



## **Defined Benefit Pension Funding and Corporate Finance**

*The socio-economic cost of unnecessary path dependency and the efficiency of pension indemnity assurance*

This essay is concerned with the financing of companies and funding of employment based Defined Benefit (DB) pension schemes and takes the viewpoint of a UK based financial analyst, while abstracting from certain institutional detail of minor relevance. This view carries with it consequence for the design of work-based pension regulation, and the implications of that in the broader economic context. It draws extensively on analysis conducted in the research and development activities of BrightonRock Group.

A defined benefit pension entitlement is part of an employee's overall remuneration for a particular period of employment service; its payment is deferred in time until retirement. This deferred remuneration is part of the long term financing of the employer sponsor, the company. In this, we regard the existence of trusts, and possibly funding, simply as an administrative convenience. We shall not address ancillary benefits, such as death in service benefits, often offered in conjunction with this form of pension.

The term defined benefit is something of a misnomer as many aspects of the pension are in fact not well-defined. The pension offered is typically defined as a proportion of final salary payable for and over the life in retirement of the employee (and perhaps dependents). The future amounts payable are not known with certainty as they are conditioned upon survival, and indeed at the time of award the salary upon which they are based is also unknown. The presence of statutory inflation indexation brings another dimension to this uncertainty in discharge payment amounts. Much analysis has focussed upon these elements of uncertainty as risk factors. They are, of course, of relevance in terms of the sponsor cost of provision of this remuneration.

In the UK however, since 2003, a pension obligation has been explicitly an enforceable debt on the employer, which means that, unless or until the sponsor is insolvent, pensions will be paid on time and in full. The risk problem is reduced to the solitary concern of sponsor insolvency; the employer's ability to pay. The essence of the problem for the pension-holder lies in the significance of the pension to post retirement wellbeing, and for most security is a dominant concern.

Funding of a scheme can be viewed as a mechanism for the enhancement of the security of the obligation; the provision of collateral. By equal part there are other mechanisms, such as the priority of the obligation in liquidation which could serve to mitigate the security concern.

When we introduce a scheme as a collective device (a trust perhaps), we admit the possibility of the life of that scheme continuing beyond the life of the sponsor as a solvent enterprise. This raises the central problem of pension security.



Prior to insolvency, no rational corporate finance officer nor shareholder should wish to secure any obligation at more than the best estimate of that liability. This is in conflict with the concept of “prudent” valuation in much UK pension legislation. “Prudent” valuation of a long-term liability implies overestimation of the current value of that liability and distorts the relative contributions and claims of other liability stakeholders, such as the equity owners.

Post insolvency a scheme is orphaned - and therefore has no further recourse to its sponsor employer, should the assumptions made in the valuation of liabilities prove erroneous or outcomes by chance be adverse. An orphaned scheme may have an expected life to full run-off of its liabilities of fifty years or more and therefore faces considerable uncertainty. This absence of recourse is of course common to insurance companies and other financial institutions, where the usual mitigation is the maintenance of shareholders’ funds as a capital buffer – assets exceed other liabilities. The bulk annuity market serves as a guide to the level of such excess funds necessary – 125% - 130% of accounting values.

The distinction between erroneous assumptions and adverse outcomes is important. An optimistic but erroneous assumption lowers the initial (apparent) cost of provision of the sponsor employer. A prudent assumption raises it. This is not a question of **risk**, but of **error**. Errors simply add, and the passage of time ensures that the true cost will be realised. Risk by contrast diversifies with collective, pooling arrangements and with repeat operations over time. Error is variation **of** the expectation while risk is variation **from** the expectation; in standard statistical treatments, this is the difference between the location of a distribution and its variance.

If capital buffers are maintained as provisions, they are expected to survive the scheme and the question of ownership will arise at this time. This latent claim by other creditors or even shareholders could lengthen the liquidation process of companies impossibly. It is however a problem which can be resolved by private sector indemnity assurance, to which we shall return later in this note.

Ignoring situations such as rescue, in the UK on sponsor insolvency schemes must effectively be placed in wind-up and undertake annuitisation. The scheme’s claim on the assets of its former sponsor is to the full cost of annuitisation, less the value of any scheme assets - the “Section 75 debt”. In the event that scheme assets are insufficient to purchase these annuities, the scheme enters the Pension Protection Fund (PPF) and partial member benefits ensue – either with the PPF or through the purchase of lower benefit annuities (with PPF and tPR approval) from commercial insurers. This is, correctly, the only non-consensual situation in which members’ benefits may be reduced.

Risk to pension scheme members is the product of the likelihood of sponsor insolvency and the consequence of insolvency – that is, any deficit of scheme assets relative to the post-insolvency



funding requirement. It is important to recognise that there is a temporal order to this. In the absence of the event of insolvency, the level of funding is actually immaterial.

Correct risk management will focus upon the primary event, sponsor insolvency. This is not natural territory for any government-sponsored agency as there are concerns with competition and the operation of markets, as well as public policy issues as to the roles of the public and private sectors of the economy. Sponsor insolvency likelihoods are a matter of private sector corporate finance.

