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FUNDING DEFINED BENEFIT PENSION SCHEMES

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ABSTRACT

This paper puts the case for the Actuarial Profession revising and tightening its standards on actuarial funding advice in relation to United Kingdom occupational pension schemes. We critique current actuarial practice and advocate principles for measuring solvency and providing funding advice. In particular, we advocate that funding targets should be clearly and unambiguously related to scheme solvency. The paper also covers optimal investment strategy, treatment of the 'company covenant' when giving funding advice and governance issues relating to pension schemes.

KEYWORDS

Actuarial; Pensions; Funding; Risk; Solvency; Valuation

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1. INTRODUCTION

1.1 *Our Purpose*

1.1.1 Public confidence in pension provision is low. Actuaries, as pension experts and the main advisers to pension schemes, bear some responsibility for the current situation. In this paper we discuss the funding of defined benefit (DB) pension schemes, and suggest principles that will help actuaries better discharge their public duty.

1.1.2 This paper contains references to some common practices being potentially misleading. We would like to make it clear that this paper is not

implying any element of intent or deliberate action on the parts of the actuaries or their employers who have used these approaches in the past. We are aware that what was deemed best practice in a previous environment may no longer remain so. Indeed, many actuaries have, for some years, provided a solvency measure in their actuarial valuation reports specifically to ensure that readers would be aware of this aspect of the financial position of the pension scheme, even though this was not a requirement of the Actuarial Profession until March 2004.

1.2 *Background to DB pensions in the United Kingdom*

1.2.1 Pension provision in the U.K. has changed. In common with other financial products, the rights and responsibilities of the principal parties to DB schemes have been clarified. Discretionary benefit increases have been replaced by statutory indexation, and the obligations of sponsoring employers to provide financial support to pension schemes have been steadily strengthened.

1.2.2 We have observed various responses from actuaries to the increasingly guaranteed nature of DB pensions. These include arguing that:

- the guarantees do not really apply; or
- pensions is a ‘special case’, where the usual financial methods for valuing and delivering guarantees do not apply.

1.2.3 We reject both of these arguments. Guarantees relating to DB pensions are clearly set out in legislation and pension trust deeds and rules. Although pensions do have some unusual features compared with many financial products, we believe that these are not sufficient for the wholesale rejection of financial techniques which are successfully employed elsewhere for measuring the security of, and delivering, guarantees.

1.2.4 In our view, actuaries need to focus more on advising on:

- how best to deliver the guarantees in DB schemes; and
- communicating clearly to all interested parties the risks and consequences of failing to deliver these guarantees.

1.2.5 We are particularly concerned with how actuaries present the financial status of DB schemes. In particular, our guidance notes allow actuaries to claim that:

- schemes are ‘fully funded’, using phrases like ‘100% funded on an ongoing basis’ (or ‘closed fund basis’), when they do not have enough money to meet their benefits with any degree of certainty; and
- ‘full transfer values’ are being paid, when these transfer values would not secure even 50% of the benefits.

1.2.6 We believe that these practices have the potential to mislead, and are not in the public interest.

1.3 *Stakeholders in Defined Benefit Schemes*

1.3.1 The major stakeholders in pension provision — members, trustees, and the providers of capital to the sponsor — rely on actuarial advice, and have a right to expect clear information.

1.3.2 Legislation over the past two decades has clarified that the leaving service benefit (or pension, if in payment) constitutes a member's fundamental benefit right. From 11 June 2003, when a scheme is wound up with a solvent employer, the debt on the employer is the shortfall in assets measured against the cost of securing the liabilities.

1.3.3 These considerations lead us to focus on solvency (measured as the assets compared with the cost of providing leaving service pensions or pensions in payment) as the key financial measure for a pension scheme.

1.4 *Valuations and Funding*

1.4.1 Formal pension scheme actuarial valuations are typically not 'valuations' as understood by most finance professionals or the lay person. They have evolved from a time when solvency was not at issue, and therefore when the primary purpose was to advise on the contributions deemed necessary to achieve targeted and aspirational, but largely discretionary, benefits.

1.4.2 This has led to a flexible approach to the notion of value as an intermediate item in the contribution setting process. In our view, this has been unhealthy for the Actuarial Profession, in creating the notion that value is something that can be arbitrarily determined and manipulated.

1.4.3 Solvency can equally well be used to set funding targets for deriving contributions, and has the major advantages that it is less open to manipulation and less likely to mislead users of valuations over the financial status of a pension scheme.

1.4.4 We have, therefore, recommended standard principles for:
— the measurement of solvency (see Section 4.2); and
— advice on funding (see Section 7.1).

1.4.5 In keeping with other work in this area (see Bader, 2004), we also conclude that, for a creditworthy employer, where there are no informational asymmetries and where there is appropriate governance, the optimal pension policy is to fully (or over) fund the pension liabilities and to invest all assets in low risk bonds.

1.5 *Structure of the Paper*

The structure of the remainder of this paper is as follows:

- Section 2 addresses the underlying objective of pre-funding pension promises via pension schemes. Actuarial advice on funding should be consistent with this objective.
- Section 3 examines the nature of the pension promise as a social contract.

- Section 4 covers the measurement of pension scheme solvency.
- Section 5 considers the covenants provided by companies to their pension schemes.
- Section 6 is a critique of current funding advice.
- Section 7 sets out principles for funding advice, and discusses the derivation and application of these principles.
- Section 8 covers governance issues for pension schemes and for the Actuarial Profession.
- Section 9 contains our conclusions.

2. WHY FUND?

2.1 *Reasons for Funding*

2.1.1 In many countries, it is common practice for employers to fund pension liabilities in advance, by building up a pool of assets to meet the benefit payments, typically held at arm's length from the employer. We have identified four main reasons that justify the pre-funding of pension liabilities:

- (1) benefit security;
- (2) tax incentives for the sponsor or members;
- (3) regulation; and
- (4) corporate cash flow management.

2.1.2 We examine each of these in turn, in order to establish how these possible reasons for funding translate into an implied optimal level of funding.

2.2 *Benefit Security as a Reason for Funding*

It seems to us that benefit security is the key reason for funding a pension scheme, and that this is generally recognised:

- Employer pension promises that are unfunded or otherwise unsecured or uninsured are likely to have much lower credibility with employees. Although employees may not historically have been aware of the details, they have typically been informed (e.g. in member booklets and popular annual reports) that a pool of assets separate from the employer is maintained to secure these benefits, and, critically for our profession, that an independent expert (i.e. the actuary) advises on the contributions required to maintain the pool of assets. Statements by the actuary that their scheme is 100% funded have been understood to mean that sufficient funds existed to pay the benefits.
- Successive Governments have provided tax incentives in relation to pensions, contingent on the assets being invested in a separate trust, specifically to encourage employers to provide a ring fenced pool of assets from which to meet pensions.

- A key focus of pension regulation has been benefit security, with the setting of minimum funding levels related to scheme liabilities, such as the Minimum Funding Requirement (MFR), introduced by the Pensions Act 1995, and the statutory funding objective to be introduced by the Pensions Bill 2004.

2.3 *Tax Incentives as a Reason for Funding*

2.3.1 When considering the tax implications for shareholders of funding a pension scheme, holding assets inside the scheme should be contrasted with the same assets being held directly by the shareholders of the sponsor. As a result, the decision on whether to fund a pension scheme, from a pure tax angle, depends crucially on the relative tax treatment of different assets in the hands of individuals.

2.3.2 Each £1 invested in cash (or bonds) in a pension scheme receives a gross of tax roll up. This is a more favourable tax treatment compared with paying out the £1 to shareholders who then invest it in the same manner (see Exley *et al.*, 1997). This creates an incentive to pre-fund pension schemes to the maximum extent possible. The tax position becomes more complex when capital gains tax (CGT) payable by a shareholder in the sponsoring employer is taken into account (see Exley & Armitage, 2000).

2.3.3 Equities attract a lower rate of tax than bonds in the hands of typical shareholders. This creates a shareholder preference, all else being equal, for the pension scheme to invest in bonds. Moreover, dividends received by pension funds have already been taxed, which means that, when these returns are passed through to the shareholders of the sponsor, they are taxed again, and therefore that equities are a tax inefficient investment for pension funds compared to other investors.

