

## **International Forum of Actuarial Associations**

### **Comments on International Accounting Standards Committee Exposure Draft E54**

#### **The IFAA**

The International Forum of Actuarial Associations (the "IFAA") is a section of The International Actuarial Association. The IFAA itself is the international association of actuarial organisations. Our member bodies exceed 40 in number, and represent more than 90% of all actuaries practising around the world. Applications are pending which, we believe, would bring the proportion close to 99% of all practising actuaries. The IFAA was formed to promote high standards of actuarial professionalism across the globe; and to serve as the voice of the actuarial profession when dealing with other international bodies on matters falling within or likely to have an impact on the areas of expertise of actuaries.

The IFAA's interest in E54 is to assist the IASC in developing a high quality standard which recognises established actuarial principles.

#### **Preliminary Observations**

The International Accounting Standards Committee's ("IASC's") proposed standard on accounting for employee benefits relates to an area where both the accounting and actuarial professions have an interest and expertise. The IFAA notes the objectives of the IASC in revising IAS19, namely to improve the balance sheet treatment of assets and liabilities associated with employee benefit costs, to give more guidance on specific types of plans in certain countries and to reduce the diversity in accounting methods so as to improve comparability between the financial statements of different enterprises.

The proposed standard is in many respects well-conceived, and would receive general support from our member organisations. In certain respects, however, the current proposals raise significant concerns for actuaries practising in the employee benefits area throughout the world. We are confident, however, that a mutually satisfactory approach to employee benefits accounting can be achieved if each profession recognises and respects the objectives and expertise of the other.

The accounting profession is concerned with the recognition in a company's financial statements of the appropriate charge to earnings and the corresponding amount of accounting liability which arise from any employee benefit scheme. Its objective is to ensure that, in the determination of both the liability amount and the income charge, there should be comparability between companies in similar circumstances.

The skills and expertise of the actuarial profession include the determination of the value of the liabilities which arise in any employee benefits scheme, and in the prudent provision for the benefits through an appropriate funding regime. Our objective is to ensure that the value placed on the liabilities accurately reflects the observed long-term linkages between the different assumptions. It is recognised, however, that the actuarially appropriate funding rate for an employee benefit scheme may differ from the appropriate accounting charge for that scheme at any particular time.

We believe that the IASC's proposed standard fails to give adequate recognition to the nature and term of the benefit obligations. Consequently, the proposed method for determining the amount of the accounting liability for employee benefits does not conform to actuarial principles, and may as a result be financially misleading. We urge the IASC to consider our comments, and to revise the proposed standards as suggested below. We believe that our recommended changes will improve the proposed standard in terms of the objectives of the IASC, while reducing or eliminating the actuarial profession's concerns.

### **Due Process**

This submission has been prepared by the sub-committee of the IFAA on IASC Matters, the members of which are listed below. It has been circulated for approval to all the member associations of the IFAA, a list of which is attached. In the case of the United States, responsibility for approving the submission has been taken by the American Academy of Actuaries. Following the expiry of the prescribed 30 day notice period, no material objections have been received and the submission has accordingly been approved as a public statement of the IFAA.

### **Members of the Subcommittee on IASC Matters**

The Institute of Actuaries of Australia	Canadian Institute of Actuaries
The Actuarial Society of Finland	Deutsche Aktuarvereinigung
Actuarial Society of India	Society of Actuaries in Ireland
The Israel Association of Actuaries	The Institute of Actuaries of Japan
Het Actuarieel Genootschap : Netherlands	Den Norske Aktuarforening : Norway
Swiss Association of Actuaries	The Institute and Faculty of Actuaries United Kingdom
American Academy of Actuaries	

## Overview

Our views on the key issues are summarised as follows.