Perhaps inevitably this leads to a regulatory or supervisory focus on scheme funding and other causal determinants of fund insufficiency, rather than sponsor insolvency likelihoods. In the UK sponsor insolvency interventions are largely limited to powers over corporate “actions” and do not extend to the ordinary business of the employer. These are in essence only actions weakening the relative position of pension scheme members to other stakeholders, creditors and shareholders. The powers are restrictive in nature. The problem, here, is that in times of employer distress positive action is often required, such as augmentation of working capital or provision of other funds. Compromise, that is reduction of members’ benefits by agreement with the PPF and trustees, which might, at first sight, be considered sound corporate finance proves to carry problems for both the sponsor group and members in practice. Regulation, perhaps by virtue of its socio-political realities, favours perceived improvement to scheme members’ pension security over the sponsor employer related interests.

This in turn leads to potential conflicts with best insolvency practice with respect to rescue and recovery, which promotes the continuance of employment and the economic activity. It can also divide classes of scheme member; the active employee member’s interests, which are perhaps dominated by the prospect of ongoing employment, differ from those of deferred members and pensioners in payment, where security is the sole concern. The regulation provides no consideration of any possible broader economic consequence.

In its most basic form, a pension liability is capital formation, a source of finance for the sponsoring employer’s business activities; it is very long term in nature and may be particularly attractive to the sponsor. In this simple unsecured form, the interests of employee and shareholders are well aligned. It would be rare for the pension interests of employees to lead them to initiate insolvency proceedings against the sponsor employer until business assets are below the value of their claim. Their loss in liquidation, an average with other creditors, may be lower than the salaries extracted, to the ultimate detriment of those other creditors<sup>1</sup>.

In terms of the duration of liabilities, it would not be uncommon for pension obligations to exceed those of common equity<sup>2</sup>. The presence of such long-term liabilities has the effect of

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<sup>1</sup> This assumes a positive cost of job transfer for the employee.

<sup>2</sup> Dividend pay-out policy and a discount function together determine the duration of equity. Withholding or reducing a dividend increases the duration of equity.



stabilising the overall sponsor balance sheet for a given asset collection; the more familiar situation may be that of, say, a hedge fund, where short-term liabilities, such as bank borrowing, are shorter in duration than equity and the business is destabilised in consequence. Each have may equal leverage, but their insolvency likelihood profiles differ.

In general the uncertainty which lowers the value of an asset serves to raise the value of the corresponding liability. Unfortunately by viewing the situation solely from the pension beneficiary's standpoint, regulation sees only the negative, the former.

In fact the plethora of "solutions" now being offered by investment banks and others are overwhelmingly attempts by those institutions to finance asset holdings with such long term liabilities. The bulk annuity insurer business proposition, simplified greatly, amounts to little more than wanting to borrow for very long terms at attractive rates. It is not at all obvious why a sponsor finance director would want to do this. The success of bulk annuity providers, if success is an appropriate term, is dependent upon the perception and reality of other costs of provision going forward – in which regulation and supervision is a material element.

The introduction of a pension fund and the explicit funding of identified liabilities transfers assets from sponsor employer to scheme. This funding action alone may increase the likelihood of insolvency of the sponsor, a situation which depends upon the specifics of scheme and sponsor. By contrast, over-funding any scheme results in an increase of the insolvency likelihood of the sponsor employer; the extent of this rise depends upon the specifics, including their relative sizes, of scheme and sponsor. Rules which encourage over-funding or overstatement of liabilities are often counter-productive in the sense that they increase the likelihood of the primary event, and it is not uncommon to find that over-funding results in an increase in total risk to the member (the product of the insolvency likelihood and deficit) in addition to the sponsor (insolvency likelihood alone).

Rules which requires full funding of scheme liabilities in some set time or at the earliest practical opportunity ignore some basic properties of deficits – under the accounting standards in effect the significance of a deficit, in terms of the time available to make it good, is a function of the discount rate applied to liabilities. Lower rates imply longer terms available to repair deficits. In general such make-good rules induce inefficiency through path dependency into any funding process and so raising the cost of provision. Such processes also result in a deterioration of the term structure of the likelihood of insolvency.

The majority of companies in the UK with defined benefit schemes are not listed or traded. Pension fund assets, by contrast, are overwhelmingly traded capital market securities. While there is no net effect on investment or capital formation of maintaining pension liabilities in book reserve versus explicit funded form, there are effects in distribution among companies. Few private companies would find external sources of comparable long term financing. This is not necessarily a sign of some form of exploitation of scheme members – the information asymmetries are lower where the counterpart is an insider. The structure of capital markets is



such that most funded schemes have asset durations which are materially shorter than their liabilities, which implies a cost to the economy at large. There are potentially material differences in member security between the two arrangements.

The liability arising from a pension award, where unfunded, is not free financing for the sponsor company; the true cost of this financing is related to the post tax returns on assets employed in the business and the post tax returns available on securities which might have been purchased and held within a funded scheme. The accounting cost is simply determined by the discount function applied to the estimated benefit liability.

By focussing on scheme funding, pension regulation is trying to minimise the **consequence** of an event rather than the **likelihood** of its occurrence. The occurrence carries with it explicit costs, the excess funding provisions of an orphan scheme. The focus upon consequence is inefficient and to the extent that it requires excess funding or other expense it is explicitly counter-productive. It should be obvious that excess funding for all schemes as provision against a risk which is distributed in time is collectively inefficient, with economic costs arising from the distribution of allocated funds.

