

# **An introduction to accounting for pension costs**

Pension costs are now a key feature of western economies and accounting for the liabilities has now begun to impact on company accounts through the revision of IAS 19 *Retirement benefit costs* in 1998 and FRS 17 *Retirement benefits* issued in 2000.

Much of the material below is based on two discussion papers issued by the UK Accounting Standards Board:

## **Pension costs in the employers financial statements, June 1995**

## **Aspects of accounting for pension costs, July 1998**

### **1. Types of pension schemes**

#### **I - DEFINED CONTRIBUTION**

This is where the pension to be paid in the future depends on what has been paid in. Normally there is an employers' and an employee's contribution. Accounting for these costs is relatively straight forward, since it is known how much has been paid by the company during a given year.

#### **II - DEFINED BENEFIT**

This is where the pension is related to final salary and the years of service. Here there is a problem because final salary is not known at the time when the employers contribution is made. In addition it is uncertain whether the contributions made will in fact cover the future obligation since the payoffs from investments is uncertain

#### **III - FUNDED**

This is where the vehicle for investing the contributions (a pension scheme) is separate from the company. Legally, the funds of the scheme do not belong to the company.

#### **IV - UNFUNDED**

In this case, there is no separate vehicle for investing the contributions and the investments are mixed up with the operating activities of the company.

For the most part in these notes we shall be concerned with funded defined benefit schemes.

### **2. The position of the fund at a given point in time**

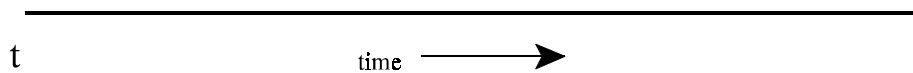
Consider a company with a workforce which has a defined benefit scheme based on final salary and the years of service. The position of the fund can be illustrated by the following figure.

Assets  
accumulated to  
date, **AD**

Benefits payable from  
now, but earned at t, **BE**

Surplus or deficiency

Benefits payable from  
now, but to be earned  
after t, **FS-BE**



### I - THE LIABILITY

At any given date there are 2 aspects:

**FS, the final stream of benefits that the employees are likely to receive when they retire**

This will depend on their final salary, and when they leave the pension scheme. If they leave early through choice, they will have fewer years of service and their salary will be lower than if they stayed until official retirement age.

**BE, the stream of benefits which the employees have earned so far, at time t**

This stream is largely determined by the length of service and all the other factors which go to determine FS. Notice that in calculating the liability, although the length of service is known, other factors (final salary, and when they will leave the pension scheme) are uncertain.

### II - THE ASSETS

At any given time the scheme will have

**(AD) assets accumulated to date**

### III - A DEFICIT OR SURPLUS

In addition, at any given time the assets which have been accumulated to date (AD) should be sufficient to fund the benefits which have been earned to date, BE. A surplus arises when the assets accumulated exceed the current liability. A deficit arises when the assets accumulated to date are not sufficient to meet the liability.

It should be noted that this is, in fact, we cannot determine whether a surplus or deficit exists simply by comparing AD and BE, because they exist at different points in time. Although at a given date  $AD < BE$ , by the time the pensions are payable the assets may have increased to BE because assets held by the fund are likely to give a positive return during the period up to when the pensions are payable. Therefore, in order to identify a true deficit, some assumption needs to be made about the return to the assets after the valuation date. Another way of saying this is that we need to discount BE at a suitable rate of interest. What is "suitable" will be discussed later.

### 3. The need for an accounting standard

#### I - THE PENSION CHARGE

Prior to 1988, when SSAP24 *Accounting for pension costs* came in to force in the UK, the charge to the P&L was the amount that the company had contributed to the fund during the year; ie cash accounting. When a surplus in the fund arose, it was common practice to cease contributions, and take a contribution holiday. This meant that the P&L appeared to be more healthy than before. Accounting standards like SSAP24 tried to move accounting from a cash basis to an accrual basis of accounting.

The question addressed by accounting standards is how to charge the P&L with amounts over time so that the future liability FS-AD will be met. The basic approach is to allocate this cost in relation to the increase in the years of service by employees.

There are two main methods to implement this approach: the accrued benefits methods and the prospective benefits method.