- **Discount rate**

The approach proposed in E54 may be suitable in countries where funded defined benefit liabilities are not significant, where liabilities are not primarily salary-related or prices related, where defined benefit liabilities are not typically backed by equity investment or where the duration of the liabilities is short. In other countries we believe that it is essential to recognise the importance of a spread of investments in the assets backing retirement benefit liabilities in order to provide a meaningful treatment in company accounts. Index-linked bonds, property and equities are examples of assets which will frequently be better suited to pension obligations than fixed interest bonds. Use of bond yields may often result in too high a level of pension expense, and will certainly tend to create unnecessary volatility, *We set out our proposals in Attachment A.*

- **Plan assets**

The proposal to define the market value of plan assets as sale value for the purposes of the financial statements is, in our view, inconsistent with the treatment of the enterprise as a going concern.

- **Recognition**

Actuarial gains and losses incurred in an accounting year should be brought into the accounts in the following year in order to avoid practical and conceptual difficulties.

Since actuarial gains and losses require frequent reassessment and fine-tuning, it is appropriate to amortise them over a suitable period, except where they are sufficiently), large to suggest a change in financial position of the plan which is unlikely to be reversed quickly. The average future working lifetime is a suitable period for this purpose, or a nominal period of, say, 15 years, with the average future working lifetime if less. Given the volatility of investment values, appropriate thresholds for this purpose might be when the unrecognised gain or loss exceeds 25% of the greater of the value of the assets or the liabilities; beyond this level gains or losses would be recognised immediately.

The use of a corridor, as proposed in E54, is an unnecessary complication. *We set out our recommendation in Attachment B.*

- **Involvement of Actuaries**

A professionally qualified actuary should be involved in the preparation of the figures which are to be included in companies' accounts. This should be a formal requirement in all territories where there are national actuarial bodies which have codes of professional conduct. In other countries, if no professionally qualified actuary has been involved in the preparation of the figures for pension costs, this fact should be disclosed.

*We suggest how this can be dealt with in the Standard in Attachment C.*

- **Valuation method**

We accept the principle of standardisation on a single method for accounting purposes, but the new standard should include a statement that in some circumstances the method in question may not be appropriate for funding purposes. We suggest that the standard should include a statement that in special circumstances another method may be used, particularly where application of the Projected Unit Credit method may produce misleading results, but the impact of using an alternative method, as compared to the results using Projected Unit Credit method, should be shown in the disclosures.

- **Transitional arrangements**

The new standard should confirm that previously unamortised actuarial gains or losses or past service costs may be amortised under the new standard.

- **Definition of defined contribution/defined benefit plans**

It is confusing to redefine defined contribution plans in the manner proposed. The terms 'defined contribution' and 'defined benefit' are well established as a description of the contribution and benefit characteristics of retirement benefit plans. We recognise the need to characterise plans for the purposes of the IASC standard by reference to the exposure of the enterprise to further liability obligations and suggest that the terms 'limited obligation plans' and 'unlimited obligation plans' be adopted.

- **Due process**

We have serious concerns that inadequate time has been allowed for consultation in moving straight to an Exposure Draft without consultation on a Statement of Principles. We doubt whether many of the enterprises which will be affected by the new standard have yet been made aware of, or have appreciated, the implications of the proposals. More time is required for them to be properly involved in the consultation process.

Our responses to the specific questions raised are as follows:

- **Question 1:** we strongly favour version A. Version B would deter employers from improving benefits and in any case the economic benefit of improvements accrues over the future working life-time of the employees affected.
- **Question 2:** as explained elsewhere in this submission, we have a strong preference for what E54 describes as a risk adjusted discount rate in those countries where bond investment is not appropriate, as we believe this reflects the true cost of meeting benefit obligations.
- **Question 3:** we agree that the Standard should apply to all employee benefits. The proposals in E54 are acceptable, except that post-employment death benefits should be accrued for wherever they are subject to vesting and not only when they are provided through a post-employment benefit plan.
- **Question 4:**
  - (a) It is unnatural to seek to define defined contribution and defined benefit plans in this way rather than by reference to their contributions and benefits. More appropriate terms for the purpose of the standard might be "limited obligation plans" and "unlimited obligation plans". The definitions themselves do not appear to cause problems.
  - (b) The normal case is likely to be that insured plans are defined contribution based but we agree the proposed guidance on insured benefits.
  - (c) We are content with the proposals for defined contribution schemes.
- **Question 5:**