The sources of risk and uncertainty, and potential cost faced by a sponsor are manifold as was noted early in this note. While altruistic paternalism may in part be motivation for the sponsor employer, there really needs to be some specific economic or financial motivation for this risk bearing form of provision. The answer does not lie in the taxation treatment where alternate forms of provision such as Defined Contribution (DC) bear similar treatment to DB. The risks absorbed by the sponsor in DB arrangements are faced by the individual alone in simple DC. By moving from simple DC to collective DC forms, it is possible to replicate some - but not all - of the intra-member risk sharing of collective DB arrangements. However, though the benefits to an individual of collective arrangements may be large, the gains to collectivism in DB are too small to constitute much by way of incentive for the employer, given the risks assumed and effort involved. It is possible that there are economies of scale and scope in investment management and administration, but the evidence for this is mixed. It is also possible that the presence of a DB scheme has some signalling value to employees as to the quality of the employer and continuity prospects of employment, but survey evidence indicates that employees place little value upon this. **It is difficult to avoid concluding that most schemes were established at times when underfunding of the scheme constituted a material incentive for the employer sponsor.**

The effect of changing regulation over time has been to introduce new additional costs to this form of provision, such as limited price inflation indexation of benefits. With the change of costs brought about by regulation, the inherent risk to incentive trade-off has been adversely altered for sponsor employers and the response by schemes in the UK has been overwhelmingly to alter the terms of award and accrual of benefits to reduce future liability increases, and many schemes have simply closed to new members or even to future accrual for existing members. It is obvious that many more schemes would have been closed and wound up, but for the creation



by regulation of an explicit barrier to exit, the full annuitisation cost. It is also obvious that much of the regulation, and particularly that associated with corporate actions, is concerned with enforcement of this barrier to exit.

These problems can in fact be completely resolved by indemnity assurance, but before describing how that might work, it is necessary to describe in more detail some aspects of the risk sharing inherent in DB structures.

In the UK pensions are awarded for employment service; the typical formulation is some fixed proportion of final or other salary, say one 65<sup>th</sup>, for each year of qualifying service payable for life in retirement<sup>3</sup>. The contribution required for the awards is estimated actuarially. The contributions for new awards may come from the employer alone, or from the sponsor employer and the employee. Both employer and employee contributions are usually fixed for some term as a proportion of salaries paid – 5% employee and 15% employer are common. It is immediately obvious that there is a substantial degree of intra-employee risk sharing and cross subsidy. An older scheme member's contribution will tend to accrue less investment income than a younger member, but based upon the experience of the past forty years, the older employee will have a lower life expectation than the younger member. There are also differences in the levels of salaries to be considered. By such collective arrangements the members are sharing costs and risks among themselves. The employer bears alone the risk that the actuarial assumptions which determined contribution levels were erroneous or inadequate by chance and that further contributions may be required in order to deliver the promised benefits. There is both cost sharing in contributions and risk transfer to the sponsor employer. This structure provides incentives for the sponsor employer to ensure that best estimates are used in the actuarial evaluation of awards, since it alone will bear the cost of error.

Deferred members and pensioners in payment benefit from this arrangement, but here the incentives are for the employer sponsor to shirk revisions and their associated costs until the last possible moment. It should be obvious that one possible effect of the presence of deferred members preserved in a scheme is to weight the latter of these incentives such that there is an aggregate incentive for the employer to insist upon optimistic assumptions in actuarial valuations.

One perhaps superior design might be the creation of an independent pension scheme, and the transfer out to it of members who have ceased working for a particular employer, though this raises another issue, the question of the evaluation or pricing of transfer values.

This collective arrangement brings with it the benefit for funded pension schemes of averaging across time the payment of benefits, reducing the scheme's dependence upon the market prices

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<sup>3</sup> This abstracts from certain common institutional arrangements such as death in service benefits, survivors' pensions, "lump sum" cash commutations at retirement, vesting periods, qualifying remuneration and other issues.

