSTITUTE OF CHARTERED ACCOUNTANTS IN ENGLAND AND WALES TECHNICAL COMMITTEE (1989). The use of discounting in financial statements. A discussion paper.
- INTERNATIONAL ACCOUNTING STANDARDS COMMITTEE (1991). International accounting standards 1991/1992.
- KPMG PEAT MARWICK (1992). Implications of E.C. Accounts Directive for U.K. life companies: A view from the industry.
- LEE, T. (1985). *Income and value measurement, theory and practice*, Van Nostrand Reinhold.
- LYON, C. S. S. (1988). The financial management of a with-profit long term fund—some questions of disclosure. *J.I.A.* **115**, 349.
- MEHTA, S. (1992). Allowing for asset, liability and business risk in the valuation of a life office. *J.I.A.* **119**, 385.
- MYERS, J. H. (1959). The critical event and the recognition of net profit, *Accounting Review*, 528.
- O'BRIEN, C. D. (1991). Measuring the output of life assurance companies, *The Geneva papers on Risk and Insurance, Issues and Practice*, **59**, 207.
- SOLOMONS, D. (1989). Guidelines for financial reporting standards. A paper prepared for the Research Board of the Institute of Chartered Accountants in England and Wales and addressed to the Accounting Standards Committee.
- WRIGHT, P. W. (1992). The accruals method in theory and practice. A paper presented to the Manchester Actuarial Society.

APPENDIX

AN EXAMPLE OF THE EARNED PROFITS PROFILE FOR A WITH-PROFITS ENDOWMENT ASSURANCE POLICY

NOTES

This appendix illustrates the earned profits from a 25-year endowment assurance with-profits policy.

Annual premiums of £400 are payable; the basic sum assured is £8,200; deaths are 70% of A67/70(2) select; the lapse rate is 10% in year 1; subsequently the surrender rate is 5% p.a.

Investment income is 10% p.a.; initial expenses are 97.5% of the annual premium plus £75; maintenance expenses are £13.50 p.a., inflating at 5% p.a. These figures are net of tax.

Surrender values are asset shares (after statutory profit transfer) with a deduction of 2% in year 2, 1% in year 3. The excess of the surrender value over the value of benefits (including reversionary bonus to date) constitutes terminal bonus.

Reversionary bonuses are 2.79% p.a. compound; the shareholders' share is 10% of surplus using a valuation basis of A67/70 3%.

Liability (II)(a) is calculated as the accumulation of 50% of the 2nd year premiums and 90% of subsequent premiums with 5% interest [after 25 years, equals the maturity value excluding terminal bonus]. 'A' day is 4/9 through year 2; hence $ORMAC = 4/9 \times (360 [\text{premiums}] - 4 [\text{death claims}] - 27 [\text{revenue}]) \times 0.98$ [to allow for uncertainty in withdrawal rate] = 143.

Earned profit is the excess of revenue over expenses; and is also equal to the statutory profit plus increase in SAI.

SVLTB is calculated using a discount rate of 12%.

WITH-PROFITS ENDOWMENT

| | Year | | | | | | | | | | | | |
|-------------------------------------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| Revenue Account | | | | | | | | | | | | | |
| (1) Premiums | 400 | 360 | 342 | 324 | 308 | 292 | 277 | 263 | 250 | 237 | 225 | 213 | 202 |
| (2) Investment income | -8 | 24 | 57 | 89 | 121 | 152 | 184 | 215 | 247 | 278 | 310 | 341 | 373 |
| (3) Increase in ORMAC | 143 | -143 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (4) Apportionment to policyholders: | | | | | | | | | | | | | |
| (a) death claims | 4 | 4 | 6 | 6 | 7 | 7 | 8 | 9 | 9 | 10 | 11 | 13 | 14 |
| (b) surrender or maturity payments | 0 | 12 | 30 | 47 | 64 | 81 | 98 | 115 | 132 | 148 | 165 | 181 | 198 |
| (c) increase in CPA | 36 | 198 | 335 | 330 | 326 | 323 | 320 | 318 | 316 | 315 | 315 | 315 | 316 |
| (5) Revenue = (1)+(2)+(3)-(4) | 495 | 27 | 29 | 30 | 32 | 34 | 35 | 37 | 39 | 41 | 43 | 45 | 47 |
| (6) Expenses | 479 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 12 | 12 | 12 | 12 | 12 |
| (7) Earned profit = (5)-(6) | 16 | 14 | 16 | 17 | 19 | 21 | 23 | 25 | 27 | 29 | 31 | 33 | 35 |
| (8) Statutory solvency profit | 13 | 12 | 13 | 13 | 13 | 14 | 14 | 15 | 15 | 16 | 17 | 18 | 19 |

Balance Sheet

| | | | | | | | | | | | | | |
|---|------|-----|-----|-----|------|------|------|------|------|------|------|------|------|
| (I) Assets (after statutory transfer): | -103 | 240 | 578 | 912 | 1244 | 1573 | 1902 | 2229 | 2556 | 2884 | 3213 | 3543 | 3876 |
| (a) monetary assets | 143 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (b) ORMAC | | | | | | | | | | | | | |
| (II) Liabilities = CPA: | | | | | | | | | | | | | |
| (a) value of accrued benefits excluding bonuses | 0 | 18 | 49 | 77 | 105 | 131 | 155 | 178 | 200 | 220 | 239 | 257 | 274 |
| (b) 90% of excess of (I) over (II)(a) | 36 | 216 | 520 | 821 | 1119 | 1416 | 1711 | 2006 | 2301 | 2596 | 2892 | 3189 | 3488 |
| Total | 36 | 234 | 568 | 898 | 1224 | 1547 | 1867 | 2184 | 2501 | 2816 | 3131 | 3446 | 3762 |
| (III) Shareholders' accrued interest = (I)-(II) | 4 | 6 | 10 | 14 | 20 | 26 | 35 | 45 | 55 | 68 | 82 | 97 | 114 |

SVLTB

| | | | | | | | | | | | | | |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Embedded value long-term profit = (8)+increase in SVLTB | 169 | 19 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 28 | 29 | 30 |
| SVLTB | 156 | 162 | 169 | 176 | 184 | 192 | 201 | 210 | 220 | 230 | 241 | 252 | 263 |

ABSTRACT OF THE DISCUSSION

Mr C. D. O'Brien (introducing the paper): Life insurance accounting is very topical as a result of the E.C. Insurance Accounts Directive, because in December 1993 the regulations implementing the E.C. Directive in the United Kingdom were made.

One of the requirements is to assess the amount of deferred acquisition costs. This development is one to which our actuarial expertise is eminently suited, and I would expect us to apply our skills in advising companies accordingly. Companies may, however, fail to disclose the amount of deferred acquisition costs, which is permitted in some, but not all, circumstances. However, before a company takes such a step, I do hope that it will consult its actuaries.

Much has been written on the accruals method and embedded values. Some have said that they are very similar, or even the same. I find this hard to understand, since conceptually they are quite different. It is explicit that the accruals method uses only part of the value of the total profit over the lifetime of a policy. Others have said that the numbers produced are very similar in practice. Why is this so if the principles are so apart? The answer may lie in the subjectivity of the assumptions. However, in with-profits business the accruals method may well overstate the shareholders' accrued interest. The key issue is the planned profit margin attributable to shareholders, which may be only 10% of the margin used in the calculations, and hence may be quite low, leading to an over-statement.

It has been suggested that there can be an accounting practice which will encompass both embedded values and the accruals method. This would be very different from the earned profits method. When proposals for such a practice are available, we can consider if they are satisfactory by trying to reach agreement on the principles for life insurance accounting, and by comparing the proposals against such principles. Currently I am not optimistic that the proposals will be satisfactory. However, what would work would be to disclose, as supplementary information, the embedded value, with a good case for calculating it using an earned rate of discount, and with prudent margins for uncertainty in the assumptions.

Steps are also being taken to draw up a practice for life assurance accounting where the long-term business provision is calculated as the actuarial value of the liabilities. Some have called such an approach a modified statutory method. It has been suggested that very little modification may be needed to the statutory solvency method to meet the requirements of the Directive, although some would say that this is not 'true and fair' as usually understood. However, in my view it would be quite wrong to insist that only minimal modifications be allowed, or for there to be compulsion that the results be based on the mathematical reserves in the DTI returns. This would be contrary to the flexibility in the Directive. It is important that the long-term business provision can be calculated on an alternative, but still prudent, basis consistent with the Directive, as put forward in the earned profits method.

The earned profits method is essentially an extension of the modified statutory approach, but with greater realism. I have been continuing the practical development of the method, and there are examples of its application to with-profits and unit-linked companies available. Since the method is based on the calculation of assets and liabilities, it is not necessarily difficult to adapt existing valuation bases, and the work involved need not be unduly burdensome. I have also been able to go on to make the calculation of the rate of return which a life company is achieving.

Considering, 'true and fair', I have heard it said that, since one accounting method or another has been accepted in the past, it must be acceptable for the future. Such an attitude overlooks the advances in accounting principles and practice which are being made. We now have a golden opportunity to think again about the basis of life assurance accounting and must be looking to the future, not to the past. Some have said that determining what is true and fair is not for actuaries, but is a matter for accountants or lawyers. However, actuaries can make a significant contribution to the debate. Our knowledge of life assurance company operations, combined with our financial expertise, means that we are in an excellent position to put forward valuable ideas. It is a unique chance to demonstrate our skills to other professions, though we must also listen to others so as

to understand their perspective. In conjunction with our accounting colleagues, we can transform the disharmony of recent years into a union which represents a solid basis for life assurance accounting in the future.