We accept the proposed approach to multi-employer and State plans.
- **Question 6:**
  - (a) Annual valuations for accounting purposes will involve additional costs as compared with, say, the three yearly valuations for various purposes required by a plan sponsor. The Standard should make clear the extent to which approximations are acceptable for the annual assessment. This could also be dealt with in the actuarial professional guidance which we suggest elsewhere should be provided.
  - (b) We believe there should be a requirement to use a professionally qualified actuary and that, where this is not the case, this fact should be disclosed. *See Attachment C.*

- **Question 7:** We accept the proposal to standardise on the projected unit credit method but the Standard should include text to make it clear that it is recognised that this method is not necessarily appropriate for funding purposes and that in special circumstances another method may be used, subject to disclosure.
- **Question 8:** The straight-line approach is acceptable in most circumstances but should be modified to reflect the higher accrual of benefits in the early years of service which is found in some plans.
- **Question 9:**
  - (a) We are pleased that the Standard recognises the need to achieve actuarial consistency between the various assumptions used.
  - (b) The treatment of increases in salaries, benefits and medical costs is acceptable.
- **Question 10:** The 10% corridor is arbitrary and is not, in our view, an appropriate deferral mechanism. Actuarial gains and losses will frequently exceed 10% of liabilities so that immediate recognition of actuarial gains and losses outside the corridor will occur on a frequent basis, possibly in opposite directions in successive years. It should be noted that the 10% corridor under FAS87 has operated in conjunction with the freedom to use averaged market values for assets and amortisation which will have served to reduce the number of occasions where actuarial gains and losses have fallen outside the corridor. We comment further in *Attachment B*.
- **Question 11:** Agreed.
- **Question 12:**
  - (a) Agreed.
  - (b) Agreed except that the definition of market value does not reflect the reality that in an on-going fund assets are passed between generations of members without being sold. Typically assets will be held for long periods and frequently until redemption so that sale costs are not relevant. Fair value would be more appropriate and, for Stock Exchange investments in particular, mid-market value.

We would also note here that the use of market value of assets will cause difficulties unless it is accompanied by an appropriate discounting rate and actuarial assumptions and a system of deferral of actuarial gains and losses which reflects the nature of actuarial gains and losses. A definition of assets which embraced the possibility of assessed values or market-related values would enable existing standards to be accommodated more easily. In the absence of this, an approach to deferral of or amortisation of actuarial gains and losses which reflects the long term nature of the obligations is a crucial issue. We comment further on this elsewhere.

(c) Agreed.

- **Question 13:** Agreed.
- **Question 14:** The proposals are acceptable.
- **Question 15:** The proposals are acceptable.
- **Question 16:** This is not an actuarial matter but we believe that companies are likely to regard the overlap period of three years or less as too short. A five year transitional period or period of overlap would appear to be more satisfactory. Attention needs to be given to the treatment of unamortised gains and losses under earlier standards, which should be allowed to continue.
- **Question 17:** We will be pleased to assist further with Appendices I or 2 in due course.
- **Question 18:** The proposal in section 87 that actuarial gains and losses which accumulate to exceed the 10% corridor should be recognised immediately is not, in our view, appropriate as it fails to recognise the long term nature of the estimates involved in assessing the value of liabilities. This proposal is likely to result in spurious amounts appearing in the income statements year by year. *See Attachment B.*

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Chairman  
International Forum of Actuarial Associations  
Subcommittee on IASC Matters

7 March 1997

## **A Proposal for an International Methodology for the Valuation of Retirement Benefit Liabilities**

The IFAA has significant concerns about certain aspects of the IASC exposure draft proposals because we believe the proposals for determining the amount of the accounting liabilities for accrued benefits in defined benefit schemes to be contrary to generally accepted actuarial principles and potentially financially misleading for the readers of accounts. This is because

- a) proper recognition has not been given to the nature and term of the benefits
- b) current long-term fixed bond yields are not appropriate for determining the cost of long-term variable benefits (and they do not represent a "risk-free" rate in this context).

