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The logic of pension accounting

Christopher J. Napier*

Abstract—Accounting for pensions has been a problem for standard-setters for over 30 years. Early attempts to develop accounting standards were based on a cost orientation and reflected funding considerations. More recently, a balance sheet focus has led to issues over identification and measurement of pension liabilities and assets. Accounting standards that permit enterprises to ignore, spread or segregate elements of pension cost, or to create artificial cost measures, are open to criticism and are gradually disappearing. The aim of a principle-based pension accounting system will be to ‘tell it as it is’, fairly reflecting the rights and obligations of employers, employees and funding vehicles. This means, though, that these complex rights and obligations must be properly understood. By focusing on pension liabilities, this paper illustrates how accounting standards translate rights and obligations into numbers in financial statements.

Keywords: financial reporting; accounting principles; accounting standards; retirement benefits; liability measurement

1. Introduction

Accounting standard-setters have been wrestling with the issue of how to account for pensions and other retirement benefits for several decades. The International Accounting Standards Committee (IASC) included the issue of how employers should account for retirement benefits on their agenda in 1977, three years after the Financial Accounting Standards Board (FASB) had begun a ‘massive project’ on pension accounting (Camfferman and Zeff, 2006: 119). The fact that we are still discussing how to account for pensions in employers’ financial statements 30 years later is evidence of the difficulties that standard-setters have faced in understanding the changing nature of pension arrangements and the legal and social contexts in which they operate, and in translating this understanding into an operational and effective accounting standard. Along the way, standard-setters have made compromises to be able to develop standards that would be acceptable to preparers and users, but compromises have a tendency to return and haunt the standard-setting bodies. Does this mean that there is something intrinsic to retirement benefits that makes it difficult for standard-setters to arrive at solutions acceptable and workable in the long term? In this paper, I suggest that this is the

case to some extent – pensions and other retirement benefits represent complex arrangements that fit uneasily into the standard categories of financial reporting. However, standard-setters have also had to work against a changing background of state regulation of retirement arrangements, which have reformed pensions in often unforeseen ways. Moreover, financial reporting and its conceptual foundations have not remained static during the past 30 years, and the different approaches to accounting for retirement benefits that have been advocated during this period reflect the dominant accounting ideas of their time, and hence appear to be outdated as these dominant ideas change. Most notably, as the main focus of financial reporting (at least to standard-setters) has shifted from the determination of income or profit to the identification, measurement and recognition of assets and liabilities, so ‘accounting for the cost of pensions’ (Napier, 1983) has been overtaken by ‘rethinking pension liabilities’ (Ryan and Fabozzi, 2002).

When the IASC Foundation, the parent body of the International Accounting Standards Board (IASB), set out its constitution, it chose as its primary objective:

‘To develop, in the public interest, a single set of high quality, understandable and enforceable global accounting standards that require high quality, transparent and comparable information in financial statements and other financial reporting to help participants in the world’s capital markets and other users to make economic decisions.’ (IASC Foundation, 2002, para. 2(a))

How can a standard-setter tell whether the goal of producing standards that provide these qualities has been achieved? In other words, what makes a standard ‘high quality’? One approach focuses on the way in which information prepared in accor-

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dance with standards is used in practice, but as actual use may be difficult to observe, researchers may assess quality by investigating the extent to which information in financial statements helps to 'explain', in a statistical sense, the values attributed to company securities by capital markets. This is referred to as 'value relevance' research.¹ Another approach considers the effects or consequences of particular accounting treatments on the actions of managers and others. A standard that seems to encourage particular actions or deter others may be considered 'high quality' by those who support the consequences alleged to flow from the preparation and use of financial statements compiled in accordance with the standard, while those who dislike or oppose the claimed consequences are more likely to challenge the standard (Zeff, 1978).

Standard-setters may not be able to study the value relevance of proposed recognition, measurement and disclosure standards if these introduce new accounting requirements or imply significant changes to existing requirements. At the same time, standard-setters, at least in their public pronouncements, stress that their role in developing standards is to 'tell it as it is' (Tweedie, 2007: 7), while ignoring, or at least giving little credence to, claims that a proposal would have 'adverse economic consequences' (Tweedie, 2005). So a high quality standard would be one that succeeds in 'telling it as it is', that is, it leads to accounts that faithfully represent the underlying economic and commercial phenomena that the standard addresses.

How do standard-setters decide that a particular standard will lead to accounts providing such a faithful representation? This poses a challenge to some theorists of financial reporting (for example, Hines, 1988; Macintosh et al., 2000; Macintosh, 2002), who ask whether 'telling it as it is' can be possible in the straightforward sense that many accounting standard-setters seem to imply. Standard-setters need to ensure that any standard is consistent with a conceptual framework or statement of principles. Modern standard setting is at least, in part, a deductive process, where the concepts enunciated in a pre-existing framework are applied to a specific situation to 'tell it as it is'. A high quality standard is thus one that achieves the goal of faithful representation within the conceptual framework.

Attempts to develop accounting standards for retirement benefits, in particular pensions, have reflected the main conceptual assumptions in place at the time the standards emerged. In particular,

early pronouncements reflected an emphasis on cost measurement, while more recently the focus has been on the determination and measurement of liabilities and assets, with pension expense emerging as a by-product. I begin by reviewing early pension accounting standards based on the desire to measure pension cost appropriately. Next, I look at the shift to determining the pension liability, first deciding what the liability is, and then how to measure that liability. I then consider the effect that assets dedicated to the payment of pensions have on the liability, whether these assets are held directly by the employer or through an investment vehicle such as a pension fund. Finally, I review how accounting for liabilities and assets affects the determination of pension expense, and conclude with some brief remarks on disclosure.

2. Pensions as an expense

2.1. Early approaches to pension accounting

In the USA and UK, private-sector employer-sponsored pension arrangements began to appear in the second half of the 19th century, and were often associated with large organisations such as railways, insurance companies and banks (Hannah, 1986: 10–12; Chandar and Miranti, 2007: 206). Accounting for these arrangements was often very simple. The cost recognised by the employer was effectively the cash paid in a given period. Some schemes operated on a 'pay-as-you-go' basis, where the employer made no advance provision for retirement benefits. In this case, the cost each period equalled the benefits paid. In a scheme where the employer made contributions to an external fund invested in securities, out of which benefits would be paid, or made notional contributions to an internal account, the cost would be the contributions arising in each period, possibly augmented by interest on notional contributions if these were not used to purchase securities. However, many employers granted pensions to enable employees to retire, even though no advance provision had been made.

The 'expense-as-you-pay' accounting for pensions was rationalised through the 'gratuity theory' of retirement benefits (McGill et al., 2004: 16). This theory proposed that retirement benefits were awarded to retirees at the discretion of the employer, 'as a kindly act on the part of an employer towards old retainers who have served him faithfully and well' (Pilch and Wood, 1979: 2). Paying a pension was not necessarily an act of pure benevolence, because it could allow an employer to retire an employee who was no longer performing adequately, without incurring public criticism. The gratuity theory implied that the employer received an efficiency gain when superannuated employees retired, and that the appropriate point at which to recognise the cost of pensions was as the pensions

¹ The significance of 'value relevance' research has been defended in detail by Barth et al. (2001), a response to criticism of the approach from Holthausen and Watts (2001).

were paid. If the employer wanted to earmark some earnings in a distinct pension reserve before employees retired, then this would be regarded as an appropriation of profit rather than as an expense. Even in structured pension schemes, the employer might include clauses denying the existence of an enforceable contract, stressing that pension benefits were paid entirely at the employer's discretion and could be discontinued at any time (Stone, 1984: 24).

However, the gratuity theory rapidly came under challenge from the view that pensions constitute 'deferred pay', and that employees in effect sacrifice current income in exchange for the expectation of income in the future. On this basis, early accounting theorists such as Henry Rand Hatfield suggested that employers should include in operating expenses 'the amount necessary to provide for future pensions' (Hatfield, 1916: 194). A number of commentators observed that the calculation of such an expense was potentially highly complex, but they suggested that the calculations fell within the domain of actuaries (Stone, 1984: 26). Members of the actuarial profession had already been involved in advising on appropriate contribution rates for pension schemes involving either external or internal 'notional' funding. In accounting terms, the employer would measure the annual cost of pension provision either directly in terms of amounts calculated by actuaries, if the route of internal funding was followed, or through the contributions (themselves determined by actuaries) to an external pension fund. In the case of external funding, cost would be equal to contributions due for the period, and, other than short-term accruals, pension expense would be based on cash payments (or other assets transferred) to the pension fund.