Mr C. M. George (opening the discussion): This paper deals primarily with profits and profit reporting for U.K. proprietary life assurance companies. The Insurance Company Accounts Regulations that were enacted in December 1993 mean that accounts in the new format to reflect the E.C. Insurance Accounts Directive will appear in 1996, showing results for 1995. As is normal, given the extent of the changes, a one-year comparison will be required, giving results for 1994 on the new basis. For most companies the starting point for that process is the balance sheet at 31 December 1993. This is, therefore, a very topical paper.

The paper starts with a back-to-basics review of principles, followed by the application of those principles to life assurance. The existing accounting exemptions in insurance company legislation demonstrate that this is not straightforward. The paper then tests the profit reporting methods currently in use or under consideration against this theoretical framework before putting forward proposals for a further method. Finally, there is a short section building on basic profit reporting by considering measures of value and return on capital.

Section 2 is the theoretical base looking at economic, accounting and legal concepts of profit. Each of these sections repays careful study and gives a good grounding in the differing views on what is notionally the same concept. The accounting section is the major influence on the later consideration of the profit reporting methods. As an actuary, I am not alone in having considered a particular problem, worked out a practical way of addressing that problem, come up with a way of presenting it in the accounts and DTI returns that appears to be reasonable, and then being told by the auditors that it is not possible. Section 2 is of great assistance in understanding the accounting principles underlying these sorts of difficulties and confusions. Even here, at the basic level, it is possible to discern the seeds of some of our problems. Paragraph 2.3.2 gives the international view of fundamental accounting assumptions as being going concern, consistency and accrual. As described in §2.3.1, the U.K. standards add a fourth fundamental assumption, that of prudence. This attention to detail may be behind the comments that we look at things in the U.K. in a somewhat different light to that used throughout the rest of Europe. Issues that we take very seriously are, in some cases, not even recognised as issues overseas. More generally, much of this paper takes accounting rules and regulations to be absolutes, which may not be the case in practice.

Section 3 moves on to the application of principles to the specific problems of life assurance. In the same way that Section 2 enlightens actuaries on accounting issues, Section 3 should be of use to accountants grappling with the particular problems of life assurance profit reporting. The conclusions in §3.6.18 are important; they are a good set of principles to bear in mind when looking at profit reporting methods.

Section 4 considers the statutory solvency method and, as is generally accepted in the U.K. if not in the rest of Europe, it shows that a prudent demonstration of solvency is not consistent with a 'true and fair' view of profit. Paragraph 4.3.4 is of interest, as there are several companies planning to continue reporting on the statutory solvency basis under the new Regulations, subject only to modest changes to fit in with the new requirements. The author considers that this approach is questionable. Embedded value profits have been used by many companies internally and by several holding companies in the external presentation of their accounts. The conclusion of the section is that this is inappropriate from first principles, most notably due to the capitalisation of profits relating to the provision of future services, this capitalisation being inherent in the methodology. There are further problems with the meaning of the discount rate in the context of profit reporting, as discussed in Section 5.4.

Turning to the accruals method, as discussed in Section 6, I was surprised by the number of similarities in the concepts used for the method and those underlying the author's suggested earned profits method. Despite this, the author is clearly not a supporter of accruals. The issue comes down to the concept of a margins approach. In my view, the use of margins gives a practical application of profit testing related techniques, avoids capitalising profits on future services, and leads to a true and

fair profit. The author sees margins as a fundamental theoretical building block that renders the entire method unacceptable. There are auditors who are on record as, in principle, being prepared to sign off results based on any of the three methods: statutory; embedded value and accruals, all of which the author finds to be objectionable.

Turning to the earned profit method proposed by the author:

- (1) The illustration in the Appendix is of a very smooth emergence of profit. The introduction of realistic assumptions, in particular large fluctuations in asset values, would have illustrated a much less stable emergence. This may well reflect underlying reality, but it is not clear how a full understanding of that reality would be obtained by readers of the accounts looking at the single profit figure proposed.
- (2) The outstanding revenue matching acquisition costs adjustment, ORMAC, is limited, such that an expense overrun could actually lead to a reported loss on issue of a tranche of with-profits endowments; this notwithstanding the shareholders' expectation of profits overall from that business.
- (3) Consider the application of the method to the generation of unit-linked products currently being developed with level loads as opposed to front-ended loads. It is clear that products with profit margins spread throughout their term cause losses in early years should policies surrender, and that the statutory profits to shareholders will be deferred. However, I would expect such products to be priced such that profits will still emerge for shareholders even in relatively extreme scenarios, certainly beyond those caught by prudent assumptions. Application of the earned profits method as described would recognise virtually no profit for several years for these products. Substantial profits would then emerge, profits which would appear to bear no relation to services being provided at the time.

The author and I differ by our approaches. I have taken a pragmatic view, and support existing proven methods despite some theoretical 'rough edges'. The author has taken the pure theoretical side, criticising existing methods, and omitting the many examples that would be needed to demonstrate that the earned profits method works in practice. We still seem to be searching for a method that is both theoretically and practically sound.

Mutual offices are specified by the author as being beyond the remit of the paper, notwithstanding the comment in Section 9.2. However, take the case of a mutual that has a fund of assets apportioned to with-profits policyholders and an estate on top. It is possible that the methodology of the earned profits method could be refined to produce realistic figures for profits emerging from various sources, and the amounts then being allocated to with-profits policyholders and to the estate. Perhaps, however, this would be too illuminating for published results.

The paper finishes with an analysis of capital and value, which is of relevance to all methods of profit reporting. One small word of caution: the definition of capital in Section 8.3 is that it is the shareholders' fund net assets plus the shareholders' accrued interest in the long-term fund. Expectation of a venture capitalist's rate of return, or at least a high figure, on unencumbered new capital may be perfectly reasonable. For many offices, however, a large part of their capital, as defined, is actually monies arising from one generation of policyholders that, in the normal course of events, would be used to finance the next generation. Shareholders take an income from the continuing operation. This capital is encumbered, and it is perhaps unrealistic to expect similarly high rates of return to be earned on such capital.

Mr J. H. Webb: This paper gives a particularly good explanation of the way in which accountants and economists approach this particular subject. The initiative, at the moment, lies with the proprietary insurance companies which are quoted on the Stock Exchange and which are firmly determined to make a radical change to their life profit reporting. In the short term we are likely to see experimentation and the publication of supplementary information outside the audited accounts. In the medium term considerations, such as price/earning ratios, will give a strong impetus to changing the audited accounts.

In my own company the calculation of embedded values has been extended to all our life

companies in the U.K., elsewhere in the European Community and in North America. All the management information and objectives for our life companies are based on embedded values and their analysis. It is a great advantage to use a methodology for profit recognition that fits in, not only with internal reporting, but also with appraisal valuations as used for sale and purchase. The crucial point is that what we consider most suitable for informing the board is also likely to be the most appropriate for those outside the company, investment analysts in particular. Sharing the numbers on which the decisions are taken with the owners seems to me to be the essence of informative accounting.

Turning to the recently published U.K. Regulations to implement the E.C. Insurance Accounts Directive:

- (1) These regulations apply to both mutuals and proprietary companies. However, mutuals and unquoted proprietary companies do not have an incentive for radical change.
- (2) The U.K. life fund concept has been preserved, although it will not be so obvious in the format of the accounts. The profession is considering how we can help to keep the Insurance Companies Act prohibition on transfers out of the life fund, unless the Appointed Actuary has determined a surplus, constantly in front of directors who might inadvertently act otherwise. The fund for future appropriations, a category which belongs neither to policyholders nor to shareholders, is available to all companies, not just with-profits offices. The Regulations permit an implicit allowance for deferral of acquisition costs if the actuarial methodology so demands. This will be particularly helpful to companies which use embedded value or accruals methodology in their audited accounts.

In considering the audited accounts of operating life companies, as opposed to consolidated group results, there are, in my view, two principal reasons why minimal changes from statutory accounting will be made: inertia and tax. I shall not talk about tax. Inertia is likely to inhibit adoption of the author's method, as it is likely to require considerable expenditure on office systems. Furthermore, it involves arbitrary decisions on expense apportionments, particularly to determine the 'price of future services'. These are unlikely to be fully comparable between companies.

If a minimally modified statutory method is used at the operating company level, then there is clearly a dilemma for quoted companies. An accounting principle, which seems entirely reasonable, is that consolidated results should reflect those of the operating companies; that is, there has to be a very good reason for consolidation adjustments. It is difficult to envisage a group of life companies being given 'true and fair' certificates on radically different approaches at the operating company and the group levels.

The accounting principle which I would most wish to modify is the bias against 'value accounting', and I hope to see the publication of improved information eventually leading to a reassessment of this principle.

Mr P. W. Wright: I am a member of the ABI Working Party which is currently well advanced in preparing a replacement SORP which is intended to incorporate the impact of the regulations implementing the E.C. Insurance Accounts Directive. The life section of the SORP will concentrate on what is called the modified statutory method of profit reporting, which is best defined here as the most prudent approach which will both satisfy the regulations and be acceptable to U.K. auditors as giving a 'true and fair view'. For mutuals the modified statutory method will be the end of the matter, but it is intended that the SORP will leave open the option for proprietary companies to provide information on an accruals type basis. The accruals draft proposals are themselves being revised by another group.

It is useful to compare the current state of play on the modified statutory method with the earned profits method, as described in the paper. For shareholder backed non-profit business, the modified statutory method will be very similar to the earned profits approach. DTI Schedule 4 liabilities will be reduced by any closed fund provisions and general contingency reserves, whilst surplus carried forward and investment reserves in the statutory life fund will be included in shareholders' funds after deducting the tax which would be payable on a statutory transfer, with yearly movement on

these reserves included in the non-technical account. As Mr Webb raised this point, I should like to make it perfectly clear that the working party do not believe that the absence of a fund for future appropriations for non-profit business is a requirement of the Directive or DTI regulations, but do think it will constitute minimum acceptable practice in the post-Directive environment. This has implications for the comments made in §§ 6.7.6 and 6.7.7.