We infer that the IASC may be concerned about the use of traditional actuarial approaches to the calculation of liabilities for the purpose of expensing in company accounts, because of the smoothing of actual changes in the investment markets which is often inherent in actuarial methods and because of the perception that, for a given set of benefits, there can be a wide range of results from the calculation of liabilities. To the extent that this is so, there is concern that it would weaken comparability between the financial statements of companies with similar plans under similar circumstances if the calculation of the liability to be used in the accounts is not more constrained.

We understand these concerns, but believe that it is highly desirable that there should be a mutually satisfactory agreement between the two professions at international level. To this end our objective must be to define a consistent international actuarial methodology for calculating the value of the liability - for the purposes of expensing the cost in company accounts - such that any two professionally qualified actuaries faced with calculating the value of an expected stream of accrued benefit payments in a given country (or countries) at a given time can be expected to arrive at answers which are not materially different.

As indicated elsewhere, we are able to agree on the projected unit credit method as the method to be used for making liability calculations for accounting purposes other than in exceptional circumstances, when the results on the projected unit credit method would still be disclosed. This in itself will go a long way towards achieving consistency of approach.

The value of the liabilities for accounting purposes should be calculated by reference to rates of return on, and current values of, assets which would be most actuarially appropriate, bearing in mind the term and nature of the obligations, rather than to the value of the actual assets, if any, used to fund the employee benefit obligations. We can

therefore also agree that the actual assets held should not influence the value of liabilities and that the measurement of liabilities should be independent of whether the plan is funded or unfunded and independent of the investment policy actually followed for a funded plan.

For a funded plan, if the liabilities were perfectly immunised by a specific group of available assets and if the plan sponsor actually invested in these assets, the issue of changes in investment conditions leading to "undue" volatility in company accounts would not arise, since any change in the value of the plan assets would be offset by an equal and offsetting change in the value of the corresponding liabilities. We can therefore agree that, when a plan sponsor operates a funded plan, and does not immunise assets and liabilities, it is appropriate to allow the impact of volatility resulting from asset choice to affect the sponsor's financial accounts.

Although the concept of using the assets which would be most actuarially appropriate, bearing in mind the term and nature of the obligations, is clearly relevant specifically to funded arrangements, the underlying principles can also be applied to unfunded and book reserved arrangements and can therefore also be used for accounting purposes in these contexts.

The IFAA notes that the approach proposed in E54 may be suitable in countries where funded defined benefit liabilities are not significant, where liabilities are not primarily salary-related or prices-related, where defined benefit liabilities are not typically backed by equity investment or where the duration of the liabilities is short.

In numerous countries actuaries have devised a range of techniques for applying the concept of identifying the appropriate assets which best match the liabilities and a variety of software packages have been developed by actuaries, particularly in North America and the UK. In recent years, stochastic modelling has been used extensively for this purpose, based on a variety of statistical models. For the purposes of a standard, however, there would be a need to agree on a process which can be clearly specified and implemented without recourse to sophisticated software packages.

There are precedents for this. For example, in Canada the methodology and assumptions are specified for calculating transfer values and for the splitting of pensions in divorce cases. In the UK, the methodology and assumptions are specified for the calculation of the Minimum Funding Requirement, which is also used to define minimum transfer values. We therefore believe that an appropriate methodology could be agreed for application wherever this approach is justified, and that a procedure for determining the appropriate assumptions could be specified by the national actuarial associations within a framework standard prepared and promulgated by the IFAA (working in conjunction with the IASC).

There are many sorts of liabilities which are of a nature and term such that they cannot be perfectly immunised by a unique configuration of available assets. This is particularly true in respect of pension liabilities for active employees for which the duration may be

longer than the term of any readily marketable and available fixed term assets, and for which the benefit amounts to be paid in the future are dependent upon future changes in the rates of wages. Corporate bonds are generally not appropriate assets to be held against salary-related or prices related liabilities and the return on such bonds is not a risk-free rate of return in this context. Indeed equity investments are typically regarded by investors as essentially the only investments of sufficiently long term and acceptable marketability which are available.