2.2. *The beginnings of accounting regulation*

Early authoritative accounting pronouncements endorsed this essentially cash-based approach to pension cost determination. The Committee on Accounting Procedure of the American Institute of Certified Public Accountants (AICPA) issued Accounting Research Bulletin No. 47 *Accounting for Costs of Pension Plans* in 1956, and expressed the view that 'costs based on current and future services should be systematically accrued during the expected period of active service of the covered employees' (CAP, 1956). On closer analysis, 'systematic accrual' implied that employers would use the method recommended by the actuary for funding the pension plan to determine the pension expense in respect of current service. This approach was endorsed by the Accounting Principles Board (APB) in their Opinion No. 8 *Accounting for the Cost of Pension Plans*, issued in 1966. APB 8 is entirely cost-based – there are references to 'balance-sheet pension accruals' and 'balance-

sheet pension prepayments or deferred charges', but no explanation of these terms or how they are to be determined. Much of the Opinion addresses not the issue of determining 'normal cost' ('the annual cost assigned, under the actuarial cost method in use, to years subsequent to the inception of a pension plan or to a particular valuation date') but rather 'past service cost' ('pension cost assigned, under the actuarial cost method in use, to years prior to the inception of a pension plan') and 'prior service cost' ('pension cost assigned, under the actuarial cost method in use, to years prior to the date of a particular actuarial valuation'). The Opinion goes to great lengths to provide guidance on how these components of pension cost should be recognised, recommending spreading of the costs over a period up to 40 years.

A number of features of the accounting treatment of pension costs need to be highlighted. First, although it is not made explicit, there is an underlying desire to arrive at a pension expense in each period that is not materially different from the employer's contributions to the pension fund. APB 8 notes 'the amount of the pension cost determined under this Opinion may vary from the amount funded' (APB, 1966: para. 43), but this situation is not analysed in detail. For unfunded pension plans, costs are to be determined using an actuarial cost method. The criteria for the selection of an appropriate actuarial cost method are that the method is 'rational and systematic and should be consistently applied so that it results in a reasonable measure of pension cost from year to year' (para. 23), and several methods commonly used at that time in the USA for determining pension funding are endorsed as meeting the criteria. Second, there is an emphasis on avoiding short-term fluctuations, so extensive use of cost-spreading is supported. This applies particularly to actuarial gains and losses. APB 8 recognises that, given the need for actuaries to make a range of estimates in arriving at their cost or funding recommendations, differences between original estimates and actual outcomes (or revised estimates) need to be dealt with. The Opinion recommends that the accounting impact of actuarial gains and losses should be accounted for by spreading them over a period of between 10 and 20 years or by adjusting the normal cost by an estimate of the average actuarial gains and losses arising over several years. Third, the Opinion makes a distinction between defined-benefit and defined-contribution plans and suggests different accounting approaches for the two types of plan. Fourth, the Opinion provides no theoretical rationale for its recommendations, while basing some provisions on the accidents of current US tax practices.

The cost approach to pension accounting was not surprising at a time when the main objective of

financial reporting was considered to be the determination of an entity's periodic income, and accounting problems centred on the timing of revenue recognition and the matching of costs with revenues. Accounting for most costs involved either the recognition of cash payments during a given period, adjusted for short-term accruals, or the systematic allocation over several periods of a known or straightforwardly estimated amount. Cost-based pension accounting combined these aspects. The main accounting problem was not perceived to be 'normal pension cost' but rather 'past service cost', which arose typically when a pension plan was introduced or substantially improved and employees were granted benefits retrospectively. From the 1940s to the 1970s, in countries where external funding through employer-sponsored pension plans was the norm, new and improved schemes tended to be defined-benefit in form.² In other countries, state provision for retirement often took care of the needs of the majority of the population, and private saving rather than employer provision was more likely to be favoured by higher earners.

2.3. A search for conceptual foundations

A sense that the cost approach lacked a firm foundation was expressed by Dewhirst (1971), in one of the earliest papers on pension accounting in the academic literature. Dewhirst's view was that actuarial funding methods were developed for a specific purpose – determining a systematic contribution to an external pension plan that would, over time, cover the benefits paid out by the plan. Different funding methods led to different patterns of contributions, and also to different levels of funding, but these were *financing* choices for the employer. Dewhirst instead proposed basing pension cost on the 'work-life pattern (timing) of employee labour services exchanged for pension benefits' (Dewhirst, 1971: 366). He envisaged that the total package of benefits accrued by each individual employee was earned by the total services provided over the employee's working life with the employer, and the pension cost each period should be determined by allocating the total cost of providing the benefits in proportion to the labour services provided each period. Dewhirst thought that this allocation could reflect patterns of efficiency among the employees.

Underlying Dewhirst's ideas is what Napier (1983: 34–44) was subsequently to refer to as the 'pension exchange'. Cost-based accounting for

pensions will focus on the exchange transaction between the employer and the employee. This means that it is necessary to characterise what the employer is giving and what the employee is giving to achieve the exchange. Napier (1983: 34) suggested that 'the employer's side of the pension exchange is the promise to pay benefits'. The employee's side of the exchange was more difficult to characterise. Napier (1983: 35) noted that 'the employee is foregoing remuneration or providing services', but commented that 'it would be hard to identify, let alone value, the marginal labour services which an employee provides as a result of the employer's pension promise [while] it rarely happens that employees are faced with the choice between current remuneration and pension provision.' Napier concluded that 'measurement of the remuneration foregone in exchange for the pension promise would involve the accountant in assessing imaginary events or transactions.'

Accounting does not develop in a vacuum, and external factors had an impact on accounting for pensions. In the USA, growing concerns about the extent to which employer-sponsored pension schemes were financially secure led to the passing in 1974 of the Employee Retirement Income Security Act (ERISA). This established that employers sponsoring pension plans were financially responsible for the obligations of the plans, and established the Pension Benefit Guaranty Corporation (PBGC) to insure defined benefit plans. In the UK, the stock market decline of 1974, coupled with abnormally high price inflation, left many pension funds requiring additional contributions from employers to cover deficits on actuarial valuations. Pension accounting became a matter of concern to accounting standard-setters.

An initial effect of this was a demand for research. The Canadian Institute of Chartered Accountants (CICA) commissioned T. Ross Archibald, who worked for Price Waterhouse, to investigate the issue, and his research report, *Accounting for Pension Costs and Liabilities (A Reconciliation of Accounting and Funding Practice)* (Archibald, 1980), provided a manual of actuarial practice for accountants. Archibald's report is copiously illustrated with graphs, charts and complex spreadsheets, which show how pension costs determined in accordance with a range of actuarial methods would evolve over several decades. Archibald aimed at eliminating certain actuarial methods that he considered were inconsistent with 'proper accounting'. Although he did not specify a particular method as desirable in all cases, he favoured a method that he labelled 'ABVM/K\$B' (accrued benefit valuation method with constant dollar benefit) (Archibald, 1980: 182). Archibald also endorsed the use of final salary projections for defined benefit schemes

² In 1981, for example, in the UK, about 90% of schemes surveyed by the National Association of Pension Funds were final salary or final average salary schemes (Napier, 1983: 13). Many of these had been established or extended to the whole workforce of particular enterprises since the end of the Second World War.

where the pension benefits are based on salaries at or close to retirement, arguing:

'[T]he final pension benefit and presumably the costs associated are not based on any interim salary but based on the final amount as calculated on the base of the number of years of service. Such a reality may be difficult to accept but the fact remains that this is the outcome of the pension promise in final pay plans.' (Archibald, 1980: 173)

The UK study on pension accounting, *Accounting for the Cost of Pensions* (Napier, 1983) follows a similar line of argument to that of Archibald. Having rejected the idea of measuring pension cost directly in terms of foregone salaries or incremental labour services, Napier (1983: 36) concludes that possible contenders for the conceptually sound method of determining pension cost are: (a) the contributions due to the pension fund in the period; (b) the increase in the employees' current rights to benefits; and (c) the increase in the employees' expectations of benefits. Leaving aside issues of how current rights are determined, the main difference between options (b) and (c) is that current rights are determined by reference to current pay levels while expectations reflect future pay levels on which the amounts of benefits will depend. Napier pursued this idea of focusing on liabilities, and identified what he called the 'accrued expectations liability' – option (c) – with Archibald's preferred method. He also noted that this method was usually referred to as the 'projected unit credit method' by actuaries. However, at this stage, Napier backed away from pursuing a liability approach, observing that he did not 'consider that the accrued expectations liability is significantly better for the purposes of measuring accounting liability and pension expense than the particular actuarial funding method used by the employer, on which the employer's cash flows depend' (Napier, 1983: 114). Not all actuarial funding methods were acceptable, however, given the fundamental accounting concepts of 'going concern' and 'accruals'. Acceptable methods involved recognising cost over employees' working lives for an employer, and also required salaries to be projected. In practice, however, most actuarial methods in use in the UK at that time satisfied these requirements.