In § 7.5.7 the author suggests that mismatching reserves might be included in his provisions. I do not believe that this type of reserve is appropriate for Companies Act accounts. It is not found in general insurance, for example, and the inclusion of such a provision seems to go against the principle of separate determination of assets and liabilities, referred to in §§ 2.6.5 and 3.8.4.

The SORP will require *full* deferral of acquisition expenses, except where there are reasonable doubts that future margins will be sufficient to recoup them. This again agrees with the author's approach. Of course, some deferral can be through the technical provisions, including the well-known methods used for linked business, and, in this connection, I did not follow the relevance of the comment made in § 4.2.4 on linked business.

Whilst the author's approach is similar to the modified statutory method for 100% shareholder-owned business, there are very important differences for with-profits funds of proprietary offices. The modified statutory method, as currently under consideration, makes the net profit equal to the statutory shareholders' transfer. The fund for future appropriations represents the whole of the free reserves of the statutory life fund, as increased for full deferral of acquisition costs (and other reserve and asset value adjustments), and movements in this fund are not taken to the non-technical account. If I understand the author's method correctly, he is effectively suggesting that the net profit should equal the statutory transfer plus the movement in the fund for future appropriations multiplied by an appropriate shareholders' proportion. I accept that the author's approach is an improvement on the modified statutory method, as proposed, as it effectively substitutes actual investment performance in a year for the impact of terminal bonus declarations. In my view, at the very least, the ABI SORP should be modified to permit this adjustment to be made, and arguably it should require it to avoid anomalies with the approach adopted for 100% shareholder-owned business.

However, having said that the earned profits method is an advance on the modified statutory method I still do not believe that it is fully acceptable as a way for a quoted company to report to its shareholders. The problem is that the sales activity in a year is not reflected in the declared profit. The importance of sales activity to investment analysts has been well demonstrated in recent days by sharp movements in the share prices of certain quoted companies, following 1993 new business announcements which were not in line with market expectations. Any method which does not clearly demonstrate the success or failure of sales activity is unlikely to gain widespread acceptance in the investment community.

I believe that the accruals method does satisfy the fundamental accounting concepts as set out in SSAP 2, and that Section 6, as a whole, is very biased. Any realistic method will involve judgement, and should leave some discretion to a company's directors. The author's method certainly calls for judgement, but, in his description of the accruals method, he has not referred to the disclosure and analysis requirements which are designed to limit the scope for manipulation of the results. His own method appears to be susceptible to manipulation by means of financial reinsurance. The criticism of asset smoothing is perhaps fair if smoothing above market values is permitted, but it would be a simple matter to prohibit this practice. Paragraph 6.6.2(a) is simply the materiality concept which is present in all accounting conventions. In his opening remarks, the author cast doubt on the prudence of the accruals method for with-profits business. Clearly, different planned margins are appropriate for different products, and expense planned margins are not very effective for with-profits business. However, planned margins on investment returns and the discontinuance rate (throughout the duration of the contract) are effective in introducing a suitable degree of prudence into the accruals method for this type of product.

The author does have a point when he says that the accruals method does not sit easily with the accounts format envisaged by the Insurance Accounts Directive. The Directive is, in my opinion, a dreadful example of bureaucratic nonsense, representing a mixture of regulatory and Companies

Act accounting, and the fact that any method is not readily accommodated within it is not necessarily a valid criticism in an absolute sense. I do, however, recognise that we have to live within the law, and currently it is not entirely clear whether the accruals (or embedded value) methods can be made to fit within the new regulations.

Mr R. S. Clarkson, FFA: I see the reporting framework for life assurance as a resultant of four quite distinct forces: actuarial principles; accounting principles; economic principles and the legal framework. In a perfect world the legal framework would probably be the resultant of the first three forces, the combined wisdom of the relevant professions. However, we do not live in a perfect world. The regulators, very understandably, will want a basis that caters for the extreme, not just the prudent, and that is obviously where we have come from.

Paragraph 1.1.3 contains a masterly understatement. Clearly the debate so far has come from the regulatory and accounting backgrounds rather than from the actuarial background, and we welcome the author's contribution in redressing the balance.

Paragraph 2.6.2 addresses the major question—the 'true and fair view'. There are two interesting safeguards that allow us not to worry too much about regulatory detail in this regard. The Companies Act 1985, as mentioned in §2.6.8, allows commonsense to over-rule too slavish an implementation of detailed provisions. Also, as recently as 1991, the Accounting Standards Board redefined 'true and fair' essentially to mean 'what is generally understood as true and fair', which, although at first sight appears to be somewhat pedantic, is, I believe, very helpful.

In terms of embedded value:

- (1) Paragraph 5.1.5 stresses that we can use a realistic rather than a risk-adjusted discount rate for calculating values of future uncertain events.
- (2) In §5.2.4, I agree with the author that the embedded value approach is inconsistent with accounting principles, since it takes into account future unearned profits.
- (3) In §5.2.5, the author says that the use of a high discount rate to adjust for risk is inconsistent with accounting principles. He prefers discounting at the actual earned rate, with which I agree.

Section 7 is the heart of the paper, and sets out the alternative approach, the earned profits method. I agree that, conceptually, it seems to be the best. It could be defined as changes in embedded value, excluding the value of unearned profits. I regard it as the best blend of actuarial, accounting and economic principles, and for that reason it should commend itself to the regulatory authorities.

In §7.4.4, in describing the implementation of his approach, the author uses as a discount rate the long-term earned rate. Conceptually this is the best approach. However, there is one problem that the author does not touch upon, namely the effect, either on his method of earned profits or on the embedded value approach, of a change in the discount rate. This can lead to serious discontinuities from year to year which are very difficult to explain to the outside world.

The paper is mainly about principles, but I was interested to see the numerical values in the Appendix. I was trying to guess, as I was reading through the paper, what discount rate the author would use at the end. On the basis of a 3½% dividend yield on U.K. equities, a 3% real yield on index-linked, 6½% on long gilts and 5% inflation, my suspicion was that a 12% discount rate was essential, assuming a very high equity content in the investment portfolio together with real dividend growth of 4% or 5%, which I did not think would be prudent.

I agree with the general comments that the author made in his opening remarks. The current principles are unsound, largely because they result from a complex mix of accounting principles and past regulatory history. I very much welcome this suggested way forward.

Mr D. E. Purchase: Although there are many controversial aspects to the paper, it is a most valuable summary of the principles that should govern profit reporting. The author reconciles the sometimes conflicting approaches of actuaries and accountants, and gives a very clear statement of the various issues involved. In this respect, Part 3 is particularly important. The discussion on the nature of life

assurance services, and the revenue for them as the amount forgone by the policyholder, seems to me to display a clarity that has sometimes been missing in our debates. The distinction between future revenue for past services and revenue for services not yet performed is particularly helpful.

In Part 6, the author makes clear all the reasons for opposing the accruals method, most particularly the artificial nature of the 'planned margins', and the fact that it is the residual profits, presumably the least easy to assess, which are taken credit for 'up front', and I share his reasons. I was, therefore, surprised at the view expressed by the opener, that the accruals method avoids capitalising revenue for future services, although he supported § 3.6.18, presumably including that principle. Among many subtle moves by the proponents of that method was the use of the name 'accruals' for a basis which fails in important respects to meet the accounts principle of the same name.

Concerning the author's proposed 'earned profits' method:

- (1) I agree with his view in § 7.6.13 on Zillmerisation. This is a useful technique for determination of statutory reserves, but it is not appropriate for 'true and fair' reporting. The concept that costs are spread over the period until the cumulative policyholders' apportionment first exceeds zero is a helpful one. In some cases it follows product design—that is, for unit-linked contracts with a front-end load. In most cases it seems to correspond to the reality of the situation. I am not clear on its application for products like term assurance, but I think the concept is worth further development which could, no doubt, address such issues.
- (2) Commenting on the importance attached to surrender values in the determination of the CPA, as described in § 7.5; although I understand its relevance to the 'amount forgone' by the policyholder, I think that its use makes the reported profit too dependent on decisions taken by the company at the point of exit. In that offices can, and some do, vary surrender bases quite frequently, and their decisions can be of quite marginal financial importance to them (if not to the policyholder), the approach may infringe the consistency principle and lead potentially to an unacceptable degree of volatility. I would prefer to describe the CPA in terms which may *have regard* to surrender values, but do not imply that it is normally *equal* to them. A useful corollary is that the differences between the surrender values actually paid and the CPAs for those policies give an immediate measure of the experience profit or loss from this cause.

Mr P. J. L. O'Keefe: In Section 2.6 the author deals with profit as a concept in law, and he states, quite properly, that it is a requirement both of U.K. and E.C. law that, "the annual accounts shall give a true and fair view of the company's assets, liabilities, financial position and profit or loss". Note that it is equally important that the balance sheet and the profit and loss account should give a true and fair view. It is not possible to favour one rather than the other.

In § 2.6.11, the author states that hitherto insurance companies have been "permitted to prepare their accounts in accordance with Schedule 9A" of the 1985 Companies Act which, he says, "exempts them from a number of the requirements, including some pertaining to the 'true and fair view' otherwise applicable". The most important exemption is from the requirement to split the mathematical reserve between what accountants describe as provisions and the balance which they call reserves. The Act goes on to say that insurance company accounts shall not be described as being not 'true and fair' merely because they took advantage of these exemptions. There is a double negative there. In other words, it would have been perfectly possible in the past for life assurance accounts to have been signed off as 'true and fair'. There are insurance companies whose articles require that their accounts are signed off as 'true and fair', and in such cases this has actually happened.