The IASC appears to argue in E54 that, because there are no available investments which can be used to immunise exactly against these actuarial risks, an arbitrary method has to be used to calculate the value of the resultant liabilities, and that the current long-term bond rate is at least a rate objectively determined in the market place which cannot be manipulated and which will therefore lead to comparable results. The IFAA believes that, while the results of such calculations may not be easily manipulable, they are also unrealistic - to the point of being misleading - because they ignore long-term observed linkages between rates of return and rates of change of prices and wages - and could result in overstatement of the liabilities.

Improvements in real wages must in the long-term flow from real growth in the economy which is also usually reflected broadly in the value of equity and other real investments. We do not believe that it would be a sound approach to use a discount rate derived from assets which would be regarded as unsuitable for the liabilities in many environments.

If there is to be a mutually acceptable agreement at an international level between the two professions with respect to the calculation of liabilities, it must satisfy several criteria:

- a. The methodology must reflect current objectively determinable conditions as measured by the real investment marketplace;
- b. The methodology must reflect the return on, and the value of, the available assets which best match the actual nature and term of the actuarial liabilities;
- c. In countries where the term of the liabilities is longer than that of the assets which are readily available, or when the nature of the Liabilities is such that assets are not available with which to immunise the risks, the use of historical long-term real (or nominal where appropriate) rates of return, which reflect investment in long-term real investments, such as equities, should be required; and
- d. When such long-term real investments are best suited to match the nature of the actuarial liabilities, the actuarial profession in each country should stipulate a procedure which will pre-determine a single long-term real rate of return (or nominal rate when appropriate) to use in the liability calculations for accounting purposes at any point in time, in respect of those liabilities deemed to be appropriately matched by the real investments.

The process of liability calculation for accounting purposes would then be performed using the best estimates of future liability cash flows and the appropriate market values of the assets best suited to match the term and nature of the liabilities using, for example:

- a. The current spot yield curve to determine the value of the fixed income component of assets;
- b. The current yield(s) for appropriate inflation linked investments (when available); and
- c. The appropriate long-term real (or nominal) rate of return determined as appropriate by the actuarial professional bodies for making such liability calculations in the country.

If such a liability calculation methodology is acceptable to the IASC, accountants will be able to be assured that the liabilities calculated by qualified actuaries in respect of employee benefit plans will be both fully comparable between companies and non-manipulable. At the same time, the international actuarial profession will be satisfied that the value of the liabilities has regard to the assets which best reflect the term and nature of the liabilities.

The IFAA will be happy to seek to develop a framework international actuarial standard of practice to support the requirements in the International Accounting Standard for Employee Benefits. We envisage that this would be supplemented by actuarial standards of practice developed for specific countries by the relevant actuarial professional bodies.

## Actuarial Gains and Losses

There are two dimensions to the recognition of actuarial gains and *losses as income or expenses*, as proposed in E54. These are:

- the timing of recognition of gain or loss
- the procedures for recognition

We believe that the gain and loss procedures in E54 will create significant reporting difficulties and unnecessary volatility, which will distort rather than improve an entity's financial reporting. Each of these issues is discussed below,

### **Timing of gain or loss recognition (excluding such gains and losses as curtailments, terminations etc)**

E54 provides for the immediate recognition of the cumulative unrecognised actuarial gains and losses that exceed the 10% corridor. The cumulative unrecognised amounts are to be determined as of the reporting date, and, as a result, cannot be measured until after the reporting date. Companies will be required to obtain plan asset information after the close of the year in order to compute the asset gains or losses as of the close of the year. They will also have to commission an actuary to perform a valuation to measure the liability gains or losses as of the close of the year. The actuary will have to calculate the defined benefit obligations in order to determine the amount of the 10% corridor.