2.4. *Compromise on costs and the cost of compromise*

This compromise approach was to be reflected in the first UK accounting standard on pensions, SSAP 24 *Accounting for Pension Costs* (ASC, 1988). SSAP 24's requirements are remarkably similar to those of APB No. 8. The standard focuses almost entirely on determining costs, with a sin-

gle paragraph (para. 86) on the balance sheet. The core of the standard is the 'accounting objective':

'From the point of view of the employee a pension may be regarded as deferred remuneration; from the point of view of the employer it is part of the cost incurred in obtaining the employee's services. The accounting objective therefore requires the employer to recognise the cost of providing pensions on a systematic and rational basis over the period during which he benefits from the employees' services. Many companies have, until now, simply charged the contributions payable to the pension scheme as the pension cost in each accounting period. In future, to comply with this Statement, it will be necessary to consider whether the funding plan provides a satisfactory basis for allocating the pension cost to particular accounting periods.' (SSAP 24, para. 16)

Implicit in this was the belief that, for most employers, the funding plan would indeed turn out to be a satisfactory basis.

Two features of SSAP 24 were potential 'mines' waiting to blow up in future years. The first of these were the assumptions to be used in determining the pension cost, which were required to lead to 'the actuary's *best estimate* of the cost of providing the benefits promised' (SSAP 24, para. 79, emphasis added). This allowed the accounting calculations of the 'regular' pension cost to be based on different assumptions from those underpinning the actuary's calculations of contributions. Pension cost in a given period could vary substantially from pension contributions, leading to amounts appearing on the employer's balance sheet. The other feature was the treatment of so-called 'experience surpluses and deficiencies', which would now be called 'actuarial gains and losses'. These, and other 'variations from regular cost', were to be allocated over the 'expected remaining service lives of current employees in the scheme' (SSAP 24, para. 80). Napier (1983: 137–138) suggested that experience deficiencies (actuarial losses) should be recognised immediately in the income statement and as liabilities on the balance sheet in respect of the additional funding that such deficiencies would require. Experience surpluses (actuarial gains) could be recognised as assets if they would be 'realised' through lower contributions over a short term. However, by treating actuarial gains and losses as part of a general class of 'variations from regular cost', SSAP 24 led to spreading and smoothing.

As already noted, compromises come back to haunt standard-setters. With the rise in security values in the early 1980s, the fall in inflation and increases in labour turnover, many schemes that had been in deficit a few years earlier were now

showing surpluses (Napier, 1986). Faced with pressure from the tax authorities to reduce surpluses, companies began taking 'contribution holidays', reducing or even dispensing altogether with contributions to the pension scheme and meeting benefits out of earnings on the scheme's investments. In this situation, SSAP 24 could easily produce measures of pension cost that were virtually impossible to interpret. For example, a company paying nothing into the pension fund for several years could show a net cost (because the 'regular cost' would go on being recorded) or even a net gain (if the spreading of the 'variations from regular cost' resulted in a greater credit in a given year than the debit from the regular cost). The balance sheet could show a liability when the scheme was in surplus and an asset when the scheme was in deficit. The cost of the compromise represented by SSAP 24 was that a logical basis for financial reporting had been sacrificed, and hence SSAP 24 turned out not to be 'high quality'.

3. Pensions as a liability

3.1. A different starting point

Alongside the studies by Archibald (1980) and Napier (1983), the Financial Accounting Standards Board (FASB) published a Discussion Memorandum *Employers' Accounting for Pensions and Other Postemployment Benefits* (FASB, 1981). This document aimed to raise questions as much as supply answers. Unlike the other studies, the FASB's Discussion Memorandum begins by asking the question: 'what is the liability relating to pensions that the employer should recognise in the financial statements?' It then addresses pension expense, and gives an indication that the preferred possibility would be to attribute the cost of an employee's pension 'to periods of the employee's service in some systematic and rational way in order to determine the liability (if any) and the expense' (FASB, 1981: para. 52). The method of attribution is seen as a measurement issue, and the usual actuarial funding methods are exposed for consideration. Options are presented for measuring gains and losses, assets and liabilities that might arise through changes in the pension plan and through actuarial gains and losses, and the degree to which employers' accounting for pensions carried over to accounting for other retirement benefits, such as retirees' health insurance, is addressed.

The FASB Discussion Memorandum did not provide explicit recommendations, but it set out the issues clearly. Several of the questions it posed are still being asked (for example, by the Pro-

Active Accounting Activities in Europe – PAAInE – initiative: PAAInE, 2008). In the accounting standard that followed, SFAS No. 87 (FASB, 1985), the FASB anticipated the behaviour of the ASC in Britain and compromised. In a standard approved by the Board by a bare 4–3 margin,³ the regular 'service cost' was calculated by attributing units of benefit to periods of service in line with the pension benefit formula. Benefits were to be estimated using 'future compensation levels' (para. 46), and these were also taken into account in measuring the 'projected benefit obligation' (PBO), defined as: 'The actuarial present value as of a date of all benefits attributed by the pension benefit formula to employee service rendered prior to that date. The projected benefit obligation is measured using assumptions as to future compensation levels if the pension benefit formula is based on those future compensation levels' (FASB, 1985: 104). Other elements in the income statement were the interest arising on the PBO during the year, returns on plan assets, past and prior service costs, and actuarial gains and losses, the latter being spread rather than recognised immediately. However, as well as having to consider the possibility of assets and liabilities arising because amounts contributed up to the balance sheet date were likely to differ from amounts recognised as net pension expense, SFAS No. 87 also required that the minimum liability recognised should be equal to the amount by which the fund assets (measured at fair value) fell short not of the PBO but rather of the 'accumulated benefit obligation' (ABO), determined on effectively the same basis as the PBO but without allowing for future salary increases. The FASB thus built into its pension standard a series of inconsistencies and smoothing devices that would lead to anomalous income statement and balance sheet numbers.

The disclosure of different potential measures of pension liability provided an opportunity for research into which measure appeared to be best associated with market valuations of corporate equity (Daley, 1984; Landsman, 1986; Barth, 1991), with the PBO being generally favoured over other liability measures. Some support for this outcome came from contemporaneous research in the field of labour economics, with Ippolito suggesting that there was an 'implicit contract' between workers and their employer under which 'workers anticipating careers with a firm will consider the package of wage and pension benefits they expect to collect over their life cycle' (Ippolito, 1985: 1031). Workers would take into account, and current remuneration would reflect, pension expectations based on final salaries (if these were incorporated into the benefit formula) rather than the lesser pension expectations, based at best on current salaries, that would accrue to

³ Two members, Victor Brown and Robert Sprouse, thought that SFAS No. 87 was too radical, while one member, Arthur Wyatt, thought it was not radical enough.

workers if the employer were to terminate the pension plan immediately. Ippolito found support for the implicit contract view from an examination of career pay patterns for members of defined benefit schemes, but his data related to US employees retiring in the period 1967–1977, which are unlikely to be representative of more recent pay patterns. The FASB compromised on the issue of whether accounting measures should try to reflect such suggested ‘implicit contracts’ or should be based on a literal reading of the employment contract within the current system of pension law and regulation (advocated by economists such as Bulow, 1982) in SFAS No. 87, since the measurement of service cost and the spreading of variations reflected the implicit contract while the measurement of liabilities was closer to a legal approach.

3.2. Moving closer to a pure liability approach

The original International Accounting Standard on pensions, IAS 19 *Accounting for Retirement Benefits in the Financial Statements of Enterprises* (IASB, 1983) was oriented towards measuring costs for the income statement, and was flexible enough to permit companies the choice of whether or not to use salary projections in measuring the regular pension expense. As part of the IASB’s Improvements project (Camfferman and Zeff, 2006: 285), a revised version of IAS 19, *Retirement Benefit Costs* (IASB, 1993) made the use of salary projections the ‘benchmark’ treatment, but continued to follow the orientation towards the income statement of the earlier document. This was soon to change, as the next revision of IAS 19, *Employee Benefits* (IASB, 1998a) moved towards a balance sheet approach, with a requirement to recognise:

- (a) a liability when an employee has provided service in exchange for employee benefits to be paid in the future; and
- (b) an expense when the entity consumes the economic benefit arising from service provided by an employee in exchange for employee benefits. (IAS 19, Objective)

IAS 19 has subsequently undergone several amendments, but the broad objective is unchanged.