2.3.4 Accordingly, taxation considerations in isolation indicate that shareholders would prefer pension schemes to be pre-funded to the maximum extent and to be invested in cash and bonds (as opposed to equities).

2.4 *Regulation as a Reason for Funding*

2.4.1 In the U.K., a range of funding is prescribed, stretching from the MFR, now widely regarded as weak, to the limits prescribed under the surplus regulations. Much of this will be replaced by the requirements in the Pensions Bill 2004, although, in cases where companies and trustees cannot agree on funding, this Bill gives the new regulator the power to set contributions, and it is unknown, at the time of writing, how the regulator will apply this power.

2.4.2 We note, in passing, that the maximum funding limits are still based on the dividend discount methodology, which most actuaries would regard as a regulatory anachronism. Worse, they can, in certain circumstances, give rise to a tax charge on a scheme investing in bonds which is funded only just sufficiently to secure benefits.

2.4.3 Given that the range of possible funding is very wide, and the weakness of the MFR, we conclude that regulation has not, in the past, been a main driver of funding policy.

2.5 *Cash Flow Management as a Reason for Funding*

Another possible reason for funding would be to pay benefits from a pool of assets, to avoid disrupting the underlying business by smoothing out cash flow requirements. In the presence of other funding constraints (e.g. minimum funding levels), then a smooth funding policy is one that will maintain a cushion above these constraints.

2.6 *Summary*

2.6.1 While it may be the case that statutory minimum funding regulations and cash flow management have influenced pension scheme funding, it seems clear to us that the primary purpose of funding — and of the pension scheme itself — is to achieve benefit security for members.

2.6.2 For creditworthy sponsors, there are strong tax arguments for fully funding, or possibly even over funding, pension promises.

3. THE ‘PENSION PROMISE’

3.1 *The Pension Liability*

3.1.1 Legislation over the past two decades has clarified that the leaving service benefit constitutes a member’s fundamental benefit right. (Appendix A briefly sets out some of the main legislative changes.) Apart from some exceptional pension schemes, employers and employees (by opting out) have the power to cease future benefit accrual, at which point employees are entitled to a pension based on pay and pensionable service to the date of leaving, with indexation up to retirement and in payment. In addition, legislation has clarified that active members’ benefits on discontinuance are calculated in the same way.

3.1.2 With the advent of the Pension Protection Fund (PPF), even when a sponsor fails, members will have increased security for the ‘protected benefits’ covered by the PPF, which are expected to be similar to (although generally below) the early leaver benefits provided by the scheme.

3.1.3 Although a case can be made for including anticipated future pay increases or future pensionable service in assessing pension liabilities (on the grounds that these are expected benefits), we propose to treat pension liabilities for employees as their leaving service pensions. Future pay increases and future service benefits are items over which employers typically have control, and are, therefore, possible future liabilities rather than liabilities already accrued.

3.1.4 Legislation since the 1980s has, in effect, removed the ‘safety valves’

that used to allow pension schemes the freedom to invest riskily while still being relatively certain of meeting the discontinuance benefits:

- The introduction of statutory indexation in deferment and in payment means that discontinuance benefits are comparable with salary-related benefits.
- Because cost of living increases are included, pension schemes no longer target discretionary pension increases in addition to the discontinuance benefit.

3.1.5 In combination with the fall in long-dated interest rates and the increase in longevity, this has caused the cost of securing discontinuance benefits to increase substantially. This has fundamentally changed the nature of the pension promise; the room for targeting ongoing benefits on a ‘best endeavours’ basis, while being relatively certain that the discontinuance benefits could be met, has gone.

3.2 *The Social Contract*

3.2.1 It is sometimes claimed that there is an implied ‘social contract’ between members of a scheme and the sponsor, which governs the security of the benefits in a pension scheme, along the lines that:

- the company did not set out to provide a guaranteed benefit, rather the pension promise was more of the nature of best endeavours; and
- the members have always understood that the benefit was not guaranteed, and that there is some risk underlying the pension promise.

3.2.2 It seems to us that this was indeed the case, at least to some extent, in the 1980s, but that time and the legislation have moved on.

3.2.3 There are some strong arguments against the notion that, as a profession, we should permit actuaries to rely on a continued claim that, because the social contract originally entailed risk, continued under-funding is reasonable or should be obscured:

- (1) It came as a shock to most people outside the pensions industry that pension schemes did not provide a high level of security in relation to discontinuance benefits. This is evidenced by:
 - the publicity surrounding, and member outrage at, insolvent pension schemes over the past three years or so; and
 - the considerable political pressure that has forced the Government to introduce stronger protection for pension scheme benefits (increasing debt on the employer to buy-out, extending the debt beyond the corporate veil and the introduction of the PPF), when it had previously been so resolutely determined to remove the MFR introduced by The Pensions Act 1995 (weak as it is).

- (2) Companies had advanced notification before each additional raft of

indexation was imposed on pension schemes by the Government. If companies had wished to maintain the ‘safety valve’ of discretionary benefits, they had plenty of opportunity to reduce the accrual rate while maintaining the funding level, so that they could still provide some benefit in the form of future discretionary augmentations.

- (3) It appears that the focus on the risky nature of the pension promise has become popular as an alternative to advising strong funding. Looking back 12 years, the discussion of Thornton & Wilson (1992) makes it clear that, even after indexation in deferment had been in effect for some six years, it remained the understanding of many (or even most) actuaries that discontinuance benefits ought to be at least substantially, if not fully, covered. This is demonstrated by the following comments made in the discussion:

“The need to ensure that discontinuance solvency is covered with a suitable contingency margin is likely to assume increasing importance in future”
(P.N. Thornton)

“... the paper’s rejection of discontinuance funding is untimely. Many actuaries will be looking at the higher of a discontinuance funding liability with some margin for variation and expenses and a projected unit credit reserve.” (P.M. Greenwood)

“Almost certainly, attention must now focus on ensuring that members actually get their promised benefits. The proper level of security and how to achieve it is not just a technical question, it is a matter of public concern.” (J.M. Hill)

“We need ... a prudent on-going basis for funding our client schemes that is reconciled with, and results in, a sufficient margin relative to the discontinuance liabilities.” (G.R. Farren)

3.3 *Summary*

In view of the above, we think that it is important for:

- the fundamental importance of leaving service/discontinuance benefits to be reflected in our methodologies; and
- the security of members’ benefits to be fully disclosed — even if the risky ‘social contract’ argument is accepted as valid, it remains important that members have sufficient information to evaluate the riskiness of their pension promise.

4. SOLVENCY

4.1 *Measuring Solvency*

4.1.1 If member security is the primary reason for funding a pension scheme, it seems consistent that:

- the liabilities covered by this measurement should be the benefits payable in the event that the scheme is discontinued (setting aside deficits

- or benefit augmentation provisions) or the member leaves the scheme; and
- the measurement of scheme solvency is of prime importance in both assessing and disclosing to members a pension scheme's financial position.

4.1.2 A focus on scheme solvency does not preclude holding additional reserves for salary growth. When discontinuance pensions were not indexed, it was standard (and reasonable) practice for companies to fund to include some advanced recognition for future salary increases. In practice, with the majority of U.K. DB pension schemes now closed to new entrants, any reserve for future salary increases is likely to be a small and dwindling proportion of the overall liabilities.

4.1.3 It is fundamental that, whenever a liability is subject to credit risk, it is benchmarked against the payment required to meet the liability in full, were it not subject to credit risk. For example, yields on corporate bonds are measured assuming that they are repaid in full and the spread benchmarked against government bonds. In contrast, the common practice of using a 'risky' discount rate to place a 'value' on pension scheme liabilities (for whatever reason) is likely to provide a potentially misleading financial picture. It is clearer to state that a scheme can pay 70% of pensions rather than using a higher discount rate, which may suggest that pensions are 100% covered. If actuaries include an allowance for credit risk in assessing the liabilities, this obstructs members and trustees from assessing the credit risk themselves.

