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**Pensions – Lessons from the UK Experience**

**Introduction**

The question of pensions, and the design of institutions for their provision is replete with misunderstandings –the diversity and complexity of provision arrangements, both internationally and within the developed western economies, is the product of historic differences in the role of the State, as well as cultural and sociological influences. This article will attempt to clarify some of these confusions.

**Pensions in History**

A pension may simply be considered as an income in retirement for life; it is provision for our older age consumption needs. Children and our extended family are often viewed as one form of such provision. There really is nothing new here. In Europe, from the dark ages forward, many religious orders offered corrodies; in exchange for an initial lump sum the individual was entitled to receive board and lodging, and perhaps clothing and an allowance, from the Abbey or Monastery. In close parallel with later developments these corrodies were a significant source of finance for the construction of the cathedrals which grace so many European city centres. Technically this was a form of annuity; the accumulation of wealth to pay for it though is unaddressed. Functionally an annuity is a form of insurance.

The Chatham Chest, founded in 1590, was a close progenitor of modern funded schemes. This was a charitable disability pension scheme for British naval servicemen funded in part by members' contributions; surplus funds were invested in property. After solvency difficulties arose, the government assumed responsibility for the service of these pensions, which were then treated in the national accounts on a pay-as-you-go basis. It was finally merged with Greenwich Hospital in 1814.

The historians among us will also note the wide-spread issuance of annuities as the preferred form of government finance in sixteenth and seventeenth century Europe, for example, to finance the extremely costly War of the Spanish Succession. In turn this gave rise to John Law's Mississippi Company, the East India Company, the Dutch East India Company (VOC) and the Bank of England – these trade monopolies were granted in exchange for the restructuring of government debt and led to the development of elementary capital markets in Europe.

## **A Modern Lesson**

Students of the current fashion for corporate governance would do well to note the management structure of the VOC; operating control was vested in the *Heeren XVII*, appointees of the Dutch States, and not shareholders. It was the existence of permanent capital and this separation of ownership from control, together with secure and efficient registration and transfer facilities, that enabled and fostered the development of active trading markets.

## **Pension Institutions**

For brevity, this article must limit its consideration to employment based schemes; it will not consider State Social Security or other private arrangements, such as insurance contracts. It should be recognised that there is much variety in specific detail - so much so that it would almost be tempting to conclude that every combination and variation existed somewhere – but this article will consider only defined contribution (DC) and defined benefit (DB) as the polar extremes of this diversity.

The inescapable fact with private sector pension provision is that it is our savings, together with any employer contributions, that are the prime determinants of the sufficiency of our retirement income. In retirement our consumption needs are lower than when in employment, but they are also less flexible; the discretionary element is lower. The heuristic is that two thirds of final salary is adequate for comfort in retirement.

## **Taxation**

The taxation of private pensions in the UK has the form that contributions are deductible from taxable income for both employee and employer and the accruals of investment capital and income are also exempt from taxation. Pension income received in retirement is taxed as ordinary income. The arrangement, commonly known as E.E.T., is considered by the authorities to be fiscally neutral, affecting the timing of Exchequer receipts rather than their magnitude. It clearly provides significant incentives for saving.

It is interesting to note that, until the very low returns of recent times, the more important of these exemption concessions was not the deductibility of the initial contribution but rather the investment accrual element.

## **Ancillary Benefits**

It is commonplace for employer-sponsored schemes to offer other benefits in addition to the post-retirement pension income. In the UK these include death in service life assurance which might typically pay four times the employee's annual salary and a spouse's pension at some reduced rate. The organisation of these ancillary benefits is driven predominantly by the prevailing rates of taxation on income and capital.

Soldiers in the US who fought for either the North or South in the American Civil War were awarded pensions which included spouses' benefits. In the hardship of the 1930s recession, because of the security of this income, they became very attractive marriage propositions, notwithstanding their advanced ages. The last pensioner spouse from the Union side, Gertrude Janeway, died in 2003 and the last Confederate pensioner, Alberta Martin, died in 2004 – that's 140 years after the war service.

However, this article will be concerned only with the primary pension provision aspects of a scheme.