A similar revolution took place in the UK, with the Accounting Standards Board replacing SSAP 24 with Financial Reporting Standard 17 *Retirement Benefits* (ASB, 2000). In practice, the introduction of FRS 17 was delayed so much that most listed UK companies moved straight from SSAP 24 to IAS 19 on first time adoption of International Financial Reporting Standards after 2005. IAS 19 is consistent with FRS 17 in allowing British companies to follow the accounting practices required by the ASB’s standard, but IAS 19 provides some alternative accounting treat-

ments for actuarial gains and losses, and a few UK companies have taken advantage of these options. In the USA, the FASB revised SFAS No. 87 in SFAS No. 158 *Employers’ Accounting for Defined Benefit Pension and Other Postretirement Plans* (FASB, 2006). This required employers to recognise the funded status of pension plans by comparing the fair value of plan assets with the PBO rather than the ABO. Rather than removing the various spreading devices for elements of pension costs that SFAS No. 87 required, the new standard retained these but allowed the income statement and balance sheet to integrate with each other by requiring companies to include the previously unrecognised elements of pension gains and losses elsewhere in comprehensive income, with various ‘recycling’ techniques being needed as these gains and losses were included in the ‘net periodic benefit cost’.

Given the substantial, though not complete, convergence of accounting standards relating to retirement benefits, the remainder of the paper concentrates on an analysis of the logic underpinning the current version of IAS 19, set against the background of the *Framework for the Preparation and Presentation of Financial Statements* (IASB, 1989) and other IAS standards.

3.3. Identifying the pension liability

In their discussion of accounting for intangibles, Napier and Power (1992) suggested that the logical approach to the question of whether or not to include intangibles on the balance sheet involved first the identification of an accounting asset, and only then a consideration of the amount at which the asset would be measured. However, they observed that ‘issues of identification, recognition and measurement are so heavily interrelated in practice that it is often impossible to distinguish between them’ (Napier and Power, 1992: 86). This applies to liabilities as well as assets. It is difficult to separate the conceptual identification of the employer’s pension liability from the measurement of that liability. For example, is the use of projected salaries purely a measurement issue, or is it fundamental to deciding what the pension liability actually is, in accounting terms? In the present versions of the main financial reporting standards, little attention is paid to explaining in conceptual terms, rather than discussing the calculation of, such notions as a ‘defined benefit obligation’. The definition offered by IAS 19 (‘expected future payments required to settle the obligation resulting from employee service in the current and prior periods’ – IAS 19, para. 7) is grounded in the ‘pension exchange’ that Napier (1983) identified, focuses on the obligation that the employer takes on in exchange for the pension promises included in the employment contract, and identifies the lia-

bility with the settlement of the obligation. This definition is clearly influenced by the *Framework*, where a 'liability' is defined as 'a present obligation of the entity arising from past events, the settlement of which is expected to result in an outflow from the entity of resources embodying economic benefits' (*Framework*, para. 49(b)). However, most of IAS 19 is taken up with discussion of the measurement of the defined benefit obligation, implying that its conceptualisation is relatively straightforward.

However, since the development of the *Framework*, the IASC and IASB, alongside other standard-setters and academics, have been giving careful thought to the conceptualisation of liabilities. Particular mention may be made of the study for the ASB by Lennard (2002); the report for the Association of Chartered Certified Accountants (ACCA) by Nobes (2003); and the review by Botosan et al. (2005). Lennard in particular compares the various definitions of an accounting liability offered by standard-setting bodies. A common feature is that accounting liabilities are *present obligations* – an obligation being defined by the *Framework* (para. 60) as 'a duty or responsibility to act or perform in a certain way'. So the pension liability to be recognised in the employer's financial statements at a particular point in time must be (or must be based on) the 'duty or responsibility' that the employer bears *at that point in time* in respect of the pension arrangements between the employer and both current and past employees.

Accounting for pension liabilities must now be viewed against the background of IAS 37 *Provisions, Contingent Liabilities and Contingent Assets* (IASB, 1998b). Although this standard does not as such apply to retirement benefits, the definition of a provision as 'a liability of uncertain timing or amount' (IAS 37, para. 10) has clear resonances for pensions, where the amounts of benefits to be paid and the periods over which payments are due are uncertain. IAS 37 differentiates between a 'legal obligation' and a 'constructive obligation', terms that are also used in IAS 19 (para. 52). The IAS 37 definition of 'legal obligation' covers obligations derived from implicit as well as explicit terms of a contract, as well as those flowing from legislation or 'other operation of law'. Constructive obligations are derived from an entity's actions, usually past practice or stated policies, giving rise to a legitimate expectation that the entity will fulfil certain responsibilities. The borderline between legal and constructive obligations may be difficult to identify, particularly given the doctrine of promissory estoppel (Botosan et al., 2005: 164) that exists in some legal regimes. However, the implication is that an analysis of the pension liability will require consideration as to what the employer's present obligation is.

The gratuity theory of pensions regarded the obligation as arising no earlier than the point of time when the employer granted the pension (typically upon retirement), and, if the continued payment of the pension was at the employer's discretion, a liability would arise only when each individual pension payment was due. The deferred remuneration theory of pensions implies that the liability is incurred in exchange for employees' services (establishing a pension scheme or the commencement of pensionable employment would not in themselves constitute an 'obligating event' – Napier, 1983: 101–106). What, however, constitutes the 'settlement' of the pension obligation? Some possibilities are:

- (i) payment of the benefits themselves;
- (ii) payment to a third party to assume liability for the benefits, with no further recourse to the employer;
- (iii) payment to a third party to assume liability for the benefits, with recourse to the employer if the third party is unable to pay the benefits;
- (iv) payment to a current or past employee to release the employer, or a third party, from an obligation to pay the benefits.

The first of these possibilities arises in an unfunded pension scheme. The second possibility arises in a traditional defined contribution scheme, but also represents the strict legal position of some defined benefit schemes. The fourth possibility is often rendered impracticable in specific countries because it leads to the imposition of significant tax penalties on the employee.

The third possibility, however, is closest to the present situation in many countries where defined benefit pension schemes are common (for example, the USA and UK). Even where no legal obligation is imposed by statute or case law that requires employers to stand behind the vehicles through which defined benefit pensions are secured, it could be argued that there is a constructive obligation on the part of the employer to ensure that pension promises are met. This is the philosophy underpinning FRS 17:

'[T]he employer has a liability if it has a legal or constructive obligation to make good a deficit in the defined benefit scheme. In general, the employer will either have a legal obligation under the terms of the scheme trust deed or will have by its past actions and statements created a constructive obligation.' (FRS 17, para. 39)

In the vivid words of Blake et al. (2008b: 18), this implies that the pension liability, and assets held to finance the liability, are 'not ours, Guv'. It would certainly be open to an employer to argue that, whatever past practice had been, in the future

the employer would not stand ready to make good a deficit beyond any obligation imposed by law. Would this mean that the employer could avoid recognising any deficit as a liability beyond its legal obligation?

However, both IAS 19 and SFAS No. 87/158 imply that the full liability to pay benefits remains with the employer, unless settled through payment to a third party without recourse. This suggests that the long-standing distinction between defined contribution and defined benefit pension plans is drawn in the wrong place – what matters is not the basis on which the benefits are determined but rather the extent to which employees, either directly or indirectly through pension intermediaries, have recourse to the employer if the assets held to finance the benefits are insufficient to fund benefits based on a formula, or inadequate to provide a level of pension acceptable to the beneficiaries. If there is no recourse, then the only liability relates to payments that the employer has contracted to make to a third party, and the liability is settled when the payments are made. If the employer is responsible for the payment of promised benefits, whether this is a direct responsibility to make payments out of resources available to the employer when the benefits fall due (as would arise in an unfunded scheme), or whether the responsibility is mediated through a separate investment vehicle such as a pension fund, but the employer stands ready to ensure that there are sufficient resources in the vehicle to pay the promised benefits, then the employer has a liability for the benefits.

But the fact that the employer assumes this liability in exchange for the services provided by employees means that the liability in respect of any employee will typically (but not necessarily) grow over time, as the employee provides services, and be settled over time as benefits are paid. Liability-based pension standards deal with this by attributing units of benefits to periods of service. The liability at any point in time is based upon the value of the units of benefit attributed to service up to that point.⁴ However, in arriving at the ‘benefit’ to be reflected in the determination of the liability, various decisions must be made. This is because a liability is by definition a *present* obligation, whereas the benefits are typically paid in the future. Some of the problems in determining the liability flow from the uncertainties involved in looking into the future, but these are likely to be *measurement* issues (for example, how long will retired employees and their dependants live to collect their pensions, how likely is it that employees will die or leave employment before retirement). Other problems are more fundamental.