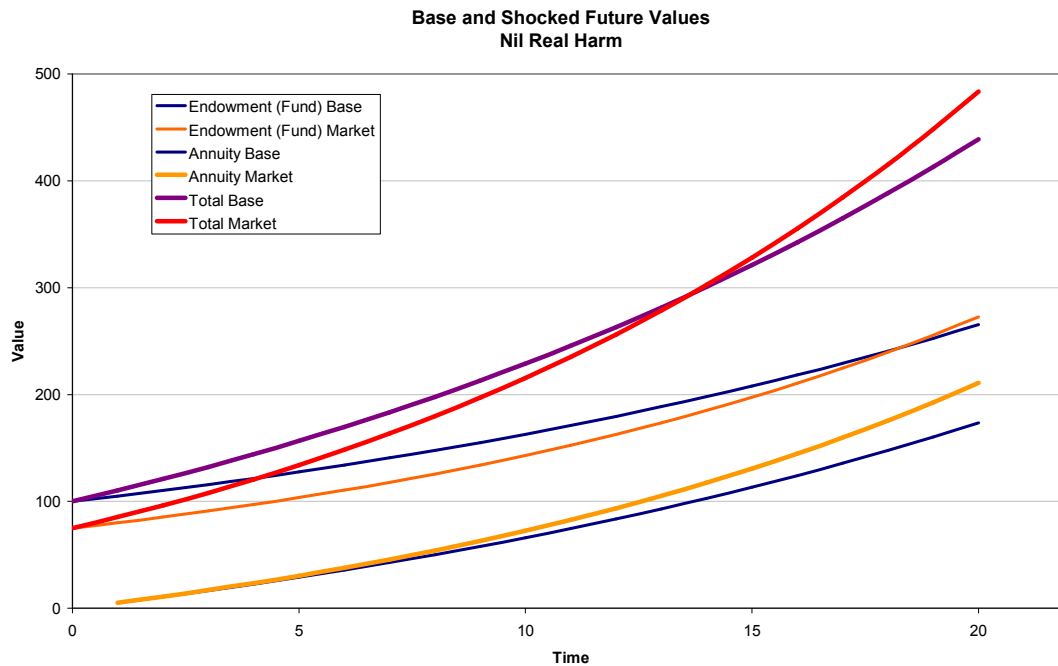


of assets at any one time. This liquidity requirement is crystallised in a typical individual DC arrangement in the requirement to purchase annuities post retirement. This radically alters the possible adverse effects of market volatility upon pensioner income and is a material form of risk sharing for all participants. It expressly lowers the cost of provision at any level of security for all contributors.

Much has been made of the effects of asset price declines upon pension schemes. Obviously as asset prices decline, deficits burgeon. Also as the yields on bonds decline liabilities increase, and assessed deficits may again increase. European regulations place much emphasis upon schemes maintaining funding of 100% (or even more in certain jurisdictions) of liabilities and in the UK a scheme specific plan for the repair of deficits is required to be agreed with the Pensions Regulator. The Pension Protection Fund also bases its risk based levy in part upon scheme deficits. However the meaning of a deficit, in terms of the time available to repair that deficit absent any other action, is a function of the interest rate under which it was derived – low rates and high liability values permit the longest periods.

In addition the temporal risk diversity of a pension scheme is not captured by a single point in time evaluation of a pension scheme's funding status unless that scheme is closed and in run-off. The question of asset prices and their true effect on the likelihood of future scheme insufficiency seems to be much misunderstood. In particular this fails to capture the material benefit of future contributions into the scheme, which may greatly mitigate the true deficit exposure and for some open, growing schemes result in superior outcomes in the sense of lower ultimate cost of provision.

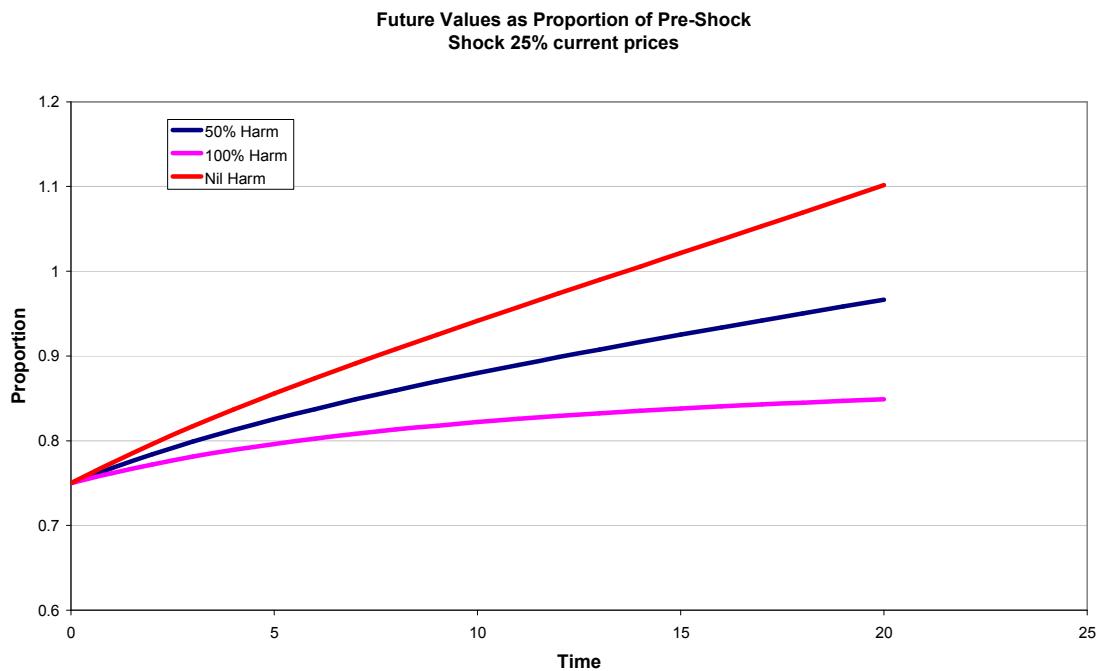
Perhaps this is most easily understood with a simple pedagogic example. Suppose a fund has a market value of 100 and these assets are earning a 5% per annum (a dividend yield or coupon perhaps) and that this is sufficient to pay the benefits promised – it is 100% funded. The scheme is open and granting further awards on exactly the same basis as previously and this has an annual contribution cost of 5. Now if asset prices decline by 25% the fund appears insufficient to meet past awards. However, in the absence of a lowering of the returns from investments the fund will be reinvesting both its income from investments and the future contributions at lower prices and higher yields than previously. Diagram 1 below is a simple illustration of this situation, showing the accumulated future values of fund and new contributions:



*Diagram 1: Evolution of future value of accumulated fund and new contributions.*

We observe that the fund ultimately gains from the decline in asset prices, when there has been no true harm to the income stream arising from fund assets. We also observe that the accumulated value of future contributions is everywhere superior to the ex ante status quo.