##### Prospective benefits

With this method, the cost of making the provision is allocated evenly over the remaining working life of the employees.

##### Accrued benefits

This method is very common in practice and is implemented by the 'projected unit method'. This is the method required in IAS19, FAS87 and FRS17. It allocates a lower proportion of the cost in the early years and a higher proportion in the later years. The reason for this is simple. It is that the cost to the company of providing the additional pension for one extra year's service is smaller in the early years. In the early years every £1 invested has a longer time to accumulate. In contrast, the cost of providing the additional pension for the last year of service is relatively high because there is no time for the amount to accumulate.

#### II - PENSION ASSETS AND LIABILITIES

Another accounting issue is how the position (surplus or deficiency) of the pension scheme or fund is linked with the accounts of the company. For example, should the assets and liabilities of the scheme be treated as assets and liabilities of the company? Or should the fund be accounted for as a quasi subsidiary? The approach taken in IAS19, FRS17 and FAS87 is that the fund is separate from the company. This makes sense since a merging of the two sets of accounts would make it quite complicated to understand the trading position of the company.

However, a surplus or deficit of the fund *is* shown in the company accounts. Although a fund surplus is not owned by the company (it is owned by the members) the existence of a surplus does allow the company to reduce its contributions in the following years or it may be able to obtain a refund of past contributions. In this sense the reduction relative to previous expectations is an asset of the company. A deficit in the scheme should also be treated as a liability of the company, since the company has a contract with each employee to provide defined benefits.

We shall see later how the surplus or deficit is dealt with in the company accounts. But first we need to discuss how to measure the assets and liabilities of the fund.

## 4. The measurement of assets and liabilities

Up to now, we have (purposely) been unclear about exactly how these items are to be measured. There are two main rival approaches, the actuarial basis and the market basis. The main difference is that the market basis incorporates current expectations whereas the actuarial basis incorporates long run expectations.

### I - ACTUARIAL BASIS

#### Benefits earned to date

In estimating the benefits earned to date (BE), we need to make some financial assumptions about the future. For example the future rate of inflation and the rate of growth of the economy will affect the final salary which an employee has. Mortality rates during and after employment will also influence the benefits (based on the current amount of service) which employees will require. Similarly, typical promotion pathways will need to be anticipated. These calculations are made by actuaries who advise pension funds, and therefore it would seem sensible to incorporate their measurements in the company accounts.

#### Assets accumulated to date

It might seem a simple matter to measure the assets accumulated to date (AD). The current market price of the assets is what we need. Why do we need an actuarial approach? The point to remember here is that we are not interested in the selling value of the fund's assets for their own sake, but whether they are sufficient to fund the liabilities BE, the payments that will be made to employees in the future on the basis of their service to date. Therefore we need to consider how these assets will behave from now until that time. Another way of looking at this is that we need a long run value rather than the current market value.

Although the current asset prices will have beliefs about future growth and inflation rates impounded in them, they may reflect short term beliefs. The horizon for pension liabilities may be very long (30-40 years) and such beliefs may not be impounded in prices. In particular, market prices will reflect a number of horizons, weighted by the beliefs and preferences of investors who have traded. The fund will also have a number of horizons in mind depending on the timing of the payments that it needs to make. However, there is no reason to suppose that the funds weighted horizon will coincide with that impounded in the current market price.

### II - MARKET BASIS

In this approach market prices are used to estimate benefits earned and assets accumulated to date.

#### Assets accumulated to date

AD is the most obvious use for a market approach, as mentioned above. In a very general way, the debate between actuarial and market values really depends on whether we think asset prices behave as a random walk or not. If asset prices follow a random walk, then today's price is the best predictor we have for the price at ALL horizons. Horizon only matters if we think we know the time series properties of asset prices.

#### Benefits earned to date

But the benefits earned to date can be market based as well. Although we will need to make

demographic assumptions to estimate the future cash flows which will need to be paid, we will also need to calculate the present value of that liability. This present value calculation can be made by establishing what insurance companies would charge, now, to provide these cash flows in the future.

One of the problems with this approach is that the price insurance companies would charge reflects their costs. These costs are not necessarily the same as those costs which pension funds would face. For example, in many countries, insurance companies are required to invest only in fixed interest stocks. However, pension funds can invest in equities as well. Consequently, if fixed interest yields are lower than equity yields, the amount it would cost an insurance company to provide an annuity in the future would exceed the cost of a pension fund. Therefore using market rates would overstate the benefits earned to date.