Assembling the required asset and actuarial liability information after the end of the reporting year, but in time for inclusion in the accounts for that year, will often be impractical and, when possible, will be expensive. It could cause significant delays in the process of completing the financial reports of an Organisation and will result in increased cost to provide this information.

The Exposure Draft allows for measurements in advance of the year end with projection on an approximate basis. If, however, financial information is to be useful it should reflect accurate measurements as of the year -end. We therefore recommend that the IASC should allow for first recognition of actuarial gains or losses in the year following the year in which they occur.

### **Recognition procedures**

E54 provides for the immediate recognition of actuarial gains and losses, to the extent that they exceed the 10% corridor. Any gains or losses within the corridor threshold are permanently deferred. We believe that these procedures will result in the permanent deferral of certain gains or losses which should be recognised, and will also create

volatility through immediate recognition of gains and losses which will be large but can be expected to reverse in the future.

We believe that all actuarial gains and losses should be recognised and, to the extent that they fall into an expected range based on experience, they should be recognised on an amortised basis over a period no longer than the future service of participants. An upper bound could be put on such a period of, say, 15 years.

If unrecognised actuarial gains or losses exceed a certain threshold, however, which might be, say, 25% of the greater of assets or liabilities, any excess amount should be immediately recognised while the initial amount (i.e. below 25%) should be amortised. This procedure would strengthen the standard by eliminating the permanent deferral of amounts which should properly be recognised, whilst still allowing for immediate recognition in circumstances where gains or losses have exceeded the levels which would be considered reasonable. The percentage threshold will need to be set at an appropriate level and we will be pleased to assist in any further work needed to establish this. The figure of 25% is suggested in the light of experience.

If this recommendation is not accepted, we will continue to be concerned about the volatility inherent in E54. We do believe it is essential for amortisation of gains and losses over the 10% corridor to be provided for, in order to eliminate the immediate recognition of fluctuations which are not expected to be permanent.

### **Suggested Language for Gains and Losses and Illustrative Example**

In accordance with our primary recommendation, we propose the following wording.

- **Paragraph 87** : an enterprise should recognise actuarial gains and losses arising in prior periods as income or expense and as part of the defined benefit liability in the current and future periods. The cumulative gain or loss as of the last day of the year preceding the reporting period shall be amortised on a straight line basis over the average expected remaining working lives of the active plan participants. However, if the cumulative unrecognised gains or losses exceed the greater of:

- (a) 25% of the present value of the defined benefit obligation before deducting plan assets;

or

- (b) 25% of the market value of any plan assets,

the excess amount should be recognised immediately in addition to the normal amortisation of the first 25%.

- **Paragraph 89:** estimates of post-employment benefit obligations are often imprecise. Therefore recognition of gains and losses should occur on a rational basis that does not unduly influence any one year's income statement. Gains or losses that exceed

the 25% limit provide evidence of a change in the liability or the relationship between assets and liabilities and should therefore be recognised immediately.

In *Appendix V* we provide an illustration to show the effect of our proposed procedure compared to the procedure currently contained in E54.

### **Involvement of Professional Qualified Actuaries**

We urge the IASC to require the liability calculations (including the selection of the necessary actuarial assumptions) under the proposed standard to be performed by an appropriately qualified actuary, just as the preparation of a company's financial statements should always be performed by an appropriately qualified accountant. This will ensure that companies financial statements accurately reflect their long-term obligations to employees. We therefore recommend that the following sentence be added to Paragraph 47:

The selection of actuarial assumptions and calculation of actuarial liability should be performed by a qualified actuary.

We recognise that there may be rare circumstances in which a company may not have ready access to a qualified actuary. In that event, we believe it would be advisable for the financial statement specifically to disclose that no qualified actuary was involved in the preparation of the pension cost figures. (This disclosure requirement should be imposed even if the IASC decides not to amend Paragraph 47 as we have recommended.) We therefore suggest that the following disclosure requirement be added to the proposed standard:

If the actuarial calculations required by this standard are not performed by a qualified actuary, this fact should be disclosed in the footnotes to the financial statement.