The concern with market prices should rather be a concern over future yields and the extent to which market prices reflect actually harm to the dividends and yields of corporate and other investments rather than immediate deficits. For completeness we illustrate the effect of harm to yields, considering the full 25%, half of this and no harm at all in Diagram 2 which follows.



*Diagram 2: Evolution of the coverage ratio of fund post shock to fund pre-shock (25% of market value) under differing actual harm assumptions.*

These simple illustrations should cause us to pause and think about the relevance of the now ubiquitous use of market prices in pension fund evaluation. The debate over spurious or unexplained volatility in equity prices has been long and heated, but there are few who would deny that dividend or coupon volatility are materially different from price volatility in equities or bonds. The difference is material. It should also cause concern over deficit or price based decision criteria, which appear in this light to induce an unjustified and costly path dependency to the investment process.

More importantly for this note is the fact that this makes obvious the advantages that some long term dependence upon the sponsor employer brings. Rather than penalising an employer for the risks transferred to it from past awards, it is clearly superior to recognise these together with the benefits of ongoing provision in any funding regulations. The funding question though is of secondary importance and the primary concern remains sponsor insolvency.

Regulations which raise the cost of provision above that which is actuarially fair disadvantage both employee and employer where both contribute. This is a rather strange state of affairs; in part, at least, requiring individuals to fund additional security for their own ultimate benefit. It is clear that the costs of administration of pension provision in the UK have risen markedly with the introduction of new regulation and compliance activities. The result has been effectively to ensure no new creation of DB schemes, and many closures. It is also somewhat surprising that any sponsor employer, regardless of their financial strength, may create a defined benefit scheme, when sponsor insolvency is the paramount risk concern. When protection of members



is paramount, some basic test of sponsor financial strength as a pre-condition for creating a DB scheme would seem appropriate.

As sponsor insolvency is the dominant concern, we shall next consider explicitly the security of pension scheme members. The accounting identity defines the position of pensions creditors according to the relation:

$$L_P = A_P + A_B - L_B - E_B,$$

where L refers to liabilities, A to assets, and E to shareholders' funds respectively of the pension scheme (subscript P) and the business (B). Priority in liquidation, of course, means that shareholders' funds are available to pension creditors in determining their security. However, no jurisdiction has introduced an obvious risk mitigant, a minimum proportion of shareholders' funds.

The priority of business liabilities may be set by the debt contract and in the equation above is implicitly superior to pension liabilities. The more usual position, however, may be that liabilities of the business to trade and other creditors and to the pension scheme rank *pari passu* as general unsecured creditors. In this case the security of the pension member is determined simply by the average business asset to liability ratio. However in practice there are also timing considerations and with the typical shorter term of business liabilities, these may have effective priority. Certainly it is to be expected that failure to pay a business creditor in full and on time will cause insolvency proceedings to be initiated. In practice, with no segregation of pension assets, we should also expect to observe that some trade creditors are paid, incorrectly, ahead of pension creditors. This can arise as pension liabilities are deferred and uncertain in amount. While segregation of pension assets enhances the security of the pension member, it does so at the expense of higher financing costs for the business due to the increased insolvency likelihood.

Certainly we should not expect the trustees of a pension scheme to initiate early insolvency proceedings, since some of their members, current employees, will benefit from the collection of wages and salaries in this period of forbearance. The trade-off here is that the smaller asset recovery, which is an average for all creditors, plus the wages received by employee members should be greater than the average recovery, across business and pension creditors, from assets at incipient insolvency. In the interim period of forbearance, non wage losses are also material in this evaluation. Segregation of pension and business assets can work here also to the disadvantage of trade creditors.

The introduction for segregated schemes of a funding rule, such as the OECD's 100% recommendation, which requires demands for further employer contributions to be made when accounting deficits arise, further weakens the position of trade creditors.



In creating a segregated pool of assets to secure pensioner claims, the regulation hopes to eliminate some or all of the dependence upon sponsor assets; the prices of scheme assets should be independent of the prices of business assets. When scheme assets are predominantly marketable financial claims with business assets being not readily marketable plant and equipment, work in progress and stock in hand, this relation can be expected to hold. Interestingly, while there is a clear empirical relation between the share price of a distressed company and insolvency, it is far from clear that this relation holds in aggregate. When insolvency rates are high in the overall economy there is at best a weak relation to real equity price indices in the UK. However, there is strong empirical evidence that recoveries, the liquidation proceeds of business assets, are low at such times.

There are questions also as to the relative returns of assets in a scheme relative to assets within the business. Consideration of the relative liquidity would suggest that the returns from financial assets should be lower on average than the returns to business assets. This suggests that segregation of scheme assets and their investment in financial markets increases the insolvency likelihood of the sponsor. There are distributional effects which also seem worth investigation – the financial assets available in public markets differ materially from the financing demands of the aggregate corporate sector, which is dominated by smaller enterprises. Any process of “trickle down”, to re-allocate these capital resources efficiently, seems likely to have incurred costs and be inefficient for the overall economy.