### **A Misnomer**

It is completely standard to refer to defined contribution *pension* schemes, a practice to which we shall conform, but the reality is that these are little more than tax-advantaged savings schemes. The crucial element missing is that there is no explicit provision for the conversion of these accumulated savings assets into income for consumption in retirement; this means that the pension income objective is surrounded by material uncertainty. No pension liability is established or well-defined. Contributions are usually made by both employer and employee and related to salary income – though inexplicably the employer contributions for this form of provision are lower than for defined benefit.

By contrast, a defined benefit pension scheme is precisely that: the promise of a specific income for life in retirement based upon the number of years of service with the sponsor employer. In the UK this pension income is inflation adjusted in whole or part. The sponsor employer underwrites the pensions promised, which are the liabilities of the scheme.

### **Distribution of Risks**

In any society or economy all risks ultimately are borne by the individual. The role of benevolent government may be regarded as one of redistributing risk among individuals according to their ability to bear it and of fostering institutions which pool, share and diversify the exposure of classes of individual to these risks.

In this regard, all of the risks associated with DC schemes are entirely borne by the individual alone; these risks are manifold – the value of the asset fund at retirement is uncertain and its purchasing power even more remote. Biometric risks, such as longevity and ill-health, are inestimable for the individual. Insurance solutions, such as the purchase of a life annuity at retirement, lack the economies of scale and diversity of group purchases and also introduce a highly specific point-in-time risk dependence on the realisable value of the asset portfolio and the level of government interest rates which dominate insurance company annuity pricing. The recent crisis threw up an alarming but very illuminating instance of this specificity – the pension which could have been secured by an acquaintance of mine with his pension fund one year prior to retirement was £83,676 per annum but this declined to just £29,283 at his retirement in November 2008.

In consequence, he is now working part-time in retirement and hoping that markets move in his favour.

In a DC arrangement the employee has no direct exposure to the condition of the sponsor employer as the scheme assets are segregated in a personal account – though, of course, unemployment without the social benefits of redundancy payments is faced in this situation. By contrast, with DB schemes the employee faces just one risk, that the sponsor employer will become insolvent and unable to meet its underwriting commitment at a time when the scheme is inadequately funded to meet its liabilities. For the employee this is a compound, double catastrophe.

Funding a scheme is a device used to lower the dependence upon the sponsor solvency; risk as always is the product of the likelihood of the event, sponsor insolvency, and the consequence, the underfunding loss realised. We shall revisit and elaborate on this later in this article.

### **Risk within DB Scheme**

The organisation of a DB scheme, where the pension entitlement is set by years of service and a final or career-average salary, while contributions are fixed as a proportion of salary received for both employee and employer sponsor, is a highly efficient risk pooling and sharing mechanism. The longevity risk for a young man is much higher than that of an employee approaching retirement, while the potential investment gain is much higher for the young man's contributions than the mature employee. At the same time the salaries and actual cash contributions of senior employees are higher than those of younger members. These and further more complex elements serve to limit the risks faced by the employer sponsor as underwriter of the scheme.

It should be noted that the pension liabilities of a DB scheme are not sensitive to interest rates; they do not enter any of the calculations determining the pensions ultimately payable. By contrast there is a dependence on future interest rates for the DC member intending to purchase annuities to generate retirement income, as the payment rates of annuities are in large part determined by the future yields available on government securities.

### **An Opportunity – Innovation**

Those not entirely discouraged by Paul Volcker's recent words: "*I wish someone would give me one shred of neutral evidence that financial innovation has led to economic growth – one shred of evidence...*" might wish to consider an innovation that would greatly ameliorate the annuity interest rate dependence problem of DC pensions – the development of a market in deferred annuities.

## **Assets and Liability Management (ALM)**

In recent years, ALM has been much promoted for DB pension schemes by the investment banking and actuarial consulting professions; but the misnomer confusion is again evident.

A liability is some other party's asset. Mathematically, the relation is one of rigid rotation about zero, multiplication by minus one. This relation is recognised by the accounting identity. As such there is little or nothing that we can do to alter a liability without the consent of the corresponding asset's owner; this is a fundamental tenet of the law of property rights. An asset, by contrast, may exist without any corresponding liability – Gold is one illustration of this.