Obviously, companies will need guidance as to what constitutes a properly qualified actuary. The IFAA requires its member organisations to establish and enforce appropriate standards of conduct, practice and qualification upon their member actuaries. Thus, actuaries who belong to, and meet the relevant qualification standards of, one or more of the IFAA's member bodies have the necessary qualifications to identify the assumptions and perform the valuations called for by the proposed standard. We therefore suggest that the following definition be added to Paragraph 7 of the proposed standard:

A **qualified actuary** is a member of, and meets the qualification requirements for performing pension and / or other benefit calculations which are set by, an Organisation which is a full member of the International Forum of Actuarial Associations.

## Statistical Evidence

The IFAA has identified a number of aspects of the standard where statistical evidence can be used to establish the appropriateness or otherwise of proposals, as follows:

- A resume of the nature of plans and their liabilities in various countries, the manner in which they are invested and the rates of return available from available investments in recent years.

*Some examples are attached as Appendix I* which are sufficient to show that there are considerable variations between countries. This indicates that an approach which may be suitable in some countries will not necessarily be appropriate in others, and suggests that the standard should be structured as a framework sufficient to ensure that compatible procedures can be followed in individual countries which themselves are sufficiently specific to achieve comparability within each country.

- Data for some specific companies has been examined to provide comparisons between the expense figures emerging under E54 as compared with FAS87 or SSAP24 over a period of years, and also to demonstrate the effect of the IFAA recommendations.

*The results are shown in Appendix II* and indicate that there can be very large and significant financial differences between calculations based on E54 and on existing standards. -The modification recommended by the IFAA would reduce considerably the extent of these fluctuations from time to time.

- Statistical evidence on the correlation between equity share prices and indices of prices and wages.

*The graphs in Appendix III* examine common share dividend and share growth relative to price growth (and wage growth when available). The graphs generally show that equity share prices and equity dividends reflect changes in the levels of both prices and wages over the long term. This long term relationship provides support for the well established practice in a number of countries of regarding equities as suitable investments to fund long term wage and price indexed pension liabilities. Over the long term, real wage growth comes from real growth in the economy which itself is reflected in the growth of share prices and share dividends.

Note that whilst the long term relationship between share prices and dividends is excellent, in the short term (periods of 5, 10 or even 15 years), the linkage can be temporarily broken. Immediate full recognition of the temporary share price drops of the 1970s could have created the misleading impression that long term pension obligations were in peril. Whilst the future is unknown, it may be that immediate full

recognition of the strong share rises of the 1990s might equally create a misleading impression. Appendix 4 illustrates this point more fully.

The last graph in Appendix 3 traces the 5 year annualised returns between rates of wage increase, rates of prices increases and rates of dividend increases in the UK. The obvious strong correlation again supports the well established practice of using equities to match long term indexed pension liabilities.

Note that when interest rates rise, the market value of bonds fall. This "loss" is somewhat compensated for by an accelerated future rate of increase in the bond value as the bonds approach maturity and by the fact that future pension cash flow may be invested at higher rates of interest.

If pension liabilities are fixed (i.e. not indexed to wages or prices), the decrease in the value of the pension funds' assets can be exactly offset by the decrease in the value of the corresponding pension liabilities if the asset portfolio is immunised against the expected liability cash flows (i.e. bonds are an appropriate investment to match fixed liabilities).

However, if the pension liabilities are indexed and if the rates of indexation used to determine the liabilities are based on long term relationships as suggested in E54, then full immediate recognition of the decrease in the market value of the pension fund bond assets as suggested in E54, is not an appropriate basis with which to measure the financial position of the pension fund.

- Investigation of the implications of E54 for model funds.

*Appendix IV* indicates considerable inherent volatility in the current proposals which we do not believe to be justified, having regard to the long term nature of a defined benefit pension plan.

*Appendix V* provides a worked example to demonstrate the approach to amortisation recommended by the IFAA.