The recently developed practice of matching liabilities and assets within pension schemes, often known as liability driven investment, seems in this context to be driven more by the current accounting conventions than by any economic or true financial analysis. In particular the practice of hedging the interest rate sensitivity of pension liabilities with swaps and other interest bearing securities seems misguided. The sensitivity here is to the discount function used to derive the current value of future payments and as such this is the measure rather than the object itself. The employment of investment strategies which increase the cost of pension provision by inappropriate hedging also increase the likelihood of sponsor insolvency over time

The use of market prices for assets in conjunction with discounted present values for liabilities, so-called mixed attribute accounting, is particularly suspect. The implicit stochastic discount factors differ and that for equities, for example, is unobservable. We shall revert to this in the context of PPF levy setting.

The asset allocation and indeed funding level of a pension scheme should correctly be determined by the expected returns on business assets, the expected return on scheme assets and their mutual dependencies over time.

The question of sponsor insolvency likelihood in the presence of pension liabilities is obviously complex, but it is far from obvious that explicit segregated funding of these to any pre-specified level is economically optimal. It is difficult not to conclude that funding requirements are



anything other than a convenience for regulatory authorities as they are observable and enforceable while the sponsor insolvency likelihood is not.

In recognition of some of the problems of sponsor insolvency, in common with a number of other jurisdictions, the UK has introduced a form of pensions guaranty insurer, the Pensions Protection Fund which is effectively a mutual compensation fund. We shall next consider the design of this institution.

This scheme compensates the members of schemes whose sponsor has failed. However it pays members only partial benefits, which are for example capped to a maximum pension. The PPF estimates that it pays 83% of member entitlements. It also has the legal power to lower these benefits further under certain conditions.

It might be thought that this reduction of benefits serves a similar purpose to a deductible or insured excess of loss in a standard insurance policy, where it serves to mitigate adverse selection and moral hazard problems. However, membership of the PPF is compulsory, so adverse selection cannot arise. Moreover to be effective in mitigating adverse selection deductibles need to be insured specific rather than generic. Any concern with moral hazard is misplaced as it is members who lose benefits, rather than the management and stakeholders in whom the potential for moral hazard forms of abuse resides. Correctly designed insurance would pay members their full entitlements. In essence this takes the level of coverage beyond the 100% of ongoing concern liability up to the level of full commercial buy-out, which includes coverage for uncertainty in run-off.

The PPF is effectively a mutual concern. It raises levies on surviving schemes in order to pay the costs of deficiencies of schemes whose sponsor has failed. This places the costs of failure of other sponsors on the members and sponsors of ongoing schemes raising their costs of provision. Past levies paid are, of course, irretrievable sunk costs.

It is well known that mutuality works well when risks are homogenous, in this case in the sense of being similar in magnitude. However pension schemes differ greatly in size and like wealth or income might be expected to be Pareto distributed, with the consequence that the early failure of a large scheme sponsor could result in levy demands on small schemes which far exceed the risk posed by those small schemes. Subsidy of the levy of schemes with weak sponsors by capping maximum levy charges similarly induces inequities.

The levy setting process considers the risk posed by a scheme in any year as a proportion of the total risk faced by the PPF that year. In ordinary circumstances, this might be considered equitable if the population of schemes was constant, or more technically ergodic. However, the population is declining; there are two sources of decline – sponsor insolvency and closure and winding up of schemes using bulk annuitisation. The effect of a declining population is to raise the costs of cover for the surviving residual schemes – this levy structure will cause the amount



demanding to rise inexorably and the longest surviving schemes will have paid many times the risk their sponsor failure represents to their own members.

Pre-funding of the PPF scheme has been mooted as a possibility, but absent the detail of these proposals it is difficult to see that this resolves the difficulty though it might be used to smooth the year to year levy demands. Pre-funding would also bring with it concerns as to the ownership of those funds.

The levy is in part based upon scheme deficits – these are difference statistics and as such inherently unstable and volatile. They are derived from market prices and discount rates which will surely remain stochastic variables. Attempts to stabilise deficits by investment strategies such as liability driven investment are costly, perhaps more so for most than the potential gains from levy predictability. The reality is that even if most were to adopt variability reduction strategies with contingent assets or other instruments, the costs of sponsor failures would still have to be borne by the surviving members and their sponsors. If all but one scheme represented no risk at all, they would still bear the costs of the one failure and that failure of course would probably have had its levy capped and subsidised.

The PPF encourages schemes to fund at or above the level of their benefits payable and schemes are required to produce valuations of this level – this is a pure deadweight cost to them. Schemes are also encouraged by their scheme specific funding plans (approved by the Pensions Regulator) to move rapidly to full funding, a process which usually requires additional special contributions and is costly by virtue of its path dependency. The PPF is now proposing to add fund asset allocation as a further determinant in its levy setting. Almost inevitably, this will discourage the use of “risky” assets such as equity; such a misguided safety first approach is costly.

The levy is set using a commercially supplied credit rating or sponsor insolvency likelihood. The problem of course with such ratings is that the agencies supplying them have “no skin in the game”, no financial exposure or commitment beyond the possibility of cessation of future use. The only observable events by which credit ratings may be evaluated are their prior ratings of sponsors which subsequently actually failed – all others are subject to much negotiation.

The problem, of course, for the government sponsored guaranty fund and indeed regulator is that the principal problem here is one of corporate finance, and notwithstanding the recent forays into banking, it is not obvious that such public sector intervention is a natural or indeed healthy activity in either domestic or international context. The use of the observable and available is an obvious compromise.