Under the changed circumstances following the publication of the draft Companies Act regulations, accounts must be true and fair. On this vexed question of provisions and reserves, the new regulations state in Section 46 that the long-term provision shall be computed "annually by a Fellow of the Institute or Faculty on the basis of recognised actuarial methods with due regard to the actuarial principles laid down in the Third Life Directive". In Article 18 of the Third Life Directive it is stated quite clearly what those actuarial principles are. The first of these is that the amount of the technical life assurance provision shall be calculated by a sufficiently prudent prospective actuarial valuation,

and the third one is that a prudent valuation is not a 'best estimate' valuation, but shall include an appropriate margin for adverse deviation of the relevant factors. To put it more directly, it will be the actuary, and not the accountant, who will determine what the provisions are. It is open to an auditor to contest such provisions only if they are 'demonstrably excessive or inadequate', and it is on that ground that any battles over this particular issue must be fought.

The second half of the paper deals with the question of putting a value on the in-force business of a life assurance company. The statutory method which we have to adopt to demonstrate solvency forbids us from doing so. Very specifically, no policy shall be treated as an asset. It is thus recognised that it is possible for a policy to be treated as an asset, and the embedded value method does so by using methods which are exactly analogous to those used by the stock market to value any other asset which is dependent upon future revenue. It is pointless to argue that an accounting method cannot allow for future revenue, because otherwise it would not be possible to value any ordinary share at more than its net asset value. Ordinary shares are capable of being bought and sold on the open market, and that is the justification for the price at which they are brought in to the balance sheet. Equally, it is possible for a portfolio of life business to be purchased and sold, and embedded value principles are those which are used to value them. Hence, I reject the author's criticism of the embedded value system.

The author, quite rightly, points out that the embedded value approach is not the only possible one, and, indeed, the accruals method starts from a slightly different philosophic standpoint. The original rationale for the embedded value system was based on the pricing of unit-linked policies. The price of with-profits policies is different, and the same reasoning does not hold. The accruals method, which builds in 'planned margins' so as to positively defer elements of profit, is also proper in the correct environment. It is not appropriate for linked business, and it was wrong for the ABI to seek to impose it on all proprietary offices, the majority of which sell wholly or predominantly unit-linked business. It is, however, very appropriate for predominantly with-profits offices, where it can be used to advantage.

The author rejects the accruals method on the grounds of the arbitrary nature of the 'planned margins' and the difficulties inherent in bringing a 'shareholders' accrued interest' into the balance sheet. This latter point concerns me too. The balance sheet must be true and fair, and it is not easy to interpret precisely what this particular asset means. However, these are not unsurmountable problems, and there are moves afoot, in the ABI and elsewhere, to bring the accruals method and the embedded value method closer together.

In the author's earned profits method he advocates close matching of revenue and costs, with profit only being recognised when it is earned. This sounds like a statutory method, and the author described it as an extension of the modified statutory method. I found his explanation of the treatment of deferred acquisition costs confusing.

It is a pity that the author concentrates his explanation on unit-linked and unitised with-profits contracts where profit recognition is relatively straightforward. With-profits business, with its back-ended emphasis on the shareholders' interest in the terminal bonus is the challenge, and, although the author spends some eight paragraphs on the topic, he finishes up in §7.4.26 with a 'possible approach' which sounds impossibly complex. Like other speakers, I found his numerical example interesting, but possibly simplistic.

Mr N. J. Dumbreck: The early sections of the paper are particularly welcome, as they provide a clear and comprehensive summary of the relevant accounting principles and their application to life assurance. While not all of the suggested standards put forward in §3.6.18 are likely to go unchallenged, I would expect most of them to receive broad support.

The whole debate on life profit recognition in recent years has been characterised by a tendency to be critical rather than constructive, and by a lack of willingness to compromise. In reading the paper, the expression 'substance over form' kept coming to mind. The early sections seemed to point towards endorsement of the accruals method, although the author is an opponent of this method. Nevertheless, many of the principles which the author espouses are precisely the principles on which the accruals method was based. Most of the arguments against the accruals method in the paper relate to matters of form rather than of substance.

The paper reminds us that the actuarial profession's approach to the ABI accruals proposals criticised the planned margin approach to deferring profits related to future services as being artificial and subjective, and this is the author's strongest objection to the accruals method. The approach undoubtedly requires the directors to exercise significant judgement, but, in my view, this is one of the strengths of the method, and it enables account to be taken of the diversity and complexity of life assurance business in the world today.

The author puts forward the earned profits method in Section 7. It is difficult to see how this method would work in practice without more examples. The method appears to place more weight on the structure of the insurance contracts than other methods. At a time when product design is being influenced heavily by disclosure considerations, I am not convinced that this leads to an appropriate measure of the profit attributable to services provided at each stage. The opener has identified some circumstances where the earned profits method may not work well in practice. I think that the author has illustrated quite effectively in this paper how much easier it is to criticise other methods than to come up with an acceptable alternative.

Mr M. R. H. Lay: In §1.1.3 the author says that many of the developments on financial reporting have been initiated from outside the actuarial profession. I agree, and feel that the actuarial profession needs to get in among these initiatives so as to influence the way that they are developing. It is a rightful position for actuaries to be in, as we are regarded by others as the profession that understands the inner workings and the financial management of a life company. It would be wrong for us to seek to do this alone, and it is clear from this paper that other professions which have an equal interest in financial reporting are coming at the matter from a different direction.

The first three sections provide an insight into the concept of profit and 'true and fair' from the perspective of the accountant and the economist, and it is clear that these concepts in a life insurance company are a subset of the concepts of profit and 'true and fair' when applied to commercial enterprises generally. There is now an opportunity for us to work with other professions, particularly the accountants, in considering financial reporting with the work being undertaken by the Joint Actuarial Working Party, and we should encourage this co-operation. After all, two countries, Australia and Canada, which have recently introduced new financial reporting disciplines, have done it jointly with these other professions.

Paragraph 7.4.11 concerns the cumulative policyholders' apportionment. In a with-profits office, this is the sum of the asset shares for each policy, where the asset share is adjusted for any future guaranteed benefits and expenses. The author is effectively saying that the reserve for any policy is the asset share. I see this as one of the basic building blocks of financial reporting. It has a tremendous clarity of purpose, both actuarially and to the public generally; and increasingly represents the way that actuaries view their portfolios. The asset share is the piece of the jigsaw that brings all the parts together. It can be described simply to the public and to boards of directors; and it is used by many practising actuaries to form a realistic view of their portfolios. If we extend this into statutory reporting, I believe that we shall be bringing clarity and consistency to what is currently a confused situation.

If this can be done, it will open up another feature of U.K. statutory financial reporting, where assets are incorporated at market value, but liabilities for with-profits business are determined by the actuary, often using a net premium valuation, where the value of liabilities does not move in line with the market value of assets. Realistic valuation of liabilities using asset share techniques can overcome this, and the financial reporting of profits and 'true and fair values' can all come together.

Mr N. B. Masters: I believe that one fundamental principle is missing from the paper. This lies at the heart of the actuarial profession and is our motto; 'Certainty from Uncertainty'. In other words, what is uncertain for one policy may become a reasonable certainty when examined across a portfolio of policies. As the author says in Section 9, accounting standards should reflect the nature of the business, and the principle clearly reflects our business. Moreover, the Insurance Directives accept actuarial methods, and this is clearly an actuarial approach. I therefore propose that a further principle should be added to those set by the author; the certainty or uncertainty of an accounting

item should be assessed on a portfolio basis rather than on an individual policy basis. This has two important consequences for the conclusions that the author reaches:

- (1) The need to incorporate the reference to surrender values in the definition of the cumulative policyholder apportionment (CPA) is removed.
- (2) It removes the criticism levelled at both the embedded value and the accruals method, that the 'total profit', prudently assessed, is an uncertain concept.

The concept of the CPA, especially based on retrospective asset shares, is one of the major contributions of this paper. I endorse the remarks of Mr Lay. It is the right way ahead for both proprietary and mutual offices when reporting the progress of an office's finances relevant to policyholders. In this context, I do not accept, as some have, that the Companies Act accounts are not relevant to policyholders. I believe that a proper reporting of the year-by-year progress of an office's aggregate asset share, taken with a suitable bonus policy statement and possibly comment in the directors' report, will allow with-profits policyholders and their advisers to reach sensible conclusions about the performance of an office long before action needs to be taken on bonuses. It could, and should, be a powerful tool for shaping policyholders' expectations.

In accepting the merit of tracking CPA, I do not accept that the earned profits approach is the necessary accompaniment for shareholder accounting. I part company with the author on the assertion that profits cannot be recognised until the cash, and hence the revenue, has been received by way of premium. Indeed, the author accepts this for assessing the outstanding revenue matching acquisition costs (ORMAC), although he rejects it in all other circumstances. It is perfectly possible to assess prudently the total profit under a policy on the basis of the portfolio principle I have proposed, and to recognise the proportion of profit made in each period by addressing the operations of the office in that period. I believe that the accruals approach is quite capable of giving a true and fair picture of an office's progress, and I do not accept the criticism of the method by the author. His criticism that the planned margins are too subjective is overstated. In practice, the offices I have dealt with have developed a sound and equitable system of margining which properly rewards the office's endeavours over the lifetime of the policy. Where there is a degree of subjectivity available—and here is an area where proper guidance from the Institute would be very appropriate—it is nothing like as large as the author suggests in § 6.5.2. Mathematically these results might be obtainable, but directors do not seek such absurdities and auditors would not allow them.

I have looked briefly at the suggested profit profile dictated by the earned profits approach as set out in the Appendix, and wonder whether the resulting profits can really be regarded as 'true and fair' when they give such a low reward in the first year to selling the policy to the policyholders.