4.2 *Principles for Assessing Solvency*

4.2.1 It is sometimes pointed out that there is no such thing as an absolute guarantee, as though this is an obstacle to the assessment of risk or its mitigation. This is not profound — the class of risky financial promises is self-evidently the class of all financial promises. In a more practical vein, we believe that:

- actuaries (and others) can achieve a high level of agreement that some financial promises are 'risky', e.g. junk bonds, and some are 'safe', e.g. guaranteed insurance benefits; and
- the problem of asset security has been over-stated in relation to pensions — it has been successfully addressed in other financial areas by the practice of passing collateral and the standardisation of counter party (e.g. ISDA) agreements.

4.2.2 While there is, necessarily, some arbitrariness over exactly where boundaries are drawn, and some important devil in the detail, we consider that the following key points of principle should apply to any actuarial

solvency measure (and that these principles ought not to be controversial for most actuaries):

- (1) A solvency assessment should be made with reference to an asset strategy that delivers the benefits with a high degree of certainty. (There would need to be restrictions on what could be considered to be an appropriate asset strategy.)
- (2) The notional solvency investment strategy should include only assets providing defined payments with a high degree of certainty. Within the insurance sector, there is some debate over which assets have suitable quality; cases are made for government bonds (which are commonly accepted as being default free), AAA debt or (collateralised) swaps.
- (3) Explicit additional prudent margins should be included for risks that cannot be offset using available assets, such as:
 - uncertainty in longevity and other demographics; and
 - investment mis-matching (e.g. there is no liquid bond that provides a payoff similar to a typical early leaver's deferred pension) and residual asset credit risk.
- (4) Any assets that are tied directly to the ongoing financial success or credit standing of the employer, such as employer related investment or a contingent security offered by the sponsoring company, ought to be accounted for on a worst case scenario. For instance, shares in, or an unsecured loan to, the sponsoring employer ought to be ascribed nil value.
- (5) The negative financial impact of options against the scheme that can be exercised by parties not responsible for running the scheme need to be reserved for fully.
- (6) Prudent allowance should be made for expenses.

4.3 *Defining 'Prudence'*

4.3.1 There is no right answer as to what constitutes 'prudence'. Within the U.K. actuarial profession, there is considerable divergence of answers as to what constitutes prudence. For example, insurance company actuaries responsible for setting the costs and reserving for bulk annuities come up with figures that are far in excess of the figures that pension actuaries responsible for advising companies and trustees seem to settle on. Whilst different law governs insurance contracts compared with pension schemes, we do not believe that this fully explains the divergence in the use of the word 'prudent' or that this would be a credible justification to a lay person. We believe that it would be sensible for the Actuarial Profession to drive towards consistent methodologies for assessing the solvency value of the same sets of liabilities.

4.3.2 Thornton & Wilson (1992) defined prudence as a 60% chance of events being more favourable, which they consider to be equivalent to

reducing the expected return on assets (principally equities) by $\frac{1}{2}\%$ p.a. We consider this type of definition to be dangerous, because it is so at odds with a lay person's view of prudent — we doubt very much that a lay person would say that prudence should be equated to a three in five chance of having his benefits paid in full in the event that the company fails. Our view is not novel — the same point was made by Cule in the discussion of that paper:

“We must remember security and look at it from the member's view. If you tell him that he has a pension built up with enough fund to provide a projected benefit, he does not think it is 50:50 odds, or even 70:30 odds. He thinks it is a lot more powerful than that.”

4.3.3 We also note that, where value at risk (VaR) is used as the standard measure of risk, for instance in banking, the confidence levels adopted are commonly 97½% or 99%.

4.3.4 There are two identifiable types of uncertainty:

- For financial liabilities, where there is sufficient liquidity in matching assets to make hedging feasible, the cost of the hedge (including allowance for the expenses of running the hedge) could be used (plus a reserve for market gapping and illiquidity). The Actuarial Profession could define principles for this type of reserving.
- For risks such as longevity, where there is a clear shortage of liquidity, there is a need for the Actuarial Profession to develop a standard methodology which prevents actuaries from using the word 'prudent' in a manner that is likely to be misunderstood by a lay person. For the critical issue of longevity, this would inevitably require actuaries to make a prudent assessment of future longevity.

4.3.5 An assessment of the margin required to cover a source of risk should be demonstrably prudent in the light of experience. For example, a mortality margin should be sufficient that, if applied in the past, it would have provided sufficient reserves to cover (or mitigate substantially) the observed improvements in longevity (such as the cohort effect impact on PA92 tables).

4.3.6 In any assessment of solvency, additional consideration would need to be given to the cost of moving from existing assets to the solvency investment strategy. This additional cost and risk should also be accounted for in any measure of solvency.

5. THE COMPANY COVENANT

5.1 *Insolvent Pension Schemes*

5.1.1 If a scheme is insolvent (i.e. its assets are less than its liabilities) or may become insolvent in the future, the payment of its benefits is dependent

on the payment of future contributions (typically uncollateralised) by the sponsoring company. This dependency is often described as ‘the company covenant’, and depends on both:

- the ability of the company to make good current and future deficits; and
- the willingness of (or the power of the trustees to force) the company to make good current and future deficits.

5.1.2 The dependency of benefits on future contributions is geared by priority rules that generally favour pensioners at the expense of non-pensioners. The latest changes to the priority rules (from 10 May 2004) have moved pension increases a little further down the pecking order, and further amendments are expected to align the winding up priority orders with the PPF’s protected benefits. Even after these changes, there will still be gearing effects, and these will still favour pensioners. So, for example, a scheme may be 80% solvent overall, but, after the priority rules have been applied, it might be the case that non-pensioner members’ benefits are only 20% covered. This implies that, if members are to understand the security attaching to their benefits, solvency always needs to be disclosed by category of member.

5.1.3 The company covenant represents an investment by members in the sponsor. It is directly comparable to holding an unsecured loan in the sponsoring company, and, as such, is a form of ‘self-investment’ (or ‘employer related investment’). Self-investment is generally seen as undesirable for the following reasons:

- Current employees are dependent on the company for their future earnings. In the event that the company fails, they face the double jeopardy of losing their incomes and their pensions. (Even if they are already early leavers, there is a greater than average chance that they will work in a related economic sector, which, again, means that there is correlation between their future earnings, human capital, and their pensions.)
- A pension deficit represents a concentrated investment for a member — for many individuals their largest assets are their homes and their pensions. The pension deficit, effectively an unsecured loan to the sponsor, represents a large undiversified risk.
- It is illiquid.
- Trustees may be in a poor position to negotiate, because of the consequences for their members (and, typically, themselves) if they were to take action that would otherwise be considered commercially sensible by a creditor. (In our experience, the threat of bankruptcy is sometimes misunderstood; if a business is viable, then the underlying business can continue in administrative receivership or otherwise, and can continue to employ the employees. The real change in a bankruptcy event is that shareholders lose control and the ability to take cash out of the business, which must, instead, be paid to creditors, e.g. the pension fund.)

5.1.4 Since 11 June 2003, trustees are in a much stronger position, as, in most circumstances, the sponsor can no longer wind up the pension scheme without meeting the discontinuance benefits.

5.1.5 We note, in passing, that, while there is robust legislation restricting pension schemes to a maximum employer related investment of 5% of scheme assets, this requirement is not extended to deficits.

5.1.6 It is common for companies to claim that, because they are creditworthy, they do not need to fully fund the pension scheme. This might be reasonable if the trustees have a high priority claim on the company's assets. However, this is rarely the case, and a company's credit quality can fall much more quickly than the trustees can extract sufficient assets to fund the pension scheme fully. Moreover, it is not credible for a company to claim to be creditworthy and, at the same time, refuse either to pay contributions to make up a deficit or to provide equivalent alternative security.

5.2 *Pension Schemes as Cheap Financing*

5.2.1 It is sometimes claimed that pension schemes provide a 'cheap source' of capital to companies, and so assist in generating economic value. Indeed, given that so many companies are choosing to run deficits in their pension schemes rather than transfer this debt to the capital markets, this view may be quite widespread. Our view is that this is fallacious for creditworthy companies in a transparent financial system.

5.2.2 A pension scheme deficit represents an unsecured loan from the scheme members to the sponsor. Given that pension scheme members are highly unlikely to be able to diversify or hedge this risk efficiently, they should logically demand a much higher price than the capital markets for bearing this risk. Far from members providing cheap capital, in a transparent financial market the reverse is true. This problem also appears in share schemes and options — see, for example, Meulbroek (2000).