This relation also makes evident that the uncertainty or risk which lowers the value of an asset and is inimical to us in that situation, is actually our ally when we are considering a liability. The so-called anomaly of a change in risk preference over assets and liabilities, or gains and losses that is observed and reported by the behavioural economists is, in fact, entirely rational.

When considering pensions investment, we are concerned principally with capital assets; these possess the property of having expected intrinsic productive returns. The farm which produces barley is an example of a capital asset. We may correctly refer to investing in such assets. The barley produced, a commodity, is an asset, but not capital asset. Correctly we should refer to speculating in these – purchase in the hope of a gain arising from a change in price.

This distinction also has important historic antecedents in, for example, the definition and prohibition of usury. The root of the difference between loans for subsistence and loans of capital, where usury, the charging of interest was prohibited for subsistence loans, was well expounded by Bernardino of Siena, a student of Thomas Aquinas, who observed 'Money has not only the character of money, but it has beyond this a productive character which we commonly call capital.'

It is a sad commentary on governments around the world that they only too often describe their current consumption as investment, in the forlorn hope that, by this deception, capital markets will not penalise their debt issuance costs, and that the electorate will consider them more prudent managers of the national finances.

ALM, in practice, is concerned with management not of the ultimate liabilities, but with the management of our current estimates of the present value of those liabilities. To examine this correctly we need to consider some of the detail of the accounting conventions and standards.

## **Pensions Accounting**

The international accounting standards specify that we should value a pension scheme's assets at current market prices while discounting the projected liability cash-flows using a market-derived interest rate. This apparently innocuous convention is deeply pernicious.

What relevance does the price of an asset today have with respect to the cash payment of a pension some sixty years from now? The standard results in statements of current deficits or surpluses which are both biased and arbitrarily volatile. Both add materially to the costs of the sponsor employer in providing DB pensions. If the standard was correct, we would be able to reproduce perfectly, at all times equity and government debt returns and prices using just the other asset class. The standard can increase the costs of DB provision by as much as 50%.

A more elaborate technical exposition of the problems with this standard, the presence of risk premia and the complexities of the effects of differing volatilities of returns on multi-period geometric realised returns is inappropriate here but freely available from the author on request.

The problem, in essence, is that we are using different measures for assets and liabilities; in the case of market prices we do not even know what the measure is, though we do know that it is profoundly influenced by the sentiments of fear and greed.

We also know that these measures are highly elastic (not a desirable property of any measure) – risk, which is the prime consideration in financial markets, is the result of a compound, ever-changing game. It is partly a game against nature and partly a game against others. This latter endogenous game was well compared by Keynes to a newspaper competition in which it was necessary to predict which of a number of photographs of women would be chosen as the most attractive by the majority of the newspaper's readers.

This distinction highlights the Achille's heel of most modern risk management techniques, where risk is considered stationary, unchanging and exogenous to the problem at hand.

The accounting standard has given rise to the fallacious belief that DB pension liabilities possess a sensitivity to interest rates; the ultimate liabilities do not but their discounted present values do. (This is the rate that was used to estimate the present value of those liabilities.) It is a problem of the measure, not the object under measurement.

Regrettably a minor industry, known as liability driven investment, has arisen from this misunderstanding, where interest rate swaps are used to hedge the interest rate sensitivity of DB schemes. Oddly, has not been extended to DC schemes where there is a genuine interest rate dependency. This "hedging" perversely introduces to DB schemes a real dependency on interest rates – and this is a dependency which is compounded and

adversely affected by the collateral security protocols of the credit support agreements which are a standard feature of ISDA swap agreements.

One variant to this, again seeking to hedge the spurious interest rate sensitivity, has been the use of asset allocations which consist primarily of bonds. Though effected with much fanfare by the Boots pension scheme, this investment strategy has proved very expensive in practice and has, on these grounds, largely been abandoned - even by the Boots DB pension scheme.

Pension deficits, the net liabilities of the scheme, are classified and presented as debts in the sponsor accounts; changes in them as debits or credits to shareholder equity. In the UK, legislation was introduced expressly to recognise the liabilities as debts of the sponsor. This is the same treatment as the *available for sale* classification of bank assets that figured so prominently in the recent crisis.