3.4. *Final or current salaries?*

The first of these problems relates to identifying that part of the total benefits considered to give rise to the present obligation at a particular date. In this process, should the employer take into account the likely salaries that will be used to determine the benefits promised (in many schemes, this will be salaries at or close to retirement – ‘final salaries’), or should the benefit estimates be based on current salary levels? Connected with this, should changes (typically increases) in benefits as they are paid be taken into account: (a) at all; (b) only if mandated under current legislation or contract; or (c) if there is a reasonable expectation that benefits will be changed? The main current standards (for example, IAS 19, para. 83) require the pension obligation to be determined by taking into account estimated future salary increases, mandatory or contractual benefit changes, and benefit changes for which a constructive obligation exists (for example, a regular and ongoing practice of increasing benefits in payment in line with inflation).

The answer to these questions depends on how the expression ‘present obligation’ is interpreted. The employer is certainly obliged to pay, or ensure the payment of, pensions and other related benefits. But, at a specific point in time, does the employer have a *present* obligation (if not legal, then at least constructive), to pay pensions calculated in terms of variables that will not become determined until after that point in time? The implicit contract, lifetime labour market view advocated by economists such as Ippolito (1985) implied that employee pension expectations at any time were based on estimates of lifetime pay rather than simply on current pay, so the pension liability incurred by the employer in exchange for employees’ services should itself be based on estimates of lifetime pay as these would determine the pension benefits. This would typically lead to the use of final salaries (and expected changes in benefits in payment) in determining the pension liability. The spot labour market view advocated by Bulow (1982) and others implied that employees would take into account only current salaries, since they would not assume that they would remain in employment to benefit from future salaries. The standard-setters’ choice of using future salaries was perhaps influenced by a sense that the implicit contract view of labour markets represented economic relations between employers and employees more faithfully than the spot market view, as well as an awareness that use of future salaries tended to lead to initially higher pension contributions under most actuarial funding methods (thus encouraging employers to fund their schemes more generously), while smoothing pension costs more than alternative approaches.

⁴ Strictly speaking, the liability is subsequently reduced by benefits as they are paid.

However, should *future* salaries be reflected in the computation of a present obligation? One person who believed that they should not was Robert Sprouse, a member of the FASB when SFAS No. 87 was issued. Sprouse dissented from the standard, arguing:

‘[A]n employer cannot have a present obligation for pension benefits related to salary increases that are contingent upon future events – future inflation, future promotions, future improved productivity ... [T]he decision to grant increases in wages and salaries, whatever the reason, is an event that has directly related consequences, including increases in employers’ social security taxes and pension costs, as well as the wages and salaries themselves. Accounting should recognize all of those directly related consequences at the time the event occurs ... Anticipating the effects of those future events on pension cost in accounting for the current period ... is no more appropriate than anticipating the future higher wages and salaries themselves in accounting for the current period.’ (FASB, 1985: 26–27)

Basically the same arguments have been offered in the Discussion Paper prepared by PAAinE (2008: 42). This follows from the Paper’s conclusion that ‘only benefits that the entity is presently committed (by legal or constructive obligation) to pay should be reflected in the liability’ (PAAinE, 2008: 38).

Looking at the pension liability as a *present* obligation, it appears anomalous to argue that an employer does not have a present obligation to make future salary increases, but does have a present obligation to pay pensions reflecting possible future salary increases. As an employee works for another year, the pension liability in respect of that employee, in a final salary defined benefit pension scheme, increases not only because an extra year’s pensionable service has been accrued, but also because any salary increase during the current year applies to the whole pensionable service to date rather than just to the current year. Perhaps in the 1980s, standard-setters had memories of the problems generated by ‘backlog depreciation’ in current cost accounting, and wished to avoid analogous problems for pensions. However, a liability approach to accounting for pensions focuses on the present obligation rather than on possible impacts on the pattern of cost recognition. Ironically, the one possibility that accounting standards such as SSAP 24 appeared to rule out – the use of current rather than final salaries in determining the pension obligation – may have a sounder logical basis.

3.5. Vesting

Pension schemes sometimes impose qualifying periods on employees before they become entitled to receive benefits, referred to as *vesting*. An employee who leaves before vesting has no entitlement to benefits. Does this mean that the employer has no present obligation in respect of employees whose benefits are not yet vested? Employees who leave employment may have no legal claim to benefits after leaving, but employees who continue will be accruing rights. Even though these rights are subject to the satisfaction of a condition before they can be enforced by the employees, employees have a reasonable expectation that they will be able to satisfy the condition, and in some situations the employer may face the risk of penalties for dismissing employees just before their benefits vest. Where the employer does not have a legal obligation, a form of constructive obligation is likely to arise in respect of benefits relating to service before a vesting date, because the employer cannot normally renege on the pension promise in respect of employees prior to vesting (or more realistically, the employer cannot differentially renege in respect of this group of employees as opposed to the employees in general). It is certainly reasonable for the employer to reflect the probability that some benefits will, in fact, not vest in determining the amount of the pension liability, but this is a measurement issue rather than one relating to the identification of the liability.

If there is a constructive obligation in the case of benefits that are unvested at the measurement date, why should there not be a constructive obligation at the measurement date in respect of future salary increases? Indeed, the argument could be made (PAAinE, 2008: 43) that, at the measurement date, the benefits based on current salary levels (adjusted by any legal or contractual increases such as mandatory indexation) are in effect vested, while the additional benefits that are expected to flow based on future salary levels are, in effect, unvested. However, a closer examination of the factors influencing future salary increases may help to clarify matters.⁵ For an individual employee, salary increases depend on four factors. First, there are general pay rises as a result of inflation. Second, in some organisations an individual may benefit from moving up a standard pay scale through pay increments accruing annually or at some other regular interval. Third, individuals may benefit from promotion to better-paid positions. Finally, employees may share in the general success of their organisation through increased pay (to some extent, the availability of promotions may itself be dependent on the organisation’s success). A final salary pension plan gives employees an indirect stake in the future of the organisation. However, higher salaries resulting from promo-

⁵ My thanks to Richard Macve for proposing this analysis.

tions and sharing in the future success of the employer are the consequence of events after the measurement date, and they affect the pension liability when they occur in the future. They are not part of the present obligation. On the other hand, salary increases that may be expected to occur independently of the employer's future economic prospects are part of the present obligation.

Overall, then, in identifying the pension liability, what matters is the present obligation at the measurement date. This present obligation is based on the benefits relating to employee services up to the measurement date, and is settled in one of two ways: either through payments to a third party who has no further recourse to the employer⁶ or through payment of the benefits directly by the employer or through a third party who has recourse to the employer. The liability is based on the contractual benefit formula, taking into account any additional requirements imposed by law affecting the incidence of benefits (such as limited indexation of benefits in payment or the amount of pensionable salary used in the benefit formula). This should be calculated using data available at the measurement date, including current salaries adjusted for *unavoidable* future salary increases, rather than estimated final salaries, but including a liability in respect of service before any vesting condition is satisfied, on the basis that the pension liability reflects all legal and constructive obligations in respect of service up to the measurement date. This approach would apply whether the benefits are based on length of service and salary, as in traditional defined benefit plans, or on the accumulated balance in a notional account, as in the more recent 'cash balance' plans that have been emerging in the USA and elsewhere (Johnson and Uccello, 2003; IASB, 2008; Thomas and Williams, 2009).

4. Measuring the pension liability

4.1. Basis of measurement

Pension obligations are notorious for the high degree of uncertainty that they involve. Forecasts must be made of the periods over which benefits will be paid, and one of the major issues in recent years is the extent to which previous forecasts of longevity (how long on average pensioners will live after retirement) have turned out to undershoot actual experience – people are living longer on average. A wide range of other demographic assumptions underpin estimates of pension liabilities, some relating to the population as a whole, and others to a specific employer. These would include assumptions about the proportion of employees

who would satisfy any vesting conditions, and patterns of labour turnover in general. In addition, assumptions are required about financial matters such as possible future rates of inflation (if some element of pension indexation is a legal or contractual obligation). Under existing accounting standards, it is also necessary to estimate future salaries if the benefit formula takes these into account. The various assumptions should be 'unbiased and mutually compatible' (IAS 19, para. 72), and should be 'best estimates' (IAS 19, para. 73).