### **Overall**

The broad conclusions of the ASB 1995 discussion paper is that the use of market prices is inappropriate. Market rates do not reflect the long term assumptions which are required for pension accounting. Market rates would therefore give rise to excessively volatile estimates of the pension liability and also the surplus or deficit of the scheme.

Also, the yield on bonds as a discount rate will tend to overstate the cost of pension provision. Following the decision by IASC to use a market based approach, similar to US GAAP, with liabilities discounted at the high quality bond yield, the ASB published another discussion paper (1998) suggesting that a discount rate matching the characteristics of the liability would be more appropriate. This is similar to the method used by actuaries.

## ***5. Dealing with gains and losses***

Another important accounting issue is the treatment of gains and losses, surpluses and deficits which arise when the assumptions made in a previous accounting period are not fulfilled.

One first thing to note is that under the actuarial approach these items are less likely to arise, since long term assumptions are used. As long as the actuary still believes that the long term assumptions are correct, then no adjustment is made for short term market movements.

The types of change which need to be considered are:

- when economic assumptions (for example, about long run inflation rates) are no longer valid;

- when the demographic assumptions (for example, about life expectancy after retirement) are no longer valid;

- when improvements are made to the pensions of existing employees;

- when improvements are made to the pensions of those already retired.

## **I - CHANGING ASSUMPTIONS (EXPERIENCE VARIATIONS)**

When assumptions are changed, this normally gives rise to two effects: a difference between assets accumulated to date (AD) and the benefits earned to date (BE); and a change in the cost of providing the final stream of benefits (FS). For example, if equity yields over the long term are expected to be lower, then this will give rise to a deficit, as the AD will not be sufficient to meet the stream of benefits already earned (BE). It will also increase the cost of providing the full stream of benefits (FS) over the long term

One approach is to write off these variations over the remaining life of the employees. The reason is that the benefits which are to be provided are in the future, and the company is smoothing the cost between now and when the liabilities eventually materialise. Exactly how the writing off takes place will be considered when we outline the requirements of IAS.

## **II - IMPROVEMENTS TO PENSIONS OF EXISTING EMPLOYEES**

These are generally written off over the remaining life of the employees. That which relates to the future service of the employees will naturally be charged to future P&Ls.

However, what happens about the past years of pension rights already earned? For example, if the pension is changed from a fixed amount to inflation adjusted, then this will benefit the pension rights that employees have already earned<sup>1</sup>. These are called past service costs. These costs also tend to be spread over the remaining years of service. The argument seems to be that it is very similar to a deficit. The only difference is that the cause is the company changing the benefits rather than the market assumption changing.

## **III - BENEFIT CHANGES AFFECTING FORMER EMPLOYEES**

With this category of staff, there is no time to smooth out the extra cost of past service costs. Therefore, the ASB 1995 discussion paper considers that these costs should be charged immediately to the P&L.

We now turn to a comparison of IAS, US and UK GAAP to see how these (and other) matters are treated .

## **6. IAS19, FAS87 and FRS17 <sup>2</sup>**

IAS19 is effective for accounting periods beginning on or after 1 January 1999

FAS87 is effective for accounting periods beginning on or after 15 December 1986

FRS17 is effective for accounting periods ending on or after 22 June 2002. UK companies will need to comply with IAS (as a member of EU) from 2005.

---

<sup>1</sup>as well as increasing FS and probably creating a deficit

<sup>2</sup>IAS 19 Retirement benefit costs; FAS87 Employers accounting for pensions; FRS 17 Retirement benefits

## I - A BROAD COMPARISON

The main features of the standards are captured in the table below.