The combination of these accounting standards and over-zealous, and misguided new pension regulation has driven up the costs of DB provision and resulted in the closure of many DB schemes in the UK. Only the creation of new barriers to exit, the requirement to undergo an expensive full annuitisation in order to fully discharge liabilities, has held back the flood of closures of DB schemes. DB schemes now represent very poor value for money as an element of the total compensation packages of employees for the underwriting sponsor employer.

## **Regulation**

Regulation in the UK focuses on reported current values of assets and liabilities – and the European norms and Directives reinforce this. Schemes are expected to introduce deficit repair schemes, including higher contribution rates and agree these with the Pension Regulator. In fact, the meaning of a deficit varies with the level of the discount rate; when rates are low the period available to rectify a deficit is very long and when rates are high the period much shorter.

While a scheme is in deficit, the Pension Regulator has extensive rights over the corporate affairs of the sponsor employer – and, in addition to their powers over corporate actions, such as merger and acquisition, can require additional contributions to be made. The proposed merger of British Airways and Iberia is subject to a satisfactory resolution of the deficits of the BA DB schemes and the demerger of divisions of Cable & Wireless has been facilitated by the use of annuities written by insurance companies to discharge significant proportions of the scheme's liabilities – an expensive action.

Regulatory compliance is now a major expense for UK DB schemes. In 1990 the administrative costs of UK voluntary self-administered were around 2.5% of pensions in payment, while after the latest regulations were introduced this expense rose to some 6.5%. It is not possible, within the bounds of prudent investment policy, to achieve investment returns which overcome this level of deadweight friction and deliver adequate pensions in retirement for members, without further sponsor support.

In any event, all of this regulation fails to address the principal and genuine problem of risk management for DB schemes. As long as the sponsor is solvent, it is inequitable to require the sponsor to ensure scheme funding at more than 100% of the actuarially fair technical liabilities of the scheme. However, post sponsor insolvency 100% funding is insufficient as the scheme is faced by the vicissitudes of adverse developments in markets, inflation and longevity – absent the sponsor underwriter, the scheme requires funding in the manner and magnitude of an insurance company. This is the central risk management problem for funded DB pensions – and it can be entirely resolved by pension indemnity assurance.

### **Pension Scheme Guaranty Insurance**

The UK's Pensions Act 2004 introduced a mutual guaranty fund, the Pension Protection Fund (PPF), to support the pensions of schemes whose sponsor-employer had become insolvent. It is difficult to conceive a more inept and inappropriate example of institutional design than this. At the time of introduction of the fund, it became evident that government's principal interest in the scheme lay in its role for limiting its future liability for such schemes and the benefits of their members.

Among the failings are that scheme members' benefits are reduced – the fund pays approximately 83% of members' benefits, though this diminution is not uniform across members. Although presented as a form of insurance deductible, this is entirely spurious. The role of the deductible in standard insurance is as a mitigant of the moral hazard risk, the change of behaviour which increases either the likelihood or consequence of an insured event after the policy has been initiated. In this case neither the likelihood of sponsor insolvency nor the extent of scheme funding is within the control of the scheme member; there is no moral hazard.

The scheme is partly risk-based; in the sense only that the levies payable are determined by the sponsor's credit standing and the magnitude and state of funding of their scheme. However, it is the costs of other schemes failing that are met by the levies imposed on all corporate and some other DB schemes. This makes the levy paid a true sunk cost for viable DB schemes – and in total the levies now raise some £720 million annually. In addition there are material further compliance costs, such as special valuations for the purposes of establishing the potential exposure of the fund to a scheme. In addition, this arrangement is inequitable among schemes; increasingly so when the population of schemes is declining, as it is in the UK. In the pathological case of the last scheme standing, there is no other scheme to compensate its members when it fails and it, of course, has met part or all of the costs of all other schemes that have failed before it.