I agree with much that the author has done and said, and endorse his critique of the statutory method and, by implication, the modified statutory method. I cannot see how this approach meets the traditional view of truth and fairness in reporting the year's operations. I welcome Mr Wright's suggestion of the change in the fund for future appropriations being included. I do understand the fiscal pragmatism which underlies this approach, but let us not get tied into this for the future. Perhaps we might accept the modified statutory method for existing business, but we might consider a reserve-based approach using CPA for new business, for example.

Mr G. N. C. Ward (a visitor): I am a chartered accountant, and I am delighted to say that this paper indicates that our professions are in their proper relationship of co-operating with each other in the public interest when it comes to such matters as life insurance reporting. Having said that, I do not find myself in agreement with all of the matters that are in the paper. It contains many references to the Directive and to truth and fairness, and seems to conclude that only the method proposed by the author can really comply with these.

I am not certain that the author has taken sufficient account of Counsel's opinions, which he quotes in § 2.6.3, referring to the opinion obtained by the Accounting Standards Committee, talking about truth and fairness needing to be judged in the light of accepted accounting principles—accepted, in that case, by management, by investors and by auditors. Professional practices of auditors have given opinions that accounts drawn up using the embedded value method and drawn

up using the accruals method are giving a 'true and fair view', and I think that it is wrong to dismiss so lightly those professional opinions which have been formed very seriously and in the light of the crisis which currently affects our profession of professional liability.

The second opinion, the ABI opinion, that accruals comply, in § 6.7.7, is dismissed on the grounds that Counsel presumably did not consider the matters referred to in the paper. I am not sure that it is fair to Counsel to assume what it is that he took into account, and what it is that he did not.

Paragraph 3.2.4 refers to the supply of capital not being a service. While that may be true in many ways, I think that the supply of working capital is a service that is provided to policyholders, and that should be reflected. Paragraphs 3.8.8 to 3.8.21 seem to have some shortcomings, and some of those would seem to be severe. It is not the author's fault that the paper was written before the 1993 regulations were laid before Parliament, and one cannot criticise that.

The conclusion that the 'true and fair' override would have to be used in order to achieve a real true and fair view seems to me to be something that is not acceptable. The fact is that we do have to work within legal frameworks in order to put together accounting practices that will be accepted.

The author attacks the accruals method in §§ 6.3.4 and 6.5.2, particularly because, in his view, it does not reflect supply and demand, and does not specify how to set planned margins at the outset of a contract. He seems not to have given sufficient weight to the point that profit taken on day one is intentionally the balancing figure, as indeed it is for the embedded value, being the profit that is associated with the critical event of selling a policy, and, having designed it, calculated to carry forward only those profits which are required to take account of the risks that will affect the company in the future. Those things, I believe, do take account of the four fundamental accounting concepts. The way in which accruals and embedded values work reflects the supply and demand situation. Very profitable contracts indeed will have very large profits associated with them on day one.

In respect of the claim made in § 7.7.3 that reliability is enhanced by the author's method compared to others, I am not sure that that gives sufficient weight to terminal bonuses needing to be forecast in his method, as well as some of the market prices for future services. Those things seem to be just as subjective as things that have to be estimated—indeed, where professional judgement (which, surely, is entirely appropriate to both of us) needs to be exercised, but is used in other methods.

The author also seems to make use of surrender values and asset shares. It seems that that may lead to volatility in the amount of profit recognised in a particular year, depending upon investment performance, policy design, and possibly even management whim.

I am not convinced that the method put forward by the author has clear advantages over accruals or embedded values. Indeed, it does have the drawback of no previous use for public reporting, and no experimentation. In the circumstances it is better for the industry to concentrate on getting more out of accruals and embedded values, and to look at how to bring these closer together rather than to examine how to develop yet another method of profit reporting.

Mr D. L. Bartlett: United Kingdom life offices have to change their method of reporting profits to comply with the Insurance Accounts Directive. In the past, profit reporting has been based on the statutory reporting method. However, there is no logical reason why this should continue. Statutory reporting is designed to satisfy the regulatory authorities that a company can meet its liabilities; that is, it is solvent. This is a separate matter from profit reporting, which aims to report on the progress of the company from the shareholders' perspective. Hence, there are two distinct objectives, and they should each be satisfied in the most appropriate way without being dependent on the other.

Any method adopted for profit reporting needs to be sufficiently flexible to cater for the wide range of products currently available or that may be developed in the future. However, the method must not be so flexible that it becomes excessively subjective (one of the criticisms that has been levelled at the accruals method). A method based on a clearly stated set of principles is more likely to meet this criterion than one that has a less well-defined basis. Also, such accounts are more likely to be understood by the various users of accounts.

I agree with the author that embedded values anticipate future profits and are not appropriate for profit recognition. They are, however, a useful indicator of a company's progress, and it would be desirable for them to be disclosed as supplementary information in a company's accounts.

The accruals method is artificial, and is not related to the way in which a business is run. There is no objective basis for determining the size of planned margins. Although its proponents would argue that it is based on the clear principle of risks borne and work done, it is vague and ill-defined and it is not derived from clear principles.

The author shows how the earned profits method follows naturally from accounting principles, and for with-profits business the CPA can be related to aggregate asset shares, which many companies use as an internal measure of their liabilities. Hence, the method is both relevant and relates to the way in which the business is managed. The earned profits method leaves room for a moderate degree of subjectivity, but I doubt whether it is excessive. The author does not consider the issue of what information needs to be disclosed to make earned profits accounts meaningful. It is considerably less than would be required for accruals or embedded value accounts, because the method requires considerably fewer assumptions about what will happen in the future than either accruals or embedded value profits. I believe that the earned profits method is an appropriate method of profit reporting under the Insurance Accounts Directive, and is worthy of detailed further consideration.

Mr P. W. Moore: Considering the embedded value approach, I agree with the author that the classical embedded value with 'realistic assumptions' and a risk discount rate does not meet the very sensible principles laid down in his paper against which any profit reporting methodology should be tested to be deemed true and fair. (I further emphasise that neither the statutory method, the rather bizarre modified statutory method nor the accruals method meet these principles, either.) Nevertheless the embedded value has one significant advantage over all other methods proposed, in that it reports profits consistent with the way that most proprietary companies run their businesses. Shareholders require a risk rate of return on capital invested in that business, otherwise they would invest their monies elsewhere in risk-free capital investments. Consequently, the whole internal profit reporting and assessment mechanisms of most companies are currently reflecting, and have for many years reflected, embedded value methodologies. For example, embedded value approaches can apply to product pricing, sale and purchase of life companies/life funds, internal performance measuring and management incentive programmes. In summary, the embedded value approach is the best proxy there is to measuring shareholder value, the increase in which is the primary aim of all investors in life assurance companies.

If we adopt a profit reporting approach which is materially different to the way that companies currently run their businesses, management will seek to maximise profits under the new method, which may well be at the expense of the over-riding requirement to maximise shareholder value as measured by the embedded value approach. Indeed, any profit reporting approach which makes use of a discount rate materially lower than the rate of return required by shareholders risks 'incentivising' management to erode shareholder value.

Let us take an obvious example in the product pricing field. Imagine that a company has two unit-linked endowment products, both designed to repay a mortgage. Both are priced using the same earned rate to discount the cash flows, and the pricing structure is such that the expected discounted profit under both products is the same. One product has a front-end charging structure; the other back-end. If the shareholders require a greater return than that implied by the earned rate, then the back-end loaded product will make a smaller contribution to shareholder value than the front-end loaded product. I agree with Mr Webb in that I have serious concerns about any profit reporting methodology which will, by driving management to maximise profits under that methodology, erode shareholder value.

Turning to the so-called realistic provision method, I have again considered the seven principles outlined by the author in §3.6.18, and referred to by earlier speakers, to assess reporting methodologies. If we are forced to go down a route where risk discount rates are not acceptable, then the most intellectually appealing method appears to be a realistic provisions approach. This would not be dissimilar to a bonus reserve/asset share valuation and a realistic linked valuation with negative sterling reserves, as necessary.

Clearly, the method can achieve whatever level of prudence is deemed necessary by setting assumptions accordingly. Indeed, the Canadian policy premium method, which is a realistic

provisions approach, allows the actuary to insert prudence at an appropriate level by use of provisions for adverse deviation—the rather appropriately named PADs. These are explicit margins in each of the assumptions reflecting, among other things, the certainty of the assumption being achieved in the future. Having said this, the realistic provisions approach does not seem very different from the author's earned profits approach, except possibly that the realistic provisions method makes allowance for the future expense of services, whilst the earned profits method specifically makes allowance for their future cost. Another important practical advantage of adopting a realistic provisions approach over others proposed is the reduced time and expense in updating systems to produce the required numbers.

Professor R. Macve (a visitor): I should like to comment on the issue that was raised earlier about the conflict between theory and practice. I am conducting a research project for the Institute of Chartered Accountants on the issue of life insurance reporting, and I was hoping, having read this excellent paper, that I could give up doing the research project and just hand in the author's report, as having found the philosopher's stone. However, we have to realise that there is no philosopher's stone in this area, although it is tempting to follow the author down the route of saying that there are objective values available for assessing the progress of a policy, or rather a policy portfolio, to-date.

One can refer to surrender values, asset shares, and so forth. These methodologies are important. Many of them, though, are still developing, and clearly they are applied in different ways by different offices. Their major value—and the value of the ideas that the author has put forward for relevant values to be referred to in assessing policy progress—is that they are all important tests in the overall question. This is: how does one allocate the profit over the life of a policy to different periods and test its adequacy to-date? Embedded value methods and accruals methods are all trying to solve the same problem. I do not see any fundamental conceptual differences between them in that regard. I see them as different ways of applying the concepts that need to be used in practice. Equally, whatever method is used should stand up against the tests that are available from those various approaches.