5.2.3 Because members require a high price for bearing concentrated risk, they put a low value on the pension promise. This leads to a destruction of value, as the compensation which members require to offset the risk of default in the pension scheme is in excess of the cost of supporting finance raised elsewhere. Insolvent pension schemes provide an inefficient economic arrangement.

5.3 *Lack of Transparency*

5.3.1 It may — reasonably — be argued that we do not have a fully transparent financial system, and that informational asymmetries mean that employees do not, in practice, extract the higher return required to compensate them for the concentrated risk which they face from insolvent pension schemes. This is, however, a problematic scenario for the Actuarial Profession, given that actuaries play a key role in, and have significant

responsibility for, providing information to trustees and members (e.g. under the statutory disclosure requirements).

5.3.2 An insolvent pension scheme is particularly significant when a company is in financial distress. Not only is the security of members' pensions particularly at risk, but, in this instance, the pension could represent one of the few sources of finance left to a company. In these circumstances, poor financial management and advice can result in substantial value being transferred from members to shareholders or other creditors of the company. Accordingly, it is critical that actuarial advice in these circumstances provides complete transparency to trustees and members.

5.4 *Taking Account of the Company Covenant in Actuarial Advice*

The Actuarial Profession has backed away from taking account of the company covenant. For an insolvent pension scheme, ignoring the company covenant seems to omit a crucial part of the jigsaw — how can trustees consider pension scheme funding without having professional advice on what, in many cases, is their most significant investment? More specifically, how can trustees agree to be heavily self-invested in the sponsoring employer without asking for some reassurance on the creditworthiness of this investment? We believe that, before actuaries can provide a funding recommendation, the trustees must have determined (if necessary by recourse to competent financial advice) the reliance that can be placed on the company to pay future contributions under a range of scenarios, including bad ones.

6. A CRITIQUE OF CURRENT FUNDING ADVICE

6.1 *Introduction*

Among us, we have seen funding advice from actuaries in all the major U.K. firms of pension consulting actuaries. The critique in this section is based on our observations of this actuarial advice.

6.2 *Funding Targets*

6.2.1 Actuarial valuation methods, e.g. as set out in GN26, typically refer to a funding target as an intermediate result. The terminology varies — all the following may mean funding target:

- 'the value of the liabilities';
- a 'past service reserve'; or
- an 'actuarial liability' (the definition in GN26).

6.2.2 Whatever the terminology, a common feature of the calculation of funding targets is the use of a discount rate in excess of gilt (or high quality bond) yields. We argue that this practice is flawed, because it takes advance

credit for *possible* future investment out-performance, with no reserving for the associated risk.

6.2.3 A funding target based on a higher discount rate is likely to result in pension schemes which are less than fully solvent. Even when such a target funding level is reached, the phrase '100% funded on an ongoing basis' implies that the pension scheme is solvent, when it is not.

6.2.4 In the past this mattered less. Before the introduction of statutory indexation, schemes funded on these types of bases were still solvent, because of the allowance for salary inflation and discretionary increases in payment compared with no increases for leaving service benefits in deferment or payment, and general actuarial prudence. It appears to us that, from around the time of Thornton & Wilson (1992), actuaries moved towards funding targets that would inevitably result in severely insolvent pension schemes. We advance the following reasons to explain this:

- There is a natural tendency for clients to want low contribution rates and to present a positive picture to members. This creates commercial competition between advisers, leading, inevitably, to strong pressure towards weaker actuarial bases and methods. (We understand that, preceding this, there was a time when consulting actuaries adopted funding methods that implied higher company contributions than those advised for broker arranged pension schemes. This collective sense that consulting actuaries had previously been demonstrably prudent may account for why the Actuarial Profession has taken time to react to more recent changes.)
- Actuarial funding target methodology is obscure and opaque. This means that bases can be weakened or strengthened through what those outside the profession might, possibly unfairly, describe as 'sleight of hand', and those within the actuarial profession sometimes describe as 'actuarial magic'.
- Until 20 March 2004, there was no requirement imposed by the Actuarial Profession for actuaries to disclose solvency information to trustees in their valuation reports. (There was a requirement to make a disclosure in relation to discontinuance, but actuaries were free to use either 'ongoing'-type assumptions under a so-called 'closed fund basis' or cash equivalents, both of which could give the impression of meaning solvency, but which could paint a much more rosy picture than solvency in the sense which we have described.)
- The Actuarial Profession has failed to take action of any kind on this issue.

6.2.5 Actuaries may also add a so-called 'smoothing adjustment'. This makes the task of communicating the financial position of the scheme more difficult by mixing current and historical data. The impact of this approach is that the assessed value of the liabilities mimics the

behaviour of the stock market or other mis-matched scheme investments in the short term, hence masking the mis-match between the assets and the liabilities. A particular consequence is that, if a smoothed funding target is used to assess a scheme's projected financial position in a stochastic asset/liability study, the impression is created that mis-matched assets are actually the best matching assets for the liabilities, when, in reality, this occurs purely because the actuary has designed the funding target in this way.

6.2.6 It is common for actuaries, describing how they arrived at their funding target, to refer to the future expected returns on investments under a notional investment strategy (where this notional investment strategy is not aimed at matching the liabilities). This can give rise to the following actuarial advice:

- if the scheme intends to take more investment risk relative to its liabilities, then it can hold less assets up front to cover the risk;
- if the scheme intends to take less risk, then it should hold more assets; and
- the strength of funding can be materially affected, simply by an assumption that trustees will be taking some investment risk 20 years hence.

6.2.7 We are concerned that there is an element of self delusion within the actuarial profession; regardless of the reference to expected returns, using a higher discount rate is simply a way of reducing the pace of funding, i.e. advising lower contributions now (at the expense of potentially higher contributions later and lower member security). We are also concerned that this is in conflict with the approach that would be adopted on the insurance side of the profession, where a more risky investment strategy would require higher reserves to provide the same level of security. A more risky investment policy within a pension scheme should normally lead to a higher, not a lower, pace of funding, in order to provide equivalent member security.

6.2.8 If the primary reason for funding a pension scheme is security, it seems clear that the funding target should relate, in a clear and unambiguous way, to the solvency level. Instead of actuaries being permitted to state that a scheme is 100% funded, because they have been happy to advise a weak funding target, it would be clearer by far for all parties if actuaries declared that a scheme's assets are e.g. 50% of its liabilities, and that this is actually the scheme's funding target.

6.3 *Amortisation of Deficits*

6.3.1 The amortisation of deficits deserves special attention, because:

- deficits are key to the security of the members' benefits;
- as noted above, for members who are still employees, a deficit is, in effect, investment in the sponsoring employer;

- for many pension schemes at the current time, the amortisation of the deficit has a greater impact on company contributions than the cost of benefits accruing;
- the amortisation method can be as important as the actuarial funding methods and basis; and
- despite the range of definitions in GN26, there are no professional guidance or standards covering actuarial advice in relation to amortisation (other than implicitly under the now uncommon aggregate method).

6.3.2 In our experience, the amortisation method is often set with no obvious reference to the strength of the company covenant. There seems to be a rule of thumb that deficits should be amortised over a period equal to the expected future working lifetime of the employees, although we suspect that this derives more from accounting practice than from any fundamental justification (or is possibly a hangover from historic practice).

6.3.3 Re-amortisation of deficits at successive valuations means that the actual period of amortisation is longer than the nominal period quoted. For instance, re-amortising a deficit over 15 years at each successive triennial actuarial valuation would result, if the assumptions are met, in a third of the deficit still being outstanding after 15 years. Indeed, it would mean that, if the funding assumptions were to hold true, the deficit would never be fully cleared.

6.3.4 Without agreeing in advance how future deficits will be treated, it is not possible to model pension scheme funding. In particular, a statement of funding principles is necessarily incomplete without a definition of how future deficits will be treated.

6.4 *Investment*

We take it as a given that, setting aside the risk arising from demographic factors, principally longevity, appropriate bond investments are the best match for pension scheme liabilities. These arguments have been made elsewhere (see Exley *et al.*, 1997; or Speed *et al.*, 2003). There is still some residual debate within the actuarial profession, but it seems to us that the financial world and many, probably most, actuaries accept that high quality bonds provide the least risk portfolio.