Moreover the UK High Court has ruled that a scheme cannot rely upon the presence of the PPF coverage when determining an appropriate investment policy or strategy for the fund. This is entirely contrary to well-designed pension indemnity assurance where the policy is explicitly an asset of the scheme, with no element of sunk costs and some very pleasing contra-cyclical risk management properties. Should the sponsor credit-standing

deteriorate, the value of the policy, as an asset of the pension fund, increases. Should the scheme's deficit increase through adverse market developments, the value of the policy again increases. Should the sponsor become insolvent, the assurer pays the full benefits entitlements of all members, on time and in full. The arrangements can even extend to include the customary practices of the scheme with respect to situations which are not unambiguously covered by the scheme's rules.

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### **Asset Allocation**

We are all accustomed to the mean-variance single period ahead optimisation problems of asset allocation of elementary finance theory. But the pension problem is multi-period and the time scales are very long indeed; there is more to be considered than the inter-temporal capital asset pricing of Merton, which explicitly excludes any future contributions or other external inputs.

The repeated nature of contributions makes the risk and return statistics markedly different from those relevant in a bank's trading operations; the process is one of inherent smoothing, a form of dollar cost averaging. The payment of pensions is also one of repeated small sums, another intrinsically smooth process. The constraints of imminent and unpredictable instantaneous liquidity demands are largely absent; the group nature of the risk pooling makes these payments highly predictable using standard actuarial techniques.

More than anything, the asset allocation problem changes its objective in the presence of future contributions. In this situation, the scheme is a repeated consumer of investments and when we wish to consume anything repeatedly in the future, we wish the price of that good to remain low. With interest rates as low as current levels and new contributions as little as 5% of the fund's current value, consideration of the future contributions dominates the current value of funded assets. The fund then does not want to achieve market returns, the so-called beta of the capital asset pricing model, but rather wants to achieve returns which are independent of the market. More than anything the investment strategy becomes a search for long term predictable cash-flows, and investments in infrastructure projects, such as roads, railways and schools come to the fore; the productive role of these investments in the broader economy is a paramount concern. Causal dependence replaces correlation, a measure only of association, as the determinant of investment diversity. The ALM process reduces to ensuring the possession of sufficient expected cash resources in advance of the cash outflows of pensions payable.

There are no formal restrictions upon a scheme's investment allocation other than those emanating from the European Directive (Institutions of Retirement Provision 2003); this specifies that a scheme should not borrow other than for short-term liquidity purposes

and that no single security should be held in an amount exceeding 5% of the value of the fund or 10% of the securities of a group.

### **Self-investment**

One of the great surprises at the time of the Enron collapse was the very high holdings of equity in Enron by its DC pension scheme employee members; in terms of risk diversification this clearly made little sense for them. It is though a recurrent feature of employer sponsored DC schemes in the US and elsewhere.

In this situation, the DC fund is buying stock which has already been issued by the employer, so these funds do not represent new capital for the business, though clearly they will have an effect upon the market price.

A DB plan may also invest in the securities issued by its employer sponsor, subject to the limitations noted earlier, and this has a similar effect to the DC fund investment. But DB schemes may also be used to create new capital for the company. If the company awards new pension benefits, but does not fund these; retaining this money to finance its own activities, it has created new long term capital within its books of account – capital which has the implicit cost of the investment returns that the scheme might have earned with that money invested in the markets. For many companies, particularly the smaller and private, this is a very attractive proposition.

In fact, the German economic revival post-world war II, the *wirtschaftswunder*, was to a large extent financed in this way. Small and medium sized enterprises, the *Mittelstand*, offered their employees pensions which were insured but entirely unfunded – they were book entries in the capital structure of the sponsor employer only.

In fact, with properly designed pension indemnity assurance in place, it is never necessary for an employer to fully fund a scheme's liabilities – the assurance policy makes up the difference. In this situation, the employer again has a financial incentive to offer DB pensions to employees. In fact the use of indemnity assurance can greatly lower the costs of provision of DB pensions.

The risk event of concern to scheme members is sponsor insolvency – the risk face by the pension indemnity assurer is the product of this insolvency likelihood and the state of underfunding conditional on this event. It is often in the interests of company, employee and insurer to deploy capital within the business rather than the scheme – lowering the likelihood of insolvency is often preferable to lowering its consequence.