It may seem surprising that in 1994 accountants and actuaries cannot see a clear way forward on life insurance reporting, but life insurance reporting has always tested the limits of accounting and actuarial theory and practice.

When the 1844 Select Committee was considering the issue of how to control the registration of companies, and what accounting and auditing requirements might be made, they were heavily exercised by the problem of life insurance businesses, many of which at that time were little more than scams upon the population. They were in favour of the idea that a balance sheet for every company was desirable, but, as was stated in evidence to the Select Committee by a solicitor, in the case of life insurance business, it was not clear how one could possibly produce a balance sheet of assets and liabilities, because the liabilities, being the amounts that would ultimately be payable to the policyholders, would be many times the assets, and all companies would, by definition, be insolvent. The only way in which he could see that the assets and the liabilities could be brought at all close to each other in figures, would be "by adopting the fallible opinions of an actuary in each case" (Minute 2135).

Nine years later, the 1853 Select Committee on Assurance Associations again found that "no part of the subject submitted to your Committee has received more attention than that of the publication of periodical accounts" (Edwards, J. R. *Legal Regulation of British Company Accounts: 1836–1900* (Garland, 1986) Vol. II, 306). However, the actuary to the Royal Exchange Assurance, in evidence to that committee, said, "If you allow the company furnishing the account to append a valuation, the Government will become the publisher of puffs" (Minute 2521).

Now it is the actuaries who are regarded as extremely conservative, and the accountants who are regarded as extremely adventurous in wanting to bring forward profits which appear not to be earned according to the criteria that you think accountants themselves apply. We are straining the limits of accounting theory when we deal with life insurance, because of the length of the period involved. Trying to divide this into one-year periods, there is no philosopher's stone that gives objective guidance, but there are a number of legitimate and credible methods which point to ways in which that apportionment can be made.

It is important that any solution that is recommended shows how it stands up against a framework of principle, even though it may not be possible to deliver one complete answer. Therefore, as disclosure of assumptions has always been a basis of actuarial practice, that is probably the most important element that needs to be considered, whatever method is promoted.

Mr J. Goford: In the paper, a new method is proposed based on reserves, surrender values and the cumulative policyholders' apportionment. We have to ask whether we need another method, or whether the supposed reasons for bringing it forward and the implied criticisms of embedded values and the accruals method are valid.

The criteria which the author applies are contained in §3.6.18. There is an underlying false presumption which invalidates both (c) and (e) as acceptable standards: (c) states that matching involves the inclusion of revenue corresponding to acquisition costs not yet received from policyholders on a prudent basis; and (e) requires that profit recognised should not anticipate revenue in respect of services not yet provided. The underlying false presumption in both these proposed standards is that revenue can be identified with particular costs and services. This presumption also invalidates the calculation of ORMAC in §7.6.4.

The life insurance contract is one contract—one asset of the life company. Premiums are received in respect of the whole of the services under the contract. There is some attribution of premium to the savings element under unit-linked policies, but there is no other attribution of premium between mortality costs, acquisition costs and maintenance expenses. To do so requires a positive accounting policy—so, for example, the so-called deferral of acquisition costs through the use of a Zillmer is defined by anticipating revenue based on an arbitrary expense at outset, an artificially low interest rate and a presumption that acquisition costs should be amortised over the life of the contract in proportion to premium income—ignoring lapses. The author concurs that this is an inappropriate amortisation schedule for deferred acquisition costs, even on an historic cost accounting basis.

So, the fallacies behind the standards in §3.6.18 invalidate the criticisms of both the embedded value and the accruals basis methods. In particular, both methods do not anticipate profits over and above those emanating from future services. The embedded value method achieves this by holding back sufficient profit to cover the risk of assumptions not being realised, and the accruals basis by the identification and retention of margins to specific assumptions.

To turn to the proposed method itself, it rests entirely on the determination of the cumulative policyholders' apportionment, which, as far as I can ascertain, is either an 'internal price' or the surrender value, but increased a bit if the surrender value seems low and reduced a bit if the surrender value seems high, for unit-linked business, and similarly using asset shares for with-profits business—both with a floor of the minimum actuarial reserve. The fact that these assessments still ignore the impact of acquisition costs leads to the superimposition of ORMAC, which anticipates revenue to offset acquisition costs, but tries not to anticipate profit. In trying not to anticipate profit during the period when revenue is anticipated, the paper requires us to identify what that profit is during that period, which leads us to a phrase in §7.6.4, "such profits may be estimated from a knowledge of the profit profile in subsequent periods". This completes the cycle of profit recognition commonly found in seeking methods of financial reporting—that is, one must first answer the question, "What profit emergence pattern did you have in mind?"

The author's introduction analysing the standpoints of economists, accountants and the E.C. Directives is helpful. It is comforting to see that value-based methods are gaining favour with the economists, the International Accounting Standards Committee and the U.K. Accounting Standards Board. It is a shame that these have not yet filtered through to day-to-day accounting, and that current SORPs are based on transactional revenue less expenses plus revaluation where not quite enough profit has yet come through. I concur with the author that the fact that embedded value profit is derived from the difference between two capital values does not invalidate its acceptability, nor does the fact that it incorporates a risk discount rate.

There has recently been a movement to bring embedded value methodology and accruals methodology together, and I would support that movement. There is a strong will, I believe, to embody this common methodology into what, I understand, also wants to call itself the 'earned profits' approach, by placing the allowance for risk in the appropriate place for those to whom one is

reporting, so that for shareholders it may be appropriate to put the allowance for risk in a discount rate, whereas for mutuals it may be more appropriate to put the allowance in as risk margins. This development is wholly healthy, and I support it.

We must not forget that actuaries are about estimating the future. We must not, and we will not, have these skills denied through suggestions that we are over-anticipating profits when, in fact, we are not. Value-based accounting, based on prudent evaluation of the future, has much backing from economists, accounting frameworks and our own knowledge of their usefulness and communicability. Let us try to refine our skills and try to keep things simple for the benefit of our readers.

One of the attributes of both the embedded values basis and the accruals basis is that they can lead to simplified communication. In both cases the profit derived by differencing the beginning and end-year evaluations can be expressed as profit arising through the unwinding of the discount rate, the release of risk margins (in the case of the accruals basis), the value of new business, and variances from expected. The actuarial profession needs to spend more time on the derivation and communication of this very simple, but eminently communicable, analysis, and its time will be better spent developing this analysis rather than working on a new methodology.

Mr W. M. Abbott (closing the discussion): In preparing my contribution, I sought inspiration from my copy of Fisher & Young—an ancient textbook for actuaries (*Actuarial Practice of Life Assurance*, by H. F. Fisher & J. Young), and I quote from their initial explanation of the difference between profit and surplus, “Profit could only be determined when the last survivor of a group of contracts had gone off the books, and all claims and expenses applicable to the group had been paid. The residue of the assets would represent the accumulated profit in respect of that group”. Thus there is a unique concept of profit which can be determined with complete foresight. Fisher & Young went on to say, “In practice such a closed position could never be achieved”, and expand on the difficulties that we all recognise, know and love. Complete foresight is replaced by assumptions about the future. All profit estimates make such assumptions; some more dynamically than others.

I find any criticism on the lines of, to quote from §6.6.3, ‘significant dependence on future assumptions’ less than logical. All profit estimates are so dependent. Given an estimate of the total profit, we need rules for how that profit should be recognised over time. Thus, the whole question of profit reporting rests on rules and assumptions. The issue is ‘who sets the rules and assumptions?’

The author states that, for the purpose of reporting to its shareholders, a U.K. company is clearly constrained by the relevant U.K. accounts regulations and by accounting standards, and, as the opener pointed out, there are conflicts within any standard. There are different emphases between U.K. and international standards. Moreover, non-U.K. proprietorial life companies writing U.K. business may be subject to the standards of their home states in the E.C. Certainly, a U.K. company competes for capital in the same markets as such companies.

My second quotation from Fisher & Young is an extract from a paper delivered in this Hall in the year 1900. To paraphrase from that paper: “it seems quite within the bounds of possibility that the 20th century will record the supersession of the [statutory solvency basis] by some method [which is] more elastic, flexible and adaptable to changing conditions—one that will follow more closely the known facts ... and not impose too inexorable a scale of measurement all round.” Standing now near the end of the 20th century, we have not yet recorded that supersession, although there have been many attempts.

The quotation interestingly introduces additional concepts which may provide benchmarks for the adequacy of a profit recognition system:

- alignment with known facts,
- flexibility, so that the system is not a straitjacket which introduces bias into the results and behavioural reaction to add artificial rather than real value, but we have to distinguish between flexibility and manipulation,
- coping with change; and here I was looking for, and have heard, contributions in the discussion on the importance of knowing how any system works over a number of years, how it recognises substantial shifts in the economic environment, shifts in product design, and in expectations of

total profit; and this links in with Mr Webb's reference to sharing the numbers on which decisions are taken by the board, and

- one added by Mr Masters, that portfolios rather than individual contracts should be taken into account.

I thought that the discussion would bring out the purists and the pragmatists, and Professor Macve's comments were of interest here:

- those who would seek perfection within a given set of accounting rules and those who give more weight to 'freedom with disclosure' and to recognition of past work undertaken on systems and in getting a working knowledge and confidence in a given method,
- those who concentrate on the words used to support a basis, and
- those who believe a picture tells a thousand words and look at profit signatures.

It is possible that the greatest variations in results in practice are independent of the method chosen, so hopes of comparability by using a given method would prove in vain. Many speakers have brought out the judgemental aspects of all methods (and this includes the computation of asset shares which are integral to some of the methods). Mr Dumbreck mentioned substance over form, Mr Ward emphasised the benefits of systems which have previous use and not having to suffer periods of experimentation, and Mr Purchase thought a further method might be unrealistic, because all the participants in the debate are exhausted by the efforts of the past few years.