6.5 *Adequacy of Capital Markets*

6.5.1 It is sometimes pointed out that, even if companies and trustees decided that they wanted to take the risk out of their pension schemes, there would not be sufficient current assets available, either for all pension schemes or even for some very large pension schemes, acting on an individual basis, as though this is a justification for taking no action. To the extent that pension schemes hold equities, a re-arrangement of the balance sheet of

U.K. plc would be required (retiring equity and issuing debt). In practice, we expect that the following would apply:

- Capital markets operate to equate supply and demand, both in the pricing of existing assets and in the creation of assets themselves. If there is an increased demand, we expect that the supply would increase to meet the demand. If the increase in demand were extreme, we expect that this would be accompanied by some turbulence while markets cleared. However, our experience of pension schemes suggests that most do not implement radical shifts in investment policy overnight, that they take a long time to make any investment decision, and that they do not move collectively.
- In the event of all U.K. pension schemes investing in bonds, this would necessarily include a significant proportion of corporate bonds. However, pension schemes exchanging equities for corporate bonds does not imply that the bond assets would have the same risk as the equities. Although the total amount of risk in the economy would be unaltered, the risk to pension funds would significantly decline, due to the higher creditor status of bonds.

6.5.2 From a global macro-economic viewpoint, consumption by pensioners needs to be sustained by production from the current generation of workers. The allocation of assets between different securities (equities, corporate bonds and gilts) provides different priority claims on economic production. Although there is a point at which the level of pensioner consumption is unsustainable, the actual consumption experienced by pensioners will depend on the priority which their claims have on economic production.

6.5.3 The concern over the availability of assets on a macro level also has implications for individual companies:

- If a single pension scheme cannot easily exit its risks, this, in itself, is a strong message about risk management — lack of liquidity would flash warning lights in any other area of financial activity. This risk exposure suggests to us that, if anything, a staged exit from the risk needs to be made, starting sooner rather than later.
- We doubt whether companies would take on non-core risks to such an extent in other areas. It is odd that companies should seek, over time, as their pension liabilities accumulate, to transform themselves into quasi-insurance companies, with their primary financial liability being the provision of retirement annuities.

6.6 *Affordability*

6.6.1 It is also sometimes claimed that the pension guarantees written by U.K. plc are unsupportable. These arguments fail to recognise that the majority of debt required to provide the security for U.K. corporate pensions

has already been issued by the sponsors to members (currently in the form of pension deficits). Therefore, the main action required is a debt swap, exchanging a concentrated exposure of the sponsor's debt to a diversified portfolio of debt.

6.6.2 If it were the case that the level of pension liabilities is too great for U.K. plc to bear (which we do not accept), then we suggest that society's interests would be better served by recognising the inability to deliver on pension promises, and paying transfer values to individuals so they can adopt diversified investment strategies to reflect their needs.

6.6.3 It is counter to members' interests to:

- acknowledge that the pension promises are too great, and then fail to disclose this clearly; and
- continue with the current approach that exposes them to very significant concentrated risk, which is exacerbated by gearing through priority rules and mis-matched investment strategies.

6.7 *Conclusion*

6.7.1 Current methodologies result in schemes being described as '100% funded', when they do not hold anything like sufficient assets to secure their benefits. When insolvent funding targets are set, it is no surprise that schemes are found to be insolvent when the sponsor fails. Although it is usually up to trustees and companies to determine how strongly their pension schemes should be funded, we believe that actuaries should seek to ensure that the funding level of the pension scheme is presented in terms of solvency.

6.7.2 Arguments for basing funding objectives around discontinuance measures are set out in McLeish & Stewart (1987). We consider that, provided that the discontinuance measure which they refer to is the solvency measure which we have outlined, many of the arguments set out in that paper hold good today. Moreover, had the actuarial profession been using this type of method (in combination with market discount rates), it would have woken up more quickly to (or even anticipated):

- the huge additional burden placed on pension schemes by the introduction of statutory indexation on deferred pensions, and then guaranteed pension increases in payment; and
- the potential impact of falling long-term interest rates on pension scheme security.

6.7.3 For some years now, the Actuarial Profession has provided detailed guidance on the description of valuation methods and the context of valuation reports, but has provided no standards for setting the underlying financial assumptions or the treatment of deficits, when, in practice, it is these that are important. Meaningful guidance would indicate what margin should be deducted from gilt yields to arrive at the discount rate and what mortality tables are deemed acceptable. In practice, actuaries advising on

funding have huge freedom within the Actuarial Profession's existing guidance to select variables, such as additions to discount rates, amortisation periods and 'smoothing' adjustments, that make it very easy to create the impression that:

- pension scheme funding is stronger than it is (simply by reference to the scheme being e.g. '100% funded on the ongoing basis');
- pension scheme funding is progressing smoothly from one valuation to the next, even though the underlying solvency position may actually have changed enormously, which will obscure the risk from members; and
- the target funding level is being aimed at over the amortisation period, but, in practice, this is a moving target that may never be reached.

6.7.4 There is a danger that all parties, including the advising actuary himself, can conclude that a pension scheme is being funded strongly and that its investment policy does not constitute a significant risk, when the reality is the opposite.

7. PRINCIPLES FOR FUNDING ADVICE AND THEIR APPLICATION

7.1 *Core Principles*

7.1.1 We have set out below ten core principles which we believe should underlie actuarial advice on pension scheme funding. These principles are aimed at bringing clarity to funding, in particular to provide:

- members with a clear picture of the scheme's ability to deliver benefits and the value of accruing pension rights; and
- shareholders (and other providers of capital) with information on the contingent liabilities that the pension scheme brings to the business and the cost of pension provision.

We believe that it is in the profession's interests to adopt these principles, to ensure that clear objective advice is delivered on pension scheme funding.

7.1.2 The principles are:

- (1) When referring to the *value* of a scheme's liabilities, actuaries should only use the solvency measure of the liabilities; any other measure (for example the MFR value of the liabilities) should be qualified to avoid confusion. Assets should be taken at market value.
- (2) Funding advice should disclose the broad impact of priority rules on different classes of members' benefits at the date of valuation, and give guidance on how they will impact on the scheme as time passes.
- (3) Actuaries should advise on funding, only if the party or parties responsible for setting contributions have set a funding objective which is expressed in terms of solvency, and which is sufficiently well defined

that two different actuaries would then arrive at similar answers for the future funding of the scheme.

- (4) Funding targets should either be solvency or be described unambiguously in relation to solvency.
- (5) If contributions are being paid which are below the level required to maintain solvency (including priority coverage for all members), this should be highlighted.
- (6) Options that can be exercised against the scheme by members or a party not responsible for setting a contribution rate should be disclosed, and, in any measurement of solvency, they should either be reserved for fully or to the extent that the party responsible has confirmed that the option will be limited.
- (7) Before the actuary advises on spreading contributions to meet a deficit, or where a mis-matched scheme investment strategy creates a material likelihood of a future scheme deficit, the company covenant needs to have been evaluated. Either the party(ies) responsible for setting contributions (and to whom the actuary is reporting) or a third party (deemed to have suitable expertise) should determine or advise on the following:
 - the degree to which the company covenant can be relied upon, including timescale;
 - how the company covenant should be monitored; and
 - suitable actions which could be taken in the event that the covenant deteriorates.
- (8) The amortisation method used should be described in full. If the method allows for re-amortisation at future reviews, this should be disclosed, and the impact of re-amortisation at future reviews quantified.
- (9) The solvency position projected to the next review date (typically in three years' time) on a range of scenarios should be disclosed. These scenarios should demonstrate expected solvency levels and quantify the mis-match risk. Mis-match risk for all material risks over the review period should be measured, where possible, by the cost of removing the mis-match risk, or by using value at risk measures.
- (10) Actuaries should not advise on the level of contributions extending beyond the next review, unless they specify unambiguously the basis for determining contributions after the review period (including contributions in relation to any deficits that may arise and the timing of all future reviews).

7.1.3 Our justification for these principles is as follows:

- Principles (1) and (2) are designed to reduce the likelihood that actuarial valuations might mislead users over the level of benefit security.