	IAS 19	FAS 87	FRS 17
Assets accumulated to date	at market prices	at market prices	at market prices
Pension liability	actuarial estimates of the cash flows discounted at yield on high quality corporate bonds	similar to IAS	actuarial estimates of the cash flows discounted at yield on high quality bond of the same term as scheme liabilities
surpluses and deficiencies in performance statements	<b>within</b> a 10% (of scheme assets) corridor, not recognised  <b>outside</b> the 10% corridor, amortise the amount outside the corridor over remaining service lives	similar to IAS	actuarial gains and losses to STRGL
surpluses and deficiencies in the balance sheet	recognised	as IAS	as IAS
past service costs	for <b>current</b> employees, amortise over remaining service lives  for <b>past</b> employees, immediate recognition in P&L	for current and past employees, amortise over remaining service lives of current employees	as IAS19
revaluation of scheme assets	so that values disclosed are not materially in error	revalued annually	full revaluation every 3 years, with annual update

## II - FUND VOLATILITY

The main difference between the standards is how they deal with the volatility in the net position of the fund. In all standards, the net position is recognised in the balance sheet. However, they differ as to how they deal with the surpluses and deficits in the P&L (the performance statement).

In IAS19 and USGAAP, as long as the movement is within the larger of

10% of the plan assets or  
10% of the (present value of the) obligation

it is not recognised in the income statement. That is the deficit (surplus) is recognised in the balance sheet, but the amount never hits the P&L. If the surplus exceeds the corridor, then the excess is amortised over remaining lives of employees.

FRS17 takes a different view. The actuarial gains and losses are placed permanently in the STRGL, so that they never hit the P&L.

Despite the different approach taken by FRS17 from IAS19 and FAS87, the effect on the P&L will be similar; it seems unlikely that the P&L position will be affected. But the gains and losses will have a large impact on the balance sheet (and consequently on the level of gearing and rate of return).

### **III - DISAGGREGATION OF COSTS**

In all the standards, costs are disaggregated in much the same way.

#### **Current service cost**

This is the budgeted increase in the liability due to the increase in the service of employees.

#### **Interest cost**

This is the increase in the liability because it is getting closer to settlement

#### **Expected return on assets**

This is the return on the fund's assets, but based on the assumptions valid at the beginning of the reporting period. These are the assumptions underlying the calculation of the current service cost. This might seem strange, but it is a mechanism to enable all deviations from plans at the beginning of the period to be incorporated in to another item (actuarial gains and losses). In FRS17 this item is netted off against interest cost.

#### **Actuarial gains & losses**

These are the deviations from the expectations at the beginning of the period.

#### **Past service costs**

These are the increase in liabilities related to employees in prior periods. They can be either current employees or past employees.

### **IV - THE DISCOUNT RATE FOR THE LIABILITY**

In all standards, the discount rate for the liability is the bond rate. As both ASB discussion papers make clear, this is a very conservative approach and is likely to result in significant deficits because the present value of the liability is exaggerated. It seems likely that the IASB was persuaded by FAS87, and ASB in the UK was persuaded by the fact that from 2005, EU registered companies will need to comply with IAS anyway. There would be little point in defending the position for just 3 years.

## V - DO THE STANDARDS MAKE SENSE?

One answer to this comes from Ernst & Young *UK and International GAAP* (7<sup>th</sup> edition, 2001, page 1641).

“FRS 17 and IAS 19 now adopt a balance sheet focussed mark to market approach to pension schemes, even though there is rarely any intention or necessity for companies to liquidate such schemes in the short or the medium term. This approach makes sense in terms of the IASC framework and the ASB’s Statement of Principles, but in our view this simply illustrates the inappropriateness of these concepts.”

There is much to be said for this comment. The IASB’s obsession with assets and liabilities seems a little misplaced, given that markets and valuation models are driven largely by earnings. The ASB general defence<sup>3</sup> is that it stops manipulation of the P&L. But sometimes the medicine is so tough that it also kills the patient! In this particular case, the defence is probably:

The amounts will not generally hit the P&L<sup>4</sup>;

It *is* useful for investors to realise that the company may have significant deficits (or surpluses) that would not otherwise be on the balance sheet. And if, as many have said, that mark to market is likely to give rise to some volatility, then the net position of the fund on the company’s balance sheet will be around zero.

In fact it is not the mark to market approach which is the key problem. The most worrying aspect of the standards is the use of the bond rate to discount the liability, despite the fact that scheme assets are likely have a significant equity involvement. This means that the liability will be exaggerated and the deficits in the first application of standards (IAS19 and FRS17) will be substantial.

---

<sup>3</sup> in the FAQ of the student section

<sup>4</sup> and never in the case of FRS19!