The author's comments on embedded values and accruals were very much conditioned by his preamble. My own stumbling block came in Section 3.2 on the nature of life assurance services. He argued that insurance services include the provision of financial guarantees, but that the supply of capital to support such guarantees is not a service. To my mind, "greater service hath no shareholder than to lay down his capital for his policyholder". It is the most important of all services rendered, and the cost of providing it is proportionate to the cost of having access to capital which backs a guarantee.

Much of the discussion has been on the specifics of the author's proposed earned profits method. His paper raises, and then to some extent casts aside, the current price approach, concentrating on the provisions approach. Yet I—and this was reflected on the comments of Mr O'Keefe—am left wondering as to what the real difference between the current price earned profits method and the embedded value method is in practice. Current prices of tradeable blocks of business are, after all, determined for Section 49 purposes by embedded values.

So what is the way forward from here, and will a new world have dawned with the new century? The short-term specifics facing us are:

- (1) Life insurance business is facing a substantial number of pressures with increasing compliance costs. Other forms of delivering many of the investment benefits are materialising, or could materialise. Costs and resource allocation are important issues. Securing an ideal profit recognition system is, or could be, of little avail if no business is coming in.
- (2) There are immediate issues to be resolved from the 1993 Accounts Regulations, and the imminent proposals from the ABI on a redraft of the industry SORP.
- (3) The imminent proposal from the group of listed U.K. insurers who are working on a basis which might converge the accruals and the embedded value methods.
- (4) There is the potential of competition in the U.K. from insurers which are not subject to U.K. regulations or accounting standards, albeit they are subject to their home state standards.
- (5) There may be some impact of reporting on the incidence of taxation. It might be useful to speculate whether it is conceivable that gross roll ups with exit taxes could ease the practical problems of profit recognition.

The profession is looking at a number of other issues: risk-based capital management; replacing net premium valuations; dynamic solvency issues; etc. It will be easy for us to cherry pick the various issues, but we should be seeking a coherent framework. The work which has already appeared from Australia, which brings together solvency and 'true and fair' in a common report, is of interest.

However, our task in the U.K. is more complex, because we are subject to the much maligned, possibly rightly maligned, E.C. Accounts Directive.

The President (Mr L. J. Martin): Like other speakers, I found this paper a most useful reference work which sets out, fairly concisely, the legal background, both national and European, and the evolving history of life assurance accounting in this country. It also puts together a relatively simple comparison of the statutory method, embedded values and the accruals method. This, together with a review of these methods, in relation to accounting standards and the European Accounts Directive, makes it a paper that, I am sure, will be used by very many students and actuaries over the next few years.

The earned profits method proposed by the author is itself an interesting suggestion, and highlights the fact that there is probably still some way to go before a method is devised which is readily accepted by the majority of our members in the actuarial profession and also in the accounting profession.

I am sure that we can look forward to a steady succession of papers relating to this subject over the years ahead and, as the closer has indicated, probably well into the next century as well, as developments of all kinds occur, both in the economy and in the environment as a whole.

This paper has, as expected, encouraged a large attendance and there has been no shortage of speakers. I am sure that the author will be well satisfied by the discussion that has taken place.

WRITTEN CONTRIBUTIONS

Mr T. M. Cooke: Although the case against the accruals and embedded value methods and for the earned profits method remains to be proven, the paper represents a valuable contribution to the debate, and should be considered carefully as life assurance profit recognition develops.

An important principle, referred to in § 7.3.1, is that the liabilities should include the profit from future services, so that the capitalisation of future profits is avoided. This principle can be used to demonstrate consistency between the method of determining life assurance profit and, for example, that for general insurance.

For an annually renewable general insurance contract, it is possible confidently to project cash flows over several years using appropriate assumptions about the rate of renewal. However, in determining profit, cash flows after the next renewal date are excluded, because they are clearly in respect of future insurance services. The same principle leads to the exclusion of profits from future new business in determining life assurance profit.

For a long-term contract, the price of services is typically set for the full duration of the contract and is spread to give an appropriate product design rather than to correspond with the services provided. It is only valid to use the concept of a *price* of future services referred to in § 7.3.1(b), at an intermediate point of the contract if such a price is set in practice. This only arises in specific instances, e.g. increments.

The concepts of the *profit* and *revenue* from future services are, of course, still valid in general. In § 7.3.5, the value of future revenue only corresponds to future services if the future apportionments to policyholders are judged to be appropriate. As stated in § 7.4.11, the key issue is how the provisions build up over time.

In § 5.2.3, it is stated that embedded values include profits expected to be made from future services, and are therefore contrary to accounting principles. This is only true if the discount rate is too low. Embedded values do include a proportion of profits that will become distributable in future, but this is different from profits that will be made in future. If the discount rate is at the level appropriate to allow only for the time value of money, then the embedded value recognises total profits and therefore includes profits from future services. However, as the discount rate is increased the embedded value approaches the statutory solvency method (adjusted only to include contingency reserves). If the discount is high enough, rather than including profits from future services, the embedded value, therefore, defers profits already made. There must, therefore, be a discount rate such that the embedded value includes precisely profits that have been made.

In §3.6.14, it is stated that the tax rate used to determine the discount rate should be zero for pensions business. However, income from investing revenue matching a cost in a later period gives rise to an increase in taxable profits, since there is no corresponding increase in mathematical reserves. Because tax increases as the investment income accrues the tax rate should be non-zero.

Mr J. D. G. Desai: The author's formulation of the explicit criteria in §3.6.18 lays the framework for the evaluation of the comparative merits of contending methodologies. His own evaluation has met with some criticisms of being unfairly harsh to the other methodologies and too kind to his own. A proper evaluation cannot be made on the basis of isolated comments from the protagonists, and needs a serious and open-minded study.

The author's approach to consistency between ORMAC and DAC is logical. However, having conceded that for linked business it is possible to use future margins in allowing for the initial expenses, there is no reason why a similar identification within the framework of his system cannot be applied to with-profits business.

The profit resulting from differencing the embedded values produced by two successive balance sheets does not meet the criteria imposed by the 'true and fair' requirements. Hence, the fact that the embedded value method is well suited for producing a valuation of the company for purchase is irrelevant.

Paragraph 9.3.1. refers to the drawing up of a statement of accounting and actuarial practice for reporting under the regulations. A better approach, as adopted in Australia, would be to involve the professional bodies and the regulatory authorities from inception in devising the reporting methodology. The Australian Margin on Services methodology is too complex to explain here. Suffice to say that, with only minor modifications, it would serve our needs. I would like to highlight three interesting features of this methodology:

- (1) margins determined on a non-profit-at-inception basis—maintainable bonus as the margin for with-profits business and any selected items for the rest,
- (2) a four-tiered liability concept for liabilities suitable for different purposes, and
- (3) high-lighting of the clear distinction between the recognition and distributability of profits by emphasising the capital tied up in the business to ensure solvency.

Mr C. J. Hals: Several speakers spoke at the meeting in favour of the concept of the Cumulative Policyholders Apportionment, a concept which is fundamental to the earned profits method.

The CPA is clearly an attractive concept and would produce few, if any, artificialities in the case of unit-linked business. Both concepts are essentially retrospective, and the CPA could, for such business, be determined to a close degree of accuracy.

In the case of non-linked business, however, it is just not the case that, after receiving premiums, we 'set aside', even notationally, a CPA. What we do, in consideration for the receipt of premiums, is to make a set of promises. In the case of with-profits business there is a yearly series of promises, capped off at the end of the day by a non-contractual (and 'smoothed') payment, i.e. the terminal bonus. In the case of non-profit business, which these days generally means either term assurance or an annuity of some sort, there is a single set of promises made at the outset. The business is then managed, in the aggregate, against that set of promises. The management process includes risk sharing, smoothing of experience and, if the office is strong enough, often a judicious degree, from time to time, of mismatching of assets and liabilities. These processes are inherently high level in nature, and there is no clear boundary between the roles of monies derived from current policies and of the estate of the fund.

In the process of management, we may well, of course, do 'asset share' investigations, or in other ways seek to apportion the results of the fund down to the level of policies, for purposes (among others) of deciding what 'promises' to add as part of the next bonus declaration. However, the fact that we do such investigations does not displace the reality of the business as being one that is more than the sum of its parts. All of us who have attempted asset share work are, I believe, aware of the inherent fragility and often provisional nature of some of the apportionments we have to make.

The aggregate management of the fund is inherently one of seeking to optimise overall returns,

control risks and maintain solvency. I am, therefore, comfortable with the embedded value approach which is based on a holistic view of the fund, projecting a possible outcome somewhere within the range of reasonable possibilities and discounting it back to the present day to give a 'balance sheet' view, accompanied, of course, with a statement of assumptions. Measurement of the progress of the fund by reference to these successive balance sheet views seems to me to be wholly appropriate; and, in allowing for prudence in such calculations, I have no doctrinaire preferences as between taking margins in the projection assumptions or in the risk discount rate(s), or both.

The author replied briefly at the meeting and subsequently wrote: I was very pleased that many speakers had considered the principles for life assurance accounting which I proposed in §3.6.18, and also by the support which many gave. If these can be the subject of further discussion by actuaries, we can have a very good framework for considering life assurance accounting in the future.

Mr Masters referred to the need to consider uncertainty on a portfolio basis. This is entirely right, and this was what I had envisaged (see e.g. the reference to risks considered on a group basis in §3.6.5, and blocks of business in §3.6.10).