- Principle (3) prevents actuaries advising on funding without funding objectives first being established, and these funding objectives having clear implications for the future solvency of the scheme.
- Principles (4) and (5) are to prevent funding advice being confused for valuation advice.
- Principle (6) is to take due account of options which could be exercised to worsen the scheme's financial position.
- Principle (7) requires that a deficit should have been duly considered before the actuary is required to advise on spreading contributions to meet it.
- Principle (8) is to prevent amortisation methods being presented as stronger than they really are.
- Principle (9) is to ensure that basic risk management information is provided.
- Principle (10) is to prevent the impression being given that funding advice applies to the long term, when the basis for contributions beyond the next review is, in fact, unspecified.

7.1.4 We have expanded on the derivation and application of these principles below.

7.2 *Funding Objectives and Targets*

7.2.1 We have suggested that the parties responsible for setting contributions should set a funding objective which is explained in terms of solvency, and in a way that two different actuaries would then arrive at very similar answers for the future funding of the scheme. An example is as follows:

“The trustees' funding objective is to achieve a solvency funding level of 100% by 1 April 2013, allowing for the following factors in the period up to that date: pay inflation of 5% p.a.; no new entrants; and other demographic experience in line with the actuary's recommended assumptions.”

7.2.2 Where there is an intention to provide discretionary benefits over and above guaranteed benefits, this implies either a higher level of funding compared with solvency, or that they are paid for on a pay-as-you-go basis by the employer.

7.2.3 In practice, it is common for the trustees to have a funding objective below 100% solvency. Expressing this lower funding objective in terms of solvency, and disseminating it to scheme members, will reduce confusion over the financial position of the scheme. If the employer is unable, or unwilling, to fund the pension scheme up to full solvency, it is clearly important that members are aware of the lack of security of their pension promises, including the impact of the wind up priority orders.

7.2.4 We are, however, concerned that trustees accept funding objectives that equate to less than 100% solvency too easily. It is sometimes suggested that this is justifiable, because of the wider interests of the employees who continue to rely on the sponsor for their income, but this does not deal with the risk to deferred and pensioner members' pensions. We suspect that trustees have been encouraged to adopt sub-solvency funding targets by the legitimacy conferred on them by actuaries stating that pension schemes are 100% funded, and proffering the funding target as *the* measure of a pension scheme's well being.

7.2.5 Clarity of cost is also important when an employer is reviewing pension provision. It is possible that employers continue to accrue DB liabilities, precisely because of the confusion between funding and solvency cost. Employers do not think that the benefits are cheaper than the full solvency cost, because they retain an ability to default on these benefits; they think that they are cheaper than the solvency cost, because the actuary has reported a lower cost on a funding basis.

7.3 *Self Investment, Credit Risk and Amortising Deficits*

7.3.1 Deficits are equivalent to an unsecured loan to the sponsor where the repayment terms are ill defined. Therefore, whenever a deficit exists, the lifetime of the sponsor is of key importance to the security of the scheme's existing liabilities.

7.3.2 We suggest that, if deficits are to be amortised, a fixed calendar date is set for removing the deficit. If the amortisation period is set as a fixed number of years, actuaries should warn that the effects of re-amortising at subsequent funding reviews will mean that the scheme's deficit takes longer to clear, and that the members will have continuing dependence on the sponsor.

7.3.3 We suggest that trustees should agree limits on the maximum level of self-investment that the deficit represents, and take into account:

- the impact of priority rules on different classes of member at wind-up;
- and
- different levels of credit worthiness of the sponsor.

7.3.4 Different limits may be appropriate for different levels of sponsor credit worthiness.

7.3.5 Monitoring these limits will require the credit risk of the sponsor to be assessed. For companies with quoted liquid unsecured debt, an appropriate measure of creditworthiness is the spread (or premium) on these securities or credit default swap (CDS) on the sponsor. As a minimum, we suggest that trustees should be aware of the amount and extent of the employer's assets that are available to act as guarantor for any pension scheme deficit.

7.3.6 If the limits on self-investment are breached, the exposure of the

scheme to the sponsor needs to be reduced. We suggest that it is important that any actions (and the powers of the different parties) are pre-agreed, as there will always be a motivation to argue that extenuating circumstances make this an inappropriate time at which to provide greater security to the trustees. In general, we remain sceptical about implementing a system where a cash call is triggered by a financial deterioration in the sponsor or the scheme. This leads to the conclusion that strong companies should fully fund pension schemes and weak companies should *already* have fully funded pension schemes.

7.3.7 Trustees should ask whether the risk posed by a deficit can be removed immediately, for example by a one-off contribution. This route provides the greatest security to members. There are also potential tax advantages to shareholders arising from full funding (although these may be impacted by delayed tax relief on large company contributions).

7.3.8 The reality is that, as at July 2004, most U.K. DB schemes are insolvent. If starting from scratch, the level of self-investment implied by these deficits may well be considered unacceptable. Trustees, therefore, need a plan to reduce deficits, and hence self-investment to acceptable levels.

7.4 *The Impact of Investment on Funding and Deficits*

7.4.1 Pension scheme assets provide the collateral to meet pension benefits. The allocation of these assets is important, as more equities are needed than bonds to collateralise the same debt. For example, a scheme that has equity assets of 105% of the value of the liabilities is not fully collateralised, as this takes no account of the mis-match between assets and liabilities. The scheme could only be described as fully collateralised if a sufficient prudent margin exists to cover changes in the value of equities relative to the liabilities. In contrast, if the assets are held in high grade bonds with characteristics which reflect the liabilities, the scheme could be described as fully collateralised, assuming that the 5% margin is sufficient to cover demographic uncertainties.

7.4.2 Therefore, the funding target should take account of the asset allocation, with a more risky asset allocation (for example equity investment) requiring a higher funding target.

7.5 *Optionality*

7.5.1 It is important to consider the optionality of U.K. pension arrangements on the pension scheme, particularly in times of financial stress. These options exist in many forms. For the members, it may be the option to exchange one form of benefit for another form of benefit (e.g. on early retirement). Such options need to be properly priced into the solvency valuation model. Care is also needed by the trustees in the management of such member options, to ensure that distortions are not created by the wind-up priorities.

7.5.2 For the trustees, options exist around the choice of investment strategy (e.g. the decision to buy annuities), as well as many other aspects of pension scheme management (e.g. the option to choose the date of the actuarial valuation). If the rules give the trustees ‘unusual’ powers, these might represent options on the scheme (e.g. the power to spend surpluses on benefit improvements). Where appropriate, such options may need to be factored into a solvency valuation. Trustees need to ensure that such options are exercised in members’ interests.

7.5.3 For the employer, the primary option to restrict its pension obligations — the power to walk away from the scheme and put it into wind up without additional financing — has been taken away by the Government’s change to the debt on the employer regulations, announced on 11 June 2003.

7.5.4 The PPF will create another source of optionality. Depending on the structure of levies and its operation, the PPF could provide options for trustees and employers to exploit. For example, it is possible that the PPF will provide employers with the option of cheap capital financing (by running a deficit in the pension scheme, for which the PPF is acting as guarantor). Once the PPF is up and running, it will be an important part of the management of any pension scheme to examine the optionality offered by the PPF. This issue is considered in more detail in Bader’s paper (2004).

7.5.5 The optionality of pension arrangements is most important in critical circumstances, e.g. when the pension scheme or the employer is in financial distress. Optimal solutions for any one party, in such circumstances, will only be arrived at by examining in detail all the options open to all parties.

7.6 *Setting and Disclosing the Future Contribution Rate*

7.6.1 We have defined an idealised funding method which goes beyond the core principles set out in Section 7.1. This is essentially the defined accrued benefit method (DABM), described in GN26, based around the solvency measure. Its key features are:

- (1) The funding target is the solvency measure plus a value at risk reserve for any planned investment mis-matching.
- (2) Future accrual is assessed as the value of the benefits accruing up to the next review period on the solvency measure. Note that this will include salary increases for employees who have salary related accrued pensions.
- (3) Deficits are addressed immediately, or over a short period with a fixed target date, with no re-amortisation of the deficit at future dates.
- (4) Maximum acceptable deficits, which take account of the creditworthiness of the sponsor and the impact of priority rules, are specified.
- (5) In the event that the maximum deficit level is breached, pre-agreed

action is taken to restore the deficit and the credit risk to acceptable levels.