The use of 'best estimates' is required in the measurement of provisions under IAS 37: 'The amount recognised as a provision shall be the best estimate of the expenditure required to settle the present obligation at the balance sheet date' (para. 36). It is explained that 'the best estimate of the expenditure required to settle the present obligation is the amount that an entity would rationally pay to settle the obligation at the balance sheet date or to transfer it to a third party at that time' (para. 37). Two elements of this are particularly significant: first, the focus on the balance sheet date, and second the notion of a rational payment. Settlement in this context would involve the employer in making payments, or otherwise transferring economic resources, to current and former employees, or their dependants, in exchange for the surrender of their rights to receive future benefits. In many countries, such a direct settlement may not be possible owing to legislative or regulatory restrictions. In the absence of such restrictions, would the rational settlement amount be limited to the employer's strict legal obligation (excluding, for example, unvested benefits)? Would a rational member of a pension scheme be prepared to settle for less than the present value of benefits based on service to date but reflecting expectations of final salaries, or would the option that the employer usually has to 'freeze' the benefit expectations by closing the scheme to further accrual of benefits mean that the rational employee cannot expect more than benefits based on applying the benefit formula to current data? Or would the existence of a series of complex and interlocking options on the part of both employer and employees (Sharpe, 1976) mean that the 'rational settlement amount' would be somewhere between these extremes?

What about transferring the liability to a third party? One of the most interesting phenomena in the pensions market in recent years has been the emergence of a range of organisations prepared to take over, for a consideration, some or all of the pension obligations of particular employers. For example, the UK company Cable and Wireless announced in September 2008 that it had transferred around £1bn of liabilities relating to retired employees to a third party (Cohen, 2008). These

⁶ This leaves open the possibility that the employer may retain some residual claim to participate in any ultimate surplus remaining after all benefits have been discharged by the third party – would such a claim represent an accounting asset?

'buy-outs' are less difficult to value rationally where the pension plan is closed to further accruals of pensionable service, so the potential purchaser does not bear any risk in respect of future salary changes (and in particular avoids the 'moral hazard' risk that an employer no longer liable for pension benefits would increase future salaries disproportionately to raise pensions for continuing employees). In some cases, the pension liability in respect of an individual current or former employee or pensioner can be estimated reliably by reference to the current price of equivalent annuities, and pension actuaries are regularly required to compute acceptable 'transfer payments' in respect of employees moving from one employer to another and seeking to transfer their accumulated pensions to the new employer's scheme (Napier, 2007: 346). However, at present the buy-out market may not be sufficiently deep to provide reliable measures of the pension liability. There are also various factors (such as the loss of any recourse to the general assets and cash flows of the employer to fund pension obligations on an ongoing basis) that may bias a buy-out valuation upwards (PAAinE, 2008: 116–117).

Given the restrictions and reservations relating to direct settlement at the balance sheet date and transfer to a third party, what possibilities remain for measuring the pension liability? Increasingly, pensions are provided within a regulatory regime in which a minimum prudential level of funding is indicated in respect of benefits. Although the relationship between such a regulatory funding requirement and the actual assets available to use for settling pension liabilities is relevant for assessing the future cash flows of the employer (because a shortfall in the regulatory measure will result in a requirement to assign resources to provide security for pension liabilities rather than for alternative uses in the enterprise, such as paying dividends), it would not normally be a measure of an accounting liability.⁷ One situation where it could be relevant is where the employer has an effective 'put option' allowing it to transfer its pension obligations to a third party such as a government-sponsored insurance or guarantee fund and to settle the claim of such a fund by transferring assets. In rare situations, employers may calculate that reneging on their pension commitments in this way may enhance shareholder value in the long term, notwithstanding any loss of employee goodwill in the short term.

Until the buy-out market has developed sufficiently to provide reliable measures of a 'transac-

tions-based' current settlement value, then 'we are thrown back on to the sort of actuarially based present value calculation required by the financial reporting standards' (Napier, 2007: 346). Effectively, the liability is being settled through payments of benefits, and the measure of the liability is arrived at by making the best estimate of the amounts to be paid in the future in respect of the obligation to pay benefits recognised at the balance sheet date and discounting these amounts to determine their aggregate present value at that date. This has been described as a 'run-off' measure, 'where the employer continues to administer the liabilities and pays benefits when they fall due, either from its internal resources or from assets that have previously been set aside' (PAAinE, 2008: 116). It is important to remember that this 'run-off' assumes that no further benefit entitlements will accrue, and no further assets will be set aside. Some actuarial funding methods take into account patterns of future expected contributions as well as earnings on pension assets in assessing the financial position of a pension scheme, possibly by projecting a 'rolling cash balance' (Exley et al., 1997: 851). However, if one lesson has been learned over the past 25 years, it is that financing pension promises and measuring accounting liabilities are separate processes.

4.2. Discount rate

As the run-off measure is the value at the measurement date of benefits accumulated through service up to that date (to the extent that they have not already been paid to beneficiaries or otherwise settled), and these benefits will be paid over future periods, the liability must be measured by taking into account: (a) the time value of money; and (b) the risks involved because of the demographic and other uncertainties involved in estimating the benefits to be paid. If the present obligation in respect of pensions is based on final salaries, then uncertainties in respect of future salaries will need to be reflected. However, if the present obligation is based only on current salaries at the measurement date, then this uncertainty does not apply (though uncertainties relating to any mandatory indexation of current salaries would need to be reflected, as indexation would be a legal obligation). The appropriate discount rate to use has been a major issue of controversy in pension accounting over the past 25 years. Cost-based standards such as SSAP 24 effectively used the overall rate of return on pension scheme assets as the discount rate, but this would only be appropriate in an economic sense if the pension scheme assets represented a perfect 'hedge' against the pension obligations. In practice, it has been difficult to find convincing evidence that the rate of return on pension scheme assets (which is itself dependent on the investment

⁷ In some countries, a strong minimum funding requirement may restrict the amounts that an employer can recover from a pension fund, and this affects the recognition and measurement of pension assets and liabilities (IASB, 2007).

allocation policies of different schemes) is strongly enough associated with uncertainties such as growth in pay (Khorasane, 2004). Modern pension standards require the use of the rate of return on high quality corporate bonds as the liability discount rate, on the basis that this reflects both the time value of money and measurement uncertainties.

The PAAinE (2008) and IASB (2008) Discussion Papers disagree on the appropriate basis for measuring pension liabilities. PAAinE's view is that, in some cases, a current settlement or transfer valuation (such as a buy-out value) may be more relevant, but in the majority of cases where a run-off valuation is needed, the liability would be determined by discounting the entity's best estimates of future cash flows at a 'current market discount rate to reflect the time value of money only, i.e. a risk-free rate' (PAAinE, 2008: 124). PAAinE acknowledges that the liability should reflect some margin for risk, but claims that some risks (such as longevity) cannot be quantified. On the other hand, the IASB (2008: 76) suggests that, at least for what it calls 'contribution-based promises', measurement should incorporate 'the effect of risk'. Just because there may be difficulties in quantifying some elements causing uncertainty as to the future benefits to be paid, this does not justify ignoring those elements that can be quantified. The emergence of contribution-based promises that provide a wide spectrum of possible benefits makes the use of a single discount rate less sound. For example, a pension promise of a fund on retirement determined by accumulating contributions calculated as a percentage of current salaries plus a return based on an equity index would be significantly more risky than one offering a fixed lump sum. It is possible that the difference between PAAinE and the IASB here is a matter of focus, as PAAinE concentrates on traditional salary-based pension promises while the IASB looks at contribution-based promises. In the case of salary-based promises, if the pension liability is based on current rather than projected salaries, the main remaining risks are demographic, and it would make more sense to discount risk-adjusted best estimates⁸ of future benefits using a risk-free rate. The use of a corporate bond rate for discounting pension liabilities captures only some of the uncertainties involved. The bond rate could be considered as the aggregate of: (i) the real risk-free rate (the pure time value of money); (ii) expected inflation; and (iii) the aver-

age expected rate of default. Although the first two components are relevant, there is no obvious link between the probability of default on corporate bonds and the measurement uncertainties relating to pension liabilities.

Small changes in assumption may have a significant impact on the measurement of pension liabilities. Given that the liability is reported as a single 'spot estimate', employers can give some insight into the effect of changes in assumptions, including changes in the discount rate for liabilities, by providing a sensitivity analysis of the effect of a unit change in specific assumptions on the amount of the liability. Such an analysis has been suggested by the ASB in its recent Reporting Statement *Retirement Benefits – Disclosures* (ASB, 2007: para. 12). An interesting suggestion has been made by Blake et al. (2008a) that the use of charts showing the effects of variations in key assumptions may be helpful in indicating the impact of factors such as longevity on pension liabilities.