One of the most regrettable aspects of UK DB pension regulation is that it is focussed upon reducing the consequence of sponsor insolvency, with funding rules and similar, rather than reducing the insolvency likelihood; this is intrinsically inefficient. The Pensions Regulator's concerns with corporate actions are best described as preservation of the prevailing status quo for the scheme, rather than active intervention enhancing the sponsor's credit standing.

## **The Case for DB**

DC pension schemes place all of the risk and decision-making upon the individual; this is something that the individual is poorly equipped to deal with. We all suffer from cognitive and computational limitations and have difficulty planning at the horizons of pensions. My own may be demonstrated by the absence of any knowledge of the history of pensions in Asia. Moreover we also usually have many competing possible uses for our time and resources. The result is that the investment allocations of DC scheme members are usually very far from being efficient for members – cash is used in far too many cases.

Simply put, government is abrogating its primary function of risk redistribution within society by encouraging the development of DC rather than DB; the consequence for the individual member is lower retirement income. This choice on the part of government also has a cost – the inefficient investment of these capital sums lowers productivity and the social welfare within an economy.

## **The Attitude of Government**

Politicians can usually be relied upon to pursue their own self-interest, and this has been evident throughout the history of UK pension provision. For many decades, until the scandal of Robert Maxwell and Mirror Group Newspapers scheme in 1990, DB pensions were a very convenient vehicle upon which to place ever more of the pension burden – this lowered the requirement for higher State benefits, which of course would be attributable to the politicians. The benefits required to be offered, which were added to the original terms of schemes, included inflation indexation, spouse's benefits and preservation of the rights of former employees, deferred members. The totality of these measures doubled and for some trebled the costs of DB pension provision. They, of course, also lowered the future costs of State pension provision, though not commensurately. The result is that UK state pension benefits are amongst the lowest in the developed world.

From 1990 forward, the political attitude changed and regulation adopted a populist stance; the rights of members were to be secured, no matter what the cost. The spate of regulation raised the costs of pension provision to such an extent that no new DB schemes at all have been created in more than a decade. Schemes have closed to new members and adopted inferior benefits going forward; many have paid the full costs of closure and annuitisation. Simply put this new regulation has completely suffocated DB pension provision. The politicians have actually compounded the State pension problem.

It is also obvious that nothing has really changed in recent times. The Department of Work and Pensions has just announced that it will not introduce legislation to permit more flexible forms of pension schemes where risk sharing and many of the collective aspects of DB feature prominently, such as conditional indexation and collective DC. Their stated reasons - risks of conflict with European regulation and a risk of unfair

intergenerational transfer - are not credible; both forms of scheme exist already in Holland, and there solidarity and intergenerational equity figure in almost all discussions of scheme design.

### **Lessons for Indian Pensions**

It is an invidious task to be expected to make recommendations for anything without an intimate knowledge of the subject, and that I do not possess for Indian pensions or social security.

There are some unique features to the Indian situation, notably the size of the informal labour sector. It is difficult to see that funded pensions should figure prominently for this group, simply because their other needs are so substantial.

The most obvious recommendation is that both DC and DB schemes should have the features of provident schemes, allowing the member access to some part of their funds prior to retirement, if certain contingencies arise. This has the advantage for the younger member that their needs for other precautionary savings are reduced.

The principal recommendation would be that scheme design should be of the DB form and insured. The pension indemnity assurer could be either a private or a public sector body – it could even be an industry mutual. The design of DB schemes should provide incentives for the company to offer this form of pension; compensation for their role as the primary underwriter of the scheme. Perhaps there should be tests of the credit standing of the sponsor employer, with only those exceeding some minimum level being allowed to offer such schemes. Certainly, such an imprimatur would greatly improve the position of a company in the markets for labour.

DC schemes are better than nothing, but of little value to most employees. They are perhaps appropriate for the highly educated, highly mobile professional sector of the economy; we used to describe this class as the typical Lehman trader, but look where that ended. Lehman also had a separate DB scheme for ancillary staff.

Perhaps the greatest lesson to be taken away by Indian observers is not to repeat the errors of the UK. Here regulation has effectively destroyed a form of private pension which was both efficient, in all senses, and also the envy of the world.

**Con Keating**  
**Head of Research**  
**BrightonRock Group**