7.6.2 The advantages of this method are that:

- it does not falsely incentivise trustees and companies to adopt a more risky investment strategy, on the basis that this will cause the actuary to provide a lower contribution recommendation;
- it is less likely to mislead trustees and members over the current and future financial positions of their pension scheme; and
- it is broadly consistent with principles applied in practice by life actuaries.

8. GOVERNANCE

8.1 *Introduction*

Given the very long-term nature of pension provision, the cumulative likelihood of a failure is much greater than with most other financial arrangements. In order for there to be a high likelihood of the benefits being paid, it is critical to have strong governance provisions over the duration of the pension provision.

8.2 *Trustee Governance*

8.2.1 The functioning of U.K. pension schemes relies on trustees carrying out their duties in the members' interests. While many trustees undoubtedly act with the best of intentions, the regime leaves much to be desired in governance terms. The conflicts for trustees are plain, and, in critical circumstances, are likely to be severe:

- Trustees typically include senior management, whose interests naturally tend to lie with the continued operation of the company. In difficult financial circumstances, it is only natural that senior management will be tempted not to exercise trustee powers to the full if that would upset the company owners to whom they report.
- Most trustees tend to be employees. It will clearly be difficult for them to take a strong position when their careers are in the hands of company management to whom they report internally. They will also, quite naturally, have an interest in their continued employment, so, if matters come down to choosing between member security and their own immediate income, they will be tempted to protect their income.
- Sometimes pensioners are trustees. However, pensioners come at the top of the priority order, and therefore can afford to be less concerned about overall member security. Where pensioners have pensions that were earned before limited price indexation became a requirement in April 1997, and receive only discretionary increases, this priority order

provides them with an incentive for a risky investment strategy — if it succeeds, they have a greater chance of a discretionary pension increase, but if it fails, the non-pensioner liabilities act as a buffer against their benefits being reduced.

8.2.2 In practice, trustees in many pension schemes have powers which they could exercise to achieve higher funding levels, such as being able to trigger winding up or setting a gilts matching investment policy to trigger a higher statutory minimum funding requirement. Our experience is that, even where trustees have absolute power to set company contributions, these schemes still tend to be poorly funded, which implies that trustees are weak in exercising their powers.

8.2.3 We believe that the trustee system is the primary source of governance failure. In broad terms, trustees have obtained the advice that they have asked for. It would take an extremely strong Actuarial Profession to correct fully for the systemic flaws in the current trustee regime, although the use of a solvency-based measure for liabilities, advocated in this paper, would be a significant help. The FSA's Combined Code on Corporate Governance sets out the framework under which companies are expected to operate (see Appendix B). We suggest that there is much to be learned from the Combined Code which could be adapted and applied to pension schemes and their trustees (by reading members where it refers to shareholders and trustees where it refers to directors or the board).

8.3 *Company Incentives*

8.3.1 It seems likely that there are significant incentives against full funding and against safer investment policies (otherwise pension schemes would not be in the position in which we find them today). Given that companies exercise considerable power directly and through their influence over trustees, we have listed some of the incentives which operate on company managements:

- Pensions accounting standards (including SSAP 24, FRS 17, FAS 87 and IAS 19) have distorted company incentives towards taking risk. SSAP 24 allowed companies to take advance credit for many future years' anticipated expected higher returns from risky assets. All current major accounting standards include the following year's expected return on pension scheme assets in their profit and loss accounts, which, given typical management focus on profits, create an incentive to prefer risky scheme investments.
- Shareholders, analysts and rating agencies may not see through the opaque accounting standards. As a consequence, companies may be penalised more heavily for taking on-balance sheet risk than for taking off-balance sheet risk, even when such risks have identical economic impacts on the company and its shareholders. The nature of the off-

balance sheet risks in pension schemes is such that they have been off the radar screen of many analysts, and hence the increased debt/equity leverage represented by pension schemes has not been fully recognised. Coronado & Sharpe (2003) provide some evidence that shareholders in United States' companies in the stock market boom up to 2000 treated profits derived from this accounting quirk in the same way as profits from normal company trading, implying that shareholders have not seen through the U.S. accounting disclosures.

- Incentive compensation plans for executives and senior management are largely linked to accounting metrics, and thus there is little incentive on company management to adopt policies on pension schemes which are not aimed at maximising their beneficial impact on accounting metrics.
- Companies are aware that many actuaries can be persuaded to advise that pensions 'cost less' if more risky assets are employed, which can then be used to reduce the company's cash contributions.
- Companies wish to avoid surpluses arising in pension schemes which cannot be recovered (so called 'stranded surpluses'). This provides a motivation to have schemes poorly funded, especially where significant mis-matches between assets and liabilities cause significant volatility in solvency levels.
- It is possible that the PPF might give incentives to underfund the pension scheme, as the PPF premium might represent a cheaper way of financing the company's capital requirements.

8.3.2 There are strong arguments that indicate that strongly creditworthy companies should favour both a high level of funding and the investment of pension scheme assets in fixed-interest bonds, as this delivers the maximum tax benefit to shareholders. This is well documented (see Black, 1980; Tepper, 1981; etc.). We suspect that it has rarely been applied, because of the above incentives and because actuaries have only relatively recently become acquainted with these arguments (and investment banks have only recently made inroads into providing financial advice on pension schemes).

8.4 *Conflicts for Actuaries*

8.4.1 Paragraph 5.1 of the Professional Conduct Standards of the Institute and Faculty of Actuaries states that clients are entitled to assume that advice given by a member is unaffected by interests other than those of the client, taking account of any identifiable professional or legal duty of care of the client in respect of a third party.

8.4.2 Unless all parties are committed to full (i.e. 100%) solvency funding of the pension scheme, it is open to question whether actuaries can simultaneously advise different parties (i.e. trustees and company). This is particularly acute where the trustees or the Scheme Actuary have strong powers under the trust deed and rules, such as setting the employer

contribution rate. Commercial considerations dictate that we try to accommodate and mitigate these conflicts. However, it appears to us that there is a long-term cumulative risk to the Actuarial Profession if this issue is ignored. Hence, we suggest that consideration be given to the circumstances under which separate appointments to the trustees and company are necessary, and that these be related directly to the strength of funding that is agreed by the trustees and sponsoring company.

8.5 *Actuarial Standards*

8.5.1 We believe that the Actuarial Profession has a responsibility to ensure that actuaries provide advice that can be relied upon. Moreover, we believe that the long-term survival of an independent Actuarial Profession depends on this.

8.5.2 To achieve high standards, to ensure that the Profession works in the public interest, and deserves the regulatory authority entrusted to it, the Profession provides guidance to its membership. Unfortunately, the guidance issued to date has failed to address the inevitable pressures that arise from commercial competition, and has overlooked some areas completely (for example, employer's covenant and the amortisation of pension deficits).

8.5.3 We do not believe that the recent crises that have involved actuaries are the result of understandable oversights or the unpredictable 'perfect storm'. Indeed, we view the current practice as making such events inevitable.

8.5.4 The once impeccable reputation of the Profession has been tarnished. It is under scrutiny, which it has rarely (if ever) faced in the past. Reform is inevitable, and already under way. The question is whether this will be sufficiently thorough to make the Profession emerge as an important and trusted body in the future.

8.5.5 We fully support the suggestion that the way forward for the Profession is for the introduction of an independent Actuarial Standards Board, which would issue strong professional standards (rather than 'guidance'). Such a body should be charged with ensuring that its professional standards protect against commercial considerations which act contrary to the public interest.

9. CONCLUSIONS

9.1 *Findings*

We conclude that the following features of U.K. pension schemes are critical in any actuarial valuation or funding advice given to trustees or employers:

- The primary reason for funding a pension scheme is security. Therefore, the funding objective should be defined clearly and unambiguously in relation to a measure of benefit security.