Mr Goford disagreed with the principles in §3.6.18(c) and (e). The consequence of this would be that reported profits can reflect the value of profits expected to be made from the provision of services in the future. This is quite contrary to accounting standards, which require profits to reflect past performance and not to anticipate future profits. It is contrary to the requirement in the E.C. Fourth Council Directive that profits have been 'made', and the U.K. Regulations that they have been 'realised'. Actuaries need to consider these concepts very carefully in order to contribute effectively to debates on what it is appropriate to include in accounts prepared in accordance with the Companies Act 1985. Hence, I am satisfied that principles (c) and (e) should be retained.

Some speakers said that one of the services to policyholders is supplying capital. I believe that this confuses the services themselves and how they are provided. My perspective is that the shareholders expect that what the policyholders forgo will compensate them for their capital input. However, policyholders do not automatically forgo some amount because capital is being supplied; what they forgo depends on the management of the business. Hence, to determine profit one must start, not by measuring capital, but with a means to assess what has been forgone by policyholders.

Certain speakers expressed a preference for value accounting. In principle, one can use either the increase in the excess of assets over liabilities or a transactions-based approach. Which approach is preferable depends on the situation. In life assurance it will often be convenient to use the asset/liability approach, as the earned profits method does.

Embedded values were commended by many speakers. They are, as Mr Bartlett indicated, a useful indicator of the company's progress and, as Mr Webb said, they are produced as management information and are the basis of company objectives. They fit in with appraisal valuations (see §8.2.4).

The fact that the use of embedded values has much merit means that one might hope to include them in profit determination. However, whether this is possible depends on whether it is consistent with accounting principles required for Companies Act accounts. One must then ask whether the embedded value includes profit from future performance (contrary to the principles in §3.6.18). I was pleased that many speakers agreed that they did.

It is important that actuaries explain the nature of the embedded value in a way which is clear to auditors. Mr Ward appears to believe that it is the profit associated with selling and designing the policy. However, embedded values are derived from considering the total stream of (statutory solvency) profits, whether they relate to services before or after the valuation date. There is then a discounting process, which does not eliminate profits from future services, but ensures they are at present value rather than face value. Hence the embedded value incorporates profits, not just at the selling/design stage, but also later. An example is where a unit-linked company increases the fund management charge, bringing an immediate impact on the embedded value, being the capitalised effect of future higher charges, which could not reasonably be attributed to the year in question.

I note that the wish of Mr Goford, a supporter of embedded values, to remove my suggested

principles which ensure profits reflect past, not future, performance. This seems to confirm that embedded values do indeed capitalise profits from future experience.

Mr Cooke argued that the discount rate can be chosen to avoid capitalising profits from future services. Clearly, as the discount rate is increased above that used in the embedded value (either an earned rate or a risk rate, depending on the assumptions used), the present value is reduced and, in my view, is no longer an embedded value (see § 5.4.5). The SAI could be reproduced by some discount rate, but how this rate is found I do not know. Further, the unwinding of such a rate would influence reported profits in future years in a way inconsistent with the need for profits to reflect performance.

Mr O'Keefe said that it is pointless to argue that the accounts cannot allow for future revenue. However, this is what accounting standards require (subject to accruals relating to past performance as in ORMAC). He then refers to the justification of valuing shares at market value rather than net asset value, which leads on to the question of how a holding company places a value on an insurance company it owns. However, for an insurance holding company the E.C. Insurance Accounts Directive requires that the same principles as for an insurance company apply, which means that profits reported must be restricted to the profits already made by the insurance company.

I was delighted that Mr Clarkson welcomed my way forward. In the calculation of embedded value in the Appendix, the use of 12% as the discount rate was an *ad hoc* calculation felt to be broadly consistent with market practice rather than an earned rate.

Some speakers felt my criticisms of the accruals method were too harsh. However, I would emphasise that the 'planned profit margins' in the method are quite different from the use in the earned profits method of prudent margins for uncertainty. The planned profit margins have to consider what is the profit being made on individual elements of work and risk, which is much more demanding.

Mr Wright referred to margins on the discontinuance rate which help produce prudence in the accruals method. However, I believe planned profit margins should relate to profits in respect of the services the policyholder is receiving, of which discontinuance is not one. Such profits are expected to be adequate to compensate the shareholders for the risks they are bearing (such as discontinuance); see §§ 3.5.2, 3.5.3 and 6.5.5.

I can assure Mr Ward that I have studied counsel's opinion on the accruals method most carefully.

A number of speakers referred to the movement to encompass both embedded values and the accruals method. Since these are so different in principle, I am not optimistic that the need for a coherent theoretical framework which Mr Dumbreck identified will be satisfied. Indeed, it will be interesting to see how the issue of a different accounting approach at operating company and group level will be addressed, a concern of Mr Webb.

Mr Goford referred to nomenclature. The method I describe has borne the name 'earned profits method' since it was first put forward in 1990, and it has been discussed at a number of meetings since then. If the new embedded value/accruals methodology were indeed called 'earned profits' it would be confusing and quite misleading, given that the embedded value in particular (and possibly, depending on the planned profit margins chosen, the accruals method) capitalises future profits that have clearly not been earned.

Mr Ward claimed that some parts of my analysis in Section 3.8 have severe shortcomings. My conclusion that the true and fair override would have to be used to achieve a real true and fair view is said to be unacceptable. However, I said this was only applicable if inconsistencies with standard accounting principles remain, and, given the deferral of acquisition costs in the U.K., I do not think there will be any significant inconsistencies.

Mr Webb referred to the U.K. Regulations permitting implicit allowance for deferral of acquisition costs, but it should be noted that there are conditions attaching to this which are not merely if the actuarial methodology so demands. I have not dismissed lightly, as Mr Ward suggests, the views of auditors who are prepared to sign off embedded values and accruals method profits as true and fair; it is the considered conclusion of my research. I also noted Mr Wright's comments that it is not entirely clear whether these methods can be made to fit the regulations.

It was helpful for Mr Wright to describe the ABI's work on the modified statutory method. I

believe it is good to start from the statutory solvency method and modify it. In particular, the liability valuation basis would usually be one of the modifications.

I was very pleased that both Mr Wright and Mr Masters saw advantage in the method being extended to cover the shareholders' proportion of the change in the fund for future appropriations. At the very least, I believe that this should not be prohibited by what is intended to be a recommended practice to achieve true and fair accounts.

As I expected, some speakers spoke for, some against the earned profits method. I agree that further examples of how it would operate in different conditions would be helpful, especially where investment conditions change. Mr Bartlett referred to the need for the accompanying disclosure to be developed, which is an important point that needs to be taken on board.

I agree that it is inappropriate to rely unduly on surrender values as being the CPA, as commented on by a number of speakers. However, I was pleased to hear the discussion on asset shares and other matters, which helps focus attention on how the life company's liabilities can best be expressed: this has direct relevance to true and fair accounts.

There were a number of comments that the method is unrealistic, as sales activity is not reflected in profit. However, sales activity itself (the supply side) does not imply that it has generated profit; it depends on what the policyholder has paid for the service he has received (the demand side). It is this issue which the earned profits method addresses.

Mr Wright believes that mismatching reserves are not appropriate for Companies Act accounts. I admit I had only envisaged such a reserve where the profile of liabilities was such that there were no assets available to match it, so a mismatch was necessary rather than discretionary. In practice, my concerns could be met by an appropriate level of prudence in the investment assumption used. I also noted with interest the comment regarding separate determination of assets and liabilities. This is an established accounting principle, though it is difficult where one has long-term liabilities which are valued using a discount rate that depends on the earning power of the assets.

Mr Purchase referred to Zillmerisation, and my argument that it is not an appropriate way to defer acquisition costs. Certainly for some companies which are thinking of using Zillmerisation, I think this is an issue that needs further thought.

Mr O'Keefe referred to the idea of matching costs and revenues as sounding like the statutory solvency method. In a sense it is; the earned profits method is very similar to the modified statutory approach. We really have to address the issue of matching costs and revenues if we are to understand the way in which accountants think and to apply the principles they use.

Mr Moore referred to the management incentives that may come from different reporting methods. I would emphasise that incentives should be based on company value where that it is the real objective, rather than reported profits.

Mr George commented that fluctuations in asset values would lead to a less stable emergence of profit. I do not think this is inherently wrong; certainly the Accounting Standards Board is envisaging that its principles will lead to greater variation in profit, which the directors can comment on in their report. If a unit-linked product has level loads, and no surrender penalties, then my method defers profit. However, such a product surely does not 'make' its profits until later, so one expects this to be reflected in the accounts (but the merit of disclosing the embedded value as supplementary information is also clear).

In using the earned profits method, the provisions approach will usually be more convenient than the current price approach. The latter establishes the company liability as the price payable by policyholders, which includes expected profit. In this way the capitalisation of future profits is avoided. This explains the closer's point about the difference compared to embedded values.

Noting Mr Moore's comments, it is again the use of price in the liabilities which means the earned profits method avoids capitalising future profits, whereas, if a realistic provisions method uses future costs, this infringes the requirement that profits must have been made.

In my calculation of ORMAC, §7.6.4(c) refers to the use of the profit profile in subsequent periods. Mr Goford appears to think this requires a knowledge of the profit emergence pattern as envisaged. This is not so; the example in the Appendix indicates that establishing the revenue in year 2 is assisted by a knowledge of the revenue flows in subsequent years on the earned profits basis.

Mr Webb is concerned that the method is likely to require considerable expenditure on systems. That depends; it is unlikely to be so where one is adapting existing valuation systems by removing artificialities in the statutory solvency assumptions.

I agree that judgement is needed in applying the earned profits method, and that there is no philosopher's stone. It has been valuable to hear the views, not only of actuaries, but also of accountants involved in the debate. I do hope that the professions will be able to work together on this challenging topic, and I hope we can continue to look at the earned profits method as the debate continues regarding life profit reporting.