5. Pension assets

It is not necessary for pension promises to be financed in advance by the setting aside of specific assets, whether this comes about through the employer merely designating particular assets over which it retains ownership (and the discretion to apply the assets for other purposes than paying pension benefits), or whether the employer transfers resources to a third party, such as a trust. Employers could simply settle pensions as they fall due out of current resources. Advance financing ('funding') complicates pension accounting in several ways. First, transferring resources to a separate vehicle raises the question of whether the employer's pension liability is thereby settled. Settlement could be complete (if the vehicle has no subsequent recourse to the employer if assets are insufficient to pay the promised benefits), or partial. In the latter situation, the liability is settled, in part, by transferring resources and, in part, by the employer's assumption of a new liability, to stand ready to meet claims from the vehicle for additional resources (and in some cases the assumption of the right to receive economic resources from the vehicle if these are not needed to pay benefits). As already noted, FRS 17 is based on this analysis.

More generally, the question arises as to whether the employer should show a *gross* liability, with any pension assets disclosed separately, or a *net* liability, deducting any pension assets from the pension liability. Offsetting an asset and a liability is usually only appropriate if there is a formal right of set-off and an intention to settle on a net basis or to realise the asset and settle the liability simultaneously. If the employer retains the primary legal obligation to pay benefits as they fall due, but sets aside, either notionally or through a separate vehi-

⁸ Unless it is possible for the employer to construct a perfect hedge against pension liabilities (in which case the liability can be measured as equal to the current market value of the perfect hedge), a simple probability-weighted expected value of the pension liability will understate the risk-adjusted best estimate of the liability. My thanks to Geoff Whittington for making this observation.

cle, assets to be used for paying the benefits, then it would not be appropriate to offset the pension assets and liabilities. Where a vehicle such as a pension trust holds pension assets and has the primary legal obligation to pay benefits, does this allow for offset?

One factor is the extent to which the employer can exercise control over the assets and obligations of the pension vehicle. This should be a matter of fact, determined by the legal documents that establish the pension scheme and by the current regulatory regime within which the employer makes pension promises. If the vehicle has no recourse to the employer for shortfalls in its assets, then the employer's liability is restricted to contracted-for contributions to the vehicle. How the vehicle invests these contributions is irrelevant to the employer. Even when the vehicle has recourse, the employer may have no, or only limited, control over the vehicle's investment policies. In this case, the employer has a net liability (or perhaps a net asset), measured as the difference between the measurement of the gross pension liability and the measurement of any pension assets held by the vehicle. However, if the employer has effective control over the vehicle's investment policies, then the netting of pension assets and liabilities would not be appropriate, since this would not reflect adequately the employer's rights, obligations and risks. Indeed, in this situation, the pension vehicle may be, in substance, a subsidiary of the employer.

The actual measurement of pension assets has become less of an issue with the adoption of a liability over a cost approach. With cost approaches being based on actuarial funding methods, the separate measurement of pension assets was often not required, because actuaries would estimate future cash flows from pension assets rather than evaluate the assets themselves. Whether the term 'fair value' or 'market value' is used, current pension standards require the use of a market-based measure for pension assets. This may lead to volatility as market prices change rapidly, but it provides reliable information about the current assessment of the value of pension assets by market participants in general. It also avoids the use of earnings management techniques through smoothing and averaging market prices. However, it may mean that identical assets are valued differently if designated as pension assets or considered to be generic financial assets. For example, financial assets classified as 'held-to-maturity' would be measured at amortised cost. Identical assets held to finance pension liabilities would be measured at fair/market value, even if it was the intention of the employer, or a pension vehicle, to hold them to maturity.

The analysis of measurement and offsetting takes pension assets and pension liabilities as a whole. However, are all pension liabilities basically the same? Some liabilities may be less risky (more certain) than others, and it may be possible to construct effective hedges in respect of such liabilities. For example, it may be possible for a pension fund to purchase an annuity whose cash flows precisely offset the benefits payable to a particular member. Indeed, in some pension arrangements, the benefits will be settled by the purchase of an appropriate annuity. Does this argument extend to a situation where a particular class of liability, for example, the liability relating to pensions currently being paid, can be settled on a run-off basis from the earnings and proceeds of designated assets? If so, then it would be possible to net off some pension assets against the associated liabilities,⁹ leaving the remaining assets (which could well be predominantly equities rather than fixed interest securities) to be shown gross on the employer's balance sheet, and the remaining liabilities (which could well relate only to obligations to current employees) also shown gross? At present, it is unlikely that such netting-off would be reasonable, especially as it is currently difficult to hedge against longevity risk (Blake et al., 2006). However, more pension schemes may follow Cable and Wireless in effectively selling off their pensions in payment, thus taking the liabilities, and assets previously held in the pension fund to finance these liabilities, off the balance sheet permanently.

6. The income statement and disclosure

6.1. Reporting the pension expense

At present, the various pension standards incorporate the outcomes of past compromises in three main respects:

- (i) the use of the so-called 'corridor' approach permits some gains and losses to be ignored altogether;
- (ii) various smoothing and spreading devices provide management with some discretion relating to the timing of recognition of certain gains and losses; and
- (iii) the income statement is credited with the expected return on pension assets rather than credited with the actual return on plan assets (or debited if the actual return in a period is negative).

Particular issues arise in relation to actuarial gains and losses, which come about because the actual experience during a period turns out to be different from expectations and estimates made at the start of the period, and because the estimates

⁹ My thanks to Christian Stadler for making this suggestion.

used in calculating pension liabilities at the end of the period differ from those used for the previous period. Normally, differences between estimates and actual outcomes, and the effects of revising estimates, are treated as part of the expense of a period, but pension standards such as IAS 19 allow (although with some reluctance) various options for dealing with these revisions. One option involved the creation of a new accounting statement, the 'statement of recognised income and expense' (SORIE). The 'corridor' is a residue of the cost-based approach to pension accounting grounded in actuarial funding methods. As Napier observed:

'When an actuarial valuation gives rise to a small [actuarial] gain or loss, many actuaries advise that their recommended contribution rates should not be altered. The employer is advised not to take credit in any way for an [actuarial] gain which may fall within the expected range of variation in relation to the pension scheme; on the other hand, he need not concern himself overmuch with a small [actuarial] loss which the actuary also regards as falling within the expected range of statistical variation, and which it is considered will be made up in a short time out of normal contributions.' (Napier, 1983: 131)

So if the actuarial gain or loss was expected to have no impact on contributions, there was no need to recognise it. However, in a liability-based approach, this argument makes no sense, because an actuarial gain or loss is an indication of expected changes in future cash flows, or changes in how they are valued. The 'corridor' is essentially a funding device that has no place in accounting.

Even without the 'corridor', IAS 19 permits actuarial gains and losses for each defined benefit plan to be recognised over the 'expected average remaining working lives of the employees participating in that plan', or over a shorter period, which could conceivably include immediate recognition (IAS 19: para. 93). The fact that flexibility is allowed suggests that there is no clear conceptual basis for spreading actuarial gains and losses. If actuarial gains and losses occur, then there may be a short-term change in the contribution rate, but again this is an issue of funding rather than accounting. Some writers (for example, Napier, 1983: 144) explored the possibility that actuarial gains and losses were like past service credits, argued to be granted by the employer in the expectation of enhanced future services from employees in post at a particular date, and earned over these employees' remaining working lives with the employer (this lingers in IAS 19's treatment of past service costs that do not immediately vest – para. 96). However, the past service credits are usually irrevocable and thus constitute liabilities, while the enhanced future services are hypotheti-

cal as economic benefits and thus are unlikely to constitute accounting assets. If pension assets and liabilities have changed because of changes in estimates or the resolution of previous estimates, then spreading the impact of such changes simply defers the recognition of events that have already happened, and cannot be justified in an asset/liability-based reporting system.

The main components of actuarial gains and losses as presently defined are: (a) the difference between the expected and the actual return on plan assets; (b) the effect of changes in the discount rate used for measuring pension liabilities; (c) the effect of changes in other actuarial assumptions, including demographic assumptions such as longevity; (d) the impact of variations in regulations; and (e) variations in actual experience during the period in comparison with previous estimates. The first one of these is an artificial difference arising from the use of the expected return on plan assets in the income statement, one of the occasions when accountants invent an artificial number to supplant a real number. There are arguments in favour of using an expected return. Actual returns are highly volatile and this may reduce the predictive value of income numbers (most numbers in the income statement are subject to some degree of volatility, but this does not provide an excuse for general smoothing). The performance of pension assets is outside the control of managers of the employer. Pensions are long-term arrangements, and recognising short-term fluctuations in income may lead managers to enter into costly hedging transactions to reduce the volatility or allocate the pension assets to less volatile investments (this could be prudent from a funding viewpoint). However, if pension assets are recognised either directly or indirectly (by being netted off against pension liabilities) as assets of the employer, then returns on pension assets should be treated in the same way as returns on financial assets, that is, the actual return should be included as a part of financing income. This would remove one of the major elements of actuarial gains and losses.