These problems can be fully surmounted in the private sector by the commercial provision of pension indemnity assurance. This would pay scheme members full benefits procuring individual annuities for them on the event of sponsor insolvency. The indemnity assessor might itself issue these annuities, which reduces the potential dependence upon the market price or



availability of annuities at the time of sponsor insolvency. It would procure these annuities regardless of the level of scheme funding at the time of sponsor insolvency – taking control of all fund assets at this time. These assets include the scheme’s claim on the sponsor; in the UK the section 75 debt. It would seek recovery of this debt alongside other creditors in the sponsor liquidation or reorganisation.

Post sponsor insolvency the scheme, or sections of it, could be allowed to continue unaltered or modified under most forms of reorganisation, rescue and recovery. Even at this late stage, flexibility is still retained, closure and wind-up of the scheme is not the only potential outcome. Perhaps more important though is the position of the assessor prior to insolvency; here with the sponsor in distress the assessor has as yet not incurred any losses and is in possession of assets which are provisions against the consequence of the insolvency. The assessor has positive incentives, beyond those of other creditors who are principally concerned with the recovery of monies already advanced, to involve itself in rescue and reorganisation prior to any insolvency process costs being incurred. It is not difficult to envisage situations where the assessor would wish to advance new working capital or other funds to rescue or reorganise the sponsor to avoid or even simply defer this event. This latter case might be well illustrated by deferral of insolvency to a point in the economic cycle where business asset liquidation values are high.

This aspect is interesting from an insurance standpoint as it is one of the few situations in which the assessor can influence the likelihood or timing of an insured event. These are not options available to government sponsored mutual compensation schemes and as such private sector pension indemnity assurance is demonstrably superior. This policy may be compared, in some regards, to a whole of life assurance policy – it is “whole of corporate life” and of course unlike human life, resurrection is both possible and often desirable.

By writing a policy which extends for the life of the sponsor company or the scheme, the risk management problem is greatly simplified. It is fully resolved for scheme members as they are assured of payment. For the assessor it is a question of the expected lifetime of the sponsor and the adequacy of provisions with respect to any pension fund deficit at the time of sponsor insolvency. This is a long term contract, which brings with it many benefits to sponsor, assessor and scheme member.

At inception of the contract, the assessor will set an annually payable premium which is fixed as a proportion of liabilities. This is sound risk management in as much as the principal source of risk, the funding requirement increase post insolvency is a function of overall liabilities. It also allows the sponsor to increase or decrease liabilities in accordance with their employment and labour policy. Liabilities alone are also less volatile over time than deficits.

The process of determining the annual premium payable is one of joint consideration of scheme and business; the assessor is offering credit to the sponsor and has real economic exposure, its credit assessment is significant in more than the external monitor sense of a rating agency’s assessment.



While either scheme or sponsor might pay the annual premium there are advantages for the sponsor to do this. This is well illustrated by the accounting. The sponsor would show in their accounts a liability for future premiums payable. The assuror is the creditor with respect to this liability – and in practice it appears that this will be its principal credit exposure. The policy, of course, is an asset of the scheme. This reduces the level of other funding required to satisfy any other funding regulations. The policy will usually have a net positive value to the scheme and sponsor combination, even at inception, with the value of the pay-off exceeding the sponsor liability for future premiums. This latter effect arises because of some complex risk sharing (with respect to the excess post insolvency funding required) which occurs in this arrangement and of course the inclusion in pricing of an expected recovery in liquidation.

The policy is also a contra-cyclical asset – if sponsor credit standing declines or the investment assets in the fund decline in value and deficits increase, the value of the policy increases. This smoothes the volatility of the pension fund, and the variability of this in the accounts of the sponsor employer; this has been an issue for Finance Directors of sponsors.

In this arrangement the sponsor bears the cost of pension provision until insolvency occurs, and this serves to discipline any potential problems of moral hazard. For example, the costs of failing investment strategies are still borne by the company, and of course the presence of such a policy does not relieve trustees of their primary responsibilities.

Here, the sponsor has - through the intervention of the assuror - effectively capitalised some part of its covenant with scheme members. This capitalisation of the sponsor covenant lowers the scheme funding requirement and its associated cost to both the employee member and sponsor.

Obviously both the sponsor and the scheme should have regard to the long term credit standing of the assuror. While covenants might be used to achieve this, a superior solution exists. This is to allow the sponsor and trustees to transfer scheme assets and liabilities to new uncovered but equivalent schemes, effectively cancelling the policy – though the operation of a liability linked premium the discharge of liabilities ensures no further premiums are payable. This process is often referred to as a GN16 transfer in the UK, and can be quite inexpensive. This threat of lapse serves to discipline the assuror to maintain a suitably high credit standing to provide comfort the scheme and sponsor. The option to lapse is valuable to scheme and sponsor, and is missing from many solutions, most notably bulk pension annuity.

Lapse is interesting for the assuror. The assuror sees a decline in its credit based assets, the claim for future premiums, which lowers its regulatory capital requirement. It also sees a lowering of its contingent liabilities, freeing the reserves and provisions held against this policy, strengthening its regulatory capital base. Lapse is a self-righting mechanism for the assuror.