- Benefit security is most clearly communicated by measuring pension liabilities on a solvency basis. In contrast, ‘valuing’ pension liabilities on a basis that includes an arbitrary allowance for default or possible future investment out-performance has the potential to be misleading.
- Pension liabilities should refer to accrued benefits, the leaving service benefits.
- Pension liabilities represent (partially) collateralised corporate debt.
- Pension scheme deficits are self investment in the sponsoring employer.
- Funding targets should be derivable directly from the funding objectives, and should relate directly to scheme solvency. Communication to all parties (employer, trustees and members) should make the relationship between the funding target and scheme solvency clear.
- The impact of priority rules on members’ benefits for the current level of solvency should be made clear, along with how this would change with solvency levels.
- A riskier investment strategy should imply a higher target level of funding for the same level of risk to the members.
- The most efficient way for a creditworthy employer to manage its pension scheme is to fund the scheme on a solvency basis, and for the scheme to be invested in bonds (and possibly insurance contracts).

9.2 *Actions*

9.2.1 We suggest that the following actions would be desirable:

- Actuarial guidance on pensions funding advice (i.e. GN9) should be rewritten, adopting the principles listed in Section 7.1. The methodology outlined in Section 7.6 should be a recommended funding method.
- More thought and guidance need to be given to appropriate ways of determining, and, where necessary, defining (with appropriate accompanying caveats) pension scheme solvency.
- The Actuarial Profession should seek to influence the new regulator to ensure that trustees set funding objectives that are well defined (in the sense that two actuaries will independently arrive at similar company contribution rates), and are defined by reference to solvency, and which take account of the creditworthiness of the employer.
- The Actuarial Profession should lobby for better information to be communicated regularly to members on pension scheme solvency (including the impact of the wind-up priority orders).
- The Actuarial Profession should lobby for improvements to the governance of pension schemes, as it relates to trustees and their advisers.

9.2.2 We end by noting that the Actuarial Profession has wandered from its traditional path. Long standing notions of prudence, risk management and solvency, which had previously stood the profession in

good stead, have been downgraded over the past decade and a half. Now would be a good time to correct this.

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The views and opinions expressed in this paper are ours, and should not be interpreted as those of our firms, the Institute or the Faculty of Actuaries, or any other organisations with which we are associated. Responsibility for errors and omissions is ours alone.

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APPENDIX A

DEFINED BENEFIT PROVISION IN THE UNITED KINGDOM

A.1 *U.K. Pensions*

A.1.1 This paper deals with the current U.K. pension environment in 2004, although the points made are generally applicable to guaranteed vested DB pensions in other regulatory regimes.

A.1.2 We have used the term 'early leaver' for a member who does not remain in pensionable service until normal retirement.

A.1.3 Over time, the U.K. has arrived at a standard legal definition of the rights attaching to an accrued pension for an early leaver. Conveniently, this definition applies regardless of whether a member leaves the pension scheme while still in employment, the employer closes the pension scheme or the employer goes bust. The key features for an early leaver in 2004 are as follows:

- For this purpose, normal retirement is the date on which the member could have taken his or her pension without reduction.
- The pension is payable from normal retirement.
- The early leaver's pension must accrue at least as fast (as a proportion of pensionable pay) as the pension payable if the member had remained in service until normal retirement.
- The pension must be increased, between the date when the member's pension ceases to accrue and the normal retirement date, at least in line with U.K. consumer price inflation (currently the 'Retail Prices Index') up to 5% p.a.
- Pension increases in payment, in respect of any period of service, must be the same as would have applied had the member remained in service up to normal retirement.

A.1.4 In the event of a scheme being wound up, since 11 June 2003 the debt on the employer is the amount required to ensure sufficient assets are available to buy out accrued pensions. The debt on the employer makes it clear that pensions are a corporate debt guaranteed by the sponsor.

A.1.5 Changes in U.K. legislation have caused DB pensions to become predominantly guaranteed, both in terms of the payments and the responsibility of the sponsor. This is demonstrated by the following table, which charts some of the main changes in legislation:

Act	Brief summary	Broad impact
Finance Act 1970	Creation of New Code Approval for occupational pension schemes	Pension schemes provide mainly discretionary benefits with no minimum funding or security requirements.
Social Security Act 1973	Creation of the Occupational Pensions Board, introduction of preservation requirements for early leavers (with more than five years' service), introduction of provisions for the financing and security of minimum benefits	Guarantees and minimum funding requirements typically relate to less than 10% of liabilities.
Social Security Pensions Act 1975	Introduced State Earnings Related Pension Scheme (SERPS) and contracting out via Guaranteed Minimum Pensions (GMPs), extension of adequate financing provisions to include GMPs	Improved level of guarantees and minimum funding requirements maybe extend to 20% of liabilities.
Social Security Act 1985	Introduced anti-franking and statutory revaluation of deferred pensions, also introduced a statutory right to a cash equivalent transfer value	Early leaver benefits become much more valuable, and now have a guaranteed transfer option. Level of guarantees now represents maybe 50% of liabilities.
Social Security Act 1986	Extended preservation requirements to early leavers with more than two years' service and reduced future SERPS and GMP benefits by 20%, introduced personal pensions	
Finance Act 1986	Introduced overfunding regulations and taxation of excessive pension scheme surpluses	Companies are discouraged from overfunding.
Finance Act 1989	Introduced new Inland Revenue limits (the earnings cap) and the creation of funded and unfunded unapproved retirement benefit schemes (FURBS and UURBS)	Company management start to look elsewhere for separate pension provision.
Barber v GRE 1990	E.U. Court case requires equalisation of benefits for men and women	Forces equalisation of retirement ages and some improvements in benefits.

Funding Defined Benefit Pension Schemes

Act	Brief summary	Broad impact
Social Security Act 1990	Extension of provisions for the revaluation of early leaver benefits to cover all service. Also introduced enabling legislation for debt on the employer regulations and guaranteed pension increases (but these were delayed until the introduction of the Pensions Act 1995).	Significant (and retrospective) increase in level of guarantees for early leavers.
Pensions Act 1995	Introduced statutory minimum funding (the Minimum Funding Requirement or MFR) and guaranteed (Limited Price Indexation or LPI) pension increases for future service benefits, as well as many provisions on the governance and management of pension schemes	Level of guarantees now 70% to 80% of liabilities; changing economic climate and extension of guaranteed LPI increases to all service, raises level of guarantees to almost 100% of liabilities for most schemes; MFR funding requirement typically covers ~80% of guaranteed benefits.
1993 and 1997 Budgets	Pension schemes no longer able to claim tax credits on equity dividends	Makes equities less attractive to pension schemes.
MFR changes (1998 and 2002)	On 15 June 1998, changes to the MFR formula reduced MFR liabilities by up to 19%. On 7 March 2002, changes to the MFR formula reduced MFR liabilities by up to 8%.	By 2004, the MFR funding requirement typically covers no more than ~50% of the guaranteed liabilities.
11 June 2003 Government announcement	The debt on an ongoing employer if a pension scheme winds up is the deficit on a 'buy-out' basis	Significant increase in the level of security attaching to guaranteed benefits.

APPENDIX B

COMBINED CODE OF CORPORATE GOVERNANCE

Principles of Best Practice

The Combined Code recommends the following principles of best practice:

- (1) Every company should be headed by an effective board, which is collectively responsible for the success of the company.
- (2) The board should include a balance of executive and non-executive directors (and, in particular, independent non-executive directors), such that no individual or group of individuals can dominate the board's decision taking (and, amongst the conditions of independence, is the suggestion that a director is not independent if he/she has served on the board for more than nine years since the date of their election).
- (3) There should be a formal, rigorous and transparent procedure for the election of new directors to the board.
- (4) The board should be supplied, in a timely manner, with information in a form and of a quality appropriate to enable it to discharge its duties. All directors should receive induction on joining the board, and should regularly update their skills and knowledge.
- (5) The board should undertake a formal and rigorous annual evaluation of its own performance and that of its committees and individual directors.
- (6) All directors should be submitted for re-election at regular intervals, subject to continued satisfactory performance. The board should ensure planned and progressive refreshing of the board.
- (7) The board should present a balanced and understandable assessment of the company's position and prospects.
- (8) The board should maintain a sound system of internal control, to safeguard shareholders' investments and the company's assets.
- (9) The board should establish formal and transparent arrangements for considering how it should apply the financial reporting and internal control principles and for maintaining an appropriate relationship with the company's auditors.
- (10) There should be a dialogue with shareholders, based on the mutual understanding of objectives. The board, as a whole, has responsibility for ensuring that a satisfactory dialogue with shareholders takes place.