Another significant element of actuarial gains and losses arises from changes in the interest rate used to discount pension liabilities. If this is a current market interest rate, it is likely that there will be some correlation between changes in pension assets and changes in the discount rate – if the pension liability is perfectly hedged, then the change in the liability arising from recalculation using the current discount rate will be equal to the change in the market value of pension assets. In addition to interest on the pension liability, reflecting the fact that benefit payments are one year closer at the end of the period (and thus have a higher present value), it would be reasonable to include the effect of changes in the discount rate as part of financing

expense. Volatility in interest rates would tend to offset volatility in returns on pension assets.

The remaining actuarial gains and losses come from various sources, but are all in different ways the results of changes in estimates. In some periods, the incidence of such changes may be highly significant, and the magnitude of the changes may be out of proportion to amounts recognised as operating expense (the current service cost and any past service cost that arises, for example, through variations in benefit formulae). However, this is a disclosure issue rather than a measurement or presentation issue. Ideally, changes in assumptions and differences between estimates and outcomes that relate to the measurement of benefits included in the pension obligation would be reflected as a component of current service cost, since current service cost is derived from the increase in the pension obligation during the period. Changes and differences relating to financing should be included with the financing income and expense components. Given the interlocking nature of pension assumptions, it may in practice be difficult to make such a separation, so it may be more informative to treat these remaining actuarial gains and losses together as a separate item in the income statement.

Overall, these proposals would mean that all gains and losses arising from pensions were recognised in an appropriate part of a statement of comprehensive income, rather than being ignored, smoothed or segregated.

6.2. Disclosure

Is there too much pension disclosure? The note on retirement benefits in the financial statements of many large companies may spread over several pages. This is vastly more substantial than disclosures 25 years ago, which rarely exceeded a few paragraphs (Napier, 1984). However, it is much more likely that pension disclosure in the UK in the 1980s was grossly inadequate, despite the significant improvements introduced in SSAP 24, and foreshadowed by the ASC's Exposure Draft 32 *Disclosure of Pension Information in Company Accounts* (ASC, 1983) and the ASC's earlier Interim Report (Napier, 1982). This may have worked against the interests of various stakeholders. Shareholders may have suffered through not appreciating early enough the risks involved in final salary pension schemes, and how the burden of such schemes was increasing through extensions in longevity. The confused accounting for contribution holidays may also have provided misleading signals to investors of long-term trends in profitability. At the same time, lenders may have gained an over-optimistic impression of companies' borrowing capacity, while the government may have thought that pension schemes were cash cows to be milked.

In its recent Reporting Statement, the ASB has set out its general objective for recommending pension disclosures for defined benefit schemes:

- (a) the financial statements contain adequate disclosure of the cost of providing retirement benefits and the related gains, losses, assets and liabilities;
- (b) the users of financial statements can obtain a clear view of the risks and rewards arising from defined benefit schemes; and
- (c) the funding obligations of the entity in relation to liabilities of a defined benefit scheme are clearly identified (ASB, 2007: para. 1).

In addition to the long list (extending over three pages) of disclosures required by IAS 19, the ASB recommends additional disclosures, often of information whose relevance has emerged recently. This includes information about the relationship between the employer and pension scheme trustees, which helps users to assess the extent to which the employer controls the scheme's assets and liabilities and the extent to which the trustees can impose obligations on the employer. Greater clarity on how the pension liability is determined, including specific disclosure of longevity assumptions, and a sensitivity analysis, helps users to appreciate likely variability in the liability in future periods. Information about buy-out valuations of the liability and the impact of regulation on the determination of the funding position provides guidance on future cash flows, while giving a clearer understanding of the options open to management to transfer some or all of the pension liabilities to a third party. Finally, rather than just a classification of the pension assets into different asset classes, some appreciation of the risks associated with pension assets helps users to assess the likely impact on a given scheme of external changes in asset markets and prices.

All of this is consistent with the philosophy set out some years ago by the ICAEW's Steering Group on the Financial Reporting of Risk in its report *No Surprises: The Case for Better Risk Reporting* (ICAEW, 1999). One paragraph in particular of this report is worth quoting:

'When we talk about "no surprises", we do not mean that companies should smooth their earnings trend by turning the tap of accounting prudence on and off or that they should eliminate volatility at all costs. In reality "no surprises" will involve telling it as it is. If results are really volatile they should be reported as such and it should not come as a surprise to the market.' (ICAEW, 1999: 36).

The provision of information on asset and liability risks and the sensitivity of assumptions makes

it easier for analysts to predict how external factors (such as significant changes in asset prices) are likely to affect pension assets and liabilities. Substantial changes from period to period are less disturbing if they can be understood and even forecast.

7. Conclusion

Many of the arguments and issues concerning accounting for retirement benefits that are currently being debated by standard-setters and preparers and users of financial statements have been the subject of debate for decades. Standard-setters have been aware of the logic of pension accounting during this period, and the logic itself has not stood still, as new understandings of the principles of financial reporting have emerged and been applied in other analogous situations. Accounting for pensions has moved from being based on cost allocation and actuarial funding methods towards being based on the determination and measurement of accounting liabilities. There are still some issues where it is by no means obvious what the 'logical' accounting solution is. The most difficult remaining issue is whether the pension obligations forming the basis of an accounting liability as at a particular date should reflect only factors as at that date and any mandatory subsequent changes to these factors, or whether other expected changes, in particular forecast changes in pay for final salary pension schemes, should be taken into account. If there is a present accounting obligation in respect of all future salary increases, then it is different in nature from the obligation based on current salary levels, and perhaps needs to be reported in a different place on the balance sheet if it is recognised at all. The other difficult issue is what discount rate to use in measuring the liability. Should the existence of risks and uncertainties in the pension liability factors be reflected in the use of a discount rate incorporating a risk margin? Does the use of a corporate bond discount rate actually provide an appropriate adjustment for risk? Should any risk margin be the same for all parts of the pension liability? Finally, can we come up with a principle for determining the pension liability that works as well for salary-based promises as for contribution-based promises?

Many of the compromises made by standard-setters permitted employers to ignore, spread or segregate pension costs that were abnormally large or particularly volatile. If enough information is provided as to how pension costs are determined, it should be possible for users to make up their own minds about the impact of different aspects of the overall changes in pension assets and liabilities that feed into the income statement. One of the most useful changes will be the replacement of the artificial 'expected return on plan assets' by the ac-

tual return on plan assets, at the same time 'telling it as it is' and removing an accounting-based actuarial gain or loss.

Pension assets and liabilities have traditionally been netted off. In some cases, the substance of the contractual arrangements establishing a pension scheme mean that the employer genuinely has only a net obligation to underwrite shortfalls in the pension fund, but where the employer effectively controls the pension assets, the case for a net balance sheet figure is weakened, and indeed the pension scheme vehicle may qualify as a subsidiary of the employer. This means that gross assets and liabilities may be reported, leading to the 'augmented' or 'economic' balance sheet proposed by Bagehot (1972). However, it may be possible in the future for some pension liabilities and assets to be netted off in respect of the more easily hedged elements such as pensions in payment (though this may require the development of longevity as well as interest rate and inflation hedges).

Several normative principles emerge from this study of pension accounting. First, pension accounting should aim at generality. Different accounting treatments should be a consequence of substantive differences in rights and obligations, rather than formal differences in pension agreements. Ideally, the same recognition and measurement principles should apply to salary-based and contribution-based pensions, although application would need to reflect differences in detail between these approaches. Second, opportunities for 'accounting arbitrage' through being able to designate certain assets and liabilities as pension assets and liabilities should be minimised. This could be achieved by curtailing any discretion that employers may have to decide whether, for example, particular investments are held-to-maturity financial assets or pension assets, but is better achieved through ensuring consistency in accounting treatment. Third, 'tell it as it is' – artificial spreading and smoothing, or, worse, ignoring aspects of pension liabilities and costs, should be avoided. Finally, disclosure should ensure 'no surprises'. Pension accounting has come a long way in the last 30 years. Ironically, however, we may be ready to achieve a logical system of accounting for defined benefit pensions only in the context of their decline.

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