A further advantage to this credit/annuity assurance structure is that there is a material element of risk-sharing within it. Annuities written by it, as with any annuity provider, are subject to many risks, principal among which are inflation and longevity. Much of the excess cost of annuity pricing above the ongoing concern liability valuations of the scheme is sourced in provisions for this risk. Liabilities will increase with increases in these risk factors in the life company which has written annuities but as these risks are largely systematic in nature, so also will the liabilities of surviving schemes with sponsors who are still ongoing concerns increasing the revenues of the credit insurance aspect of the structure.

Reflecting this lower risk exposure, the assessor can lower the premium payable to some nominal amount in the event that a scheme finds itself funded at a level much closer to the ongoing valuation than is suggested by current bulk annuity market prices or PPF contingent or risk based levy requirements. Currently in the UK this is approximately 115% of the technical estimate of scheme liabilities, versus a bulk annuity quotation of perhaps 130%. At or above this level the assessor, on average, faces no risk and equity suggests this treatment. In addition, it should be realised that as such funding increases the insolvency likelihood of the sponsor, it is in the interests of the assessor to encourage lower funding levels than this.

Over-funding a scheme also brings concerns over the recoverability of any surplus in a scheme. If the sponsor intends to maintain the scheme as ongoing - discharging the liabilities in the fullness of time - it may show in its accounts any surplus to full funding. But it does not have access to any assets until scheme funding exceeds the cost of commercial full annuitisation; effectively the only mechanism available for recovery of these funds is lower subsequent contributions – the so-called pension contribution “holiday”.

Finally, there is a question as with all insurance as to the sunk costs of past premiums paid. This can also be mitigated by offering credit of all premiums received, but not the investment income derived from them, against any elective buy-out of part or all of the pension liabilities of the scheme. This sets a strictly increasing minimum value to the policy as an asset of the scheme, and avoids any sunk, irretrievable costs to the sponsor.

The assessor need have no material involvement in the management of benefits, asset allocation or funding policies. It may in some circumstances be advisable to introduce covenants to the policy restricting some activities such as excessive dividend distributions. However, such covenants should under no circumstance void the policy coverage for scheme members. The penalties for breach of covenant can be draconian such as the ability of the assessor to call for immediate full annuitisation – a consequence which could not be enforced in as much as the sponsor and scheme could remove the scheme from coverage by transfer of all assets and liabilities to a new and equivalent scheme. The commercial courts have long experience of dealing with disputes with respect to contract terms and conditions should these arise.

This lack of involvement in investment allocation policy is perhaps surprising. In the short term, it implies greater variability of scheme deficits at the time of sponsor insolvency. But



over the long term this variability diversifies and results in superior (that is, lower) sponsor insolvency likelihoods.

The difference at the heart of this solution to the problem of sponsor insolvency lies in the use of credit to create a new asset for pension schemes— lending against expected future sponsor cash-flows rather than lending against assets. In terms of the usual credit cycle of banking, lending against expected cash-flows is more basic than and precedes lending against assets. The problems associated with asset based lending have been well illustrated by the recent credit crisis. However, for pensions supervisors and regulators involvement in this cash-flow based manner is far more difficult than asset based approaches, which often induce deterioration in the primary risk, the sponsor insolvency likelihood.

As with all insurance, the question must arise as to what happens on the insolvency of the writer of the policy. In the UK, individual annuities (immediate and deferred) are covered by the Financial Services Compensation Schemes and annuity holders would receive under current rules, the first £2,000 in full and 90% thereafter. This can be superior to the coverage offered by the PPF. It is not clear whether schemes which have ongoing sponsors would be covered for the loss of cover or embedded values of policies outstanding, as the compensation was created primarily to protect individuals and small enterprises. This lack of clarity is shared by the already common use of partial bulk annuity purchases as assets of ongoing pension schemes (so called “buy-ins”). Perhaps the most important aspect of this form of compensation is that it is paid by levies on other financial institutions after the event, not the members of surviving pensions schemes, or their sponsors.

The private sector indemnity assurance proposed is best provided in a competitive market. The joint estimation of the risks posed by sponsor and scheme requires many assumptions and estimates in pricing; this is not inherently a transparent process for scheme or sponsor. A freely competitive market composed of regulated insurance institutions is an obvious solution. This would also mitigate the uncertainty associated with the FSCS as few schemes or sponsors would then be expected to be still covered at the time of any individual indemnity assessor’s demise (because of the option to lapse by transfer). The existence of a competitive market for indemnity assurance would also greatly facilitate corporate finance more generally than is currently the case, where a number of mergers and acquisitions have recently floundered on the question of the special contributions required to achieve scheme funding levels adequate for member security. The existence of such cover would also facilitate the migration of pension schemes in a European context, where the existence of government sponsored schemes in some countries serves as a barrier to transfer to other European countries.

There is actually a case for making such private sector indemnity assurance obligatory for pension schemes, in much the same way that, for example, third party liability motor insurance is compulsory for anyone wishing to drive. This would massively simplify the process, the cost, effort and time, of regulation and supervision for the authorities, with substantial benefits for trustees and their sponsor employers.



Pension schemes, and more generally pension obligations, were created voluntarily by companies in the private sector. It is quite clear that private sector indemnity assurance could be used to lower the cost of pension provision for scheme members and sponsor employers while maintaining the capital formation and investment benefits, without impairing (in fact, enhancing) employee security. This introduces many potential avenues for productive enhancements to employment, social welfare and the economy more generally.