



Solving the UK's Pension Problem

May 2007





EXECUTIVE SUMMARY

The UK, like many of its OECD peers, has something of a pensions problem.

On the one-hand, there is the private sector pension system. After some bumpy years, the private system is actually reasonably well-funded, but rising longevity and falling long-dated real bond yields have increased the cost of provision significantly to the point where traditional defined benefit (DB) schemes have been closing in large numbers. Talk of the UK 'pension crisis' is usually in reference to this reasonably well-funded private system.

On the other hand there is the public sector occupational defined benefit pension system (as distinct from the state pension). The public sector operates almost all of its occupational defined benefit schemes on an unfunded basis.¹ Hitherto, this has meant that government pension promises to doctors, teachers, and other public servants have been kept off-balance sheet, and generous pension provision could be provided with little budgetary impact in the short-term. However, in 1998 the Brown Treasury began the complex process of introducing a system of 'Whole Government Accounting' (WGA), presumably to reduce the opacity of public expenditure and increase government accountability. This project is scheduled to come to fruition this year and we will be given a much better picture of the government's financial health. Many will be surprised to learn that the size of the unfunded public sector occupational pension liabilities will be reported to total over £600 billion, somewhat greater than the traditionally recognised national debt (totalling £572 billion).² The recognition of this liability as debt would bring the UK debt/GDP ratio from 43.5% to 91.5% (or to 116.5% using market discount rates).³

Bringing public sector occupational pension liabilities 'on-balance-sheet' is a responsible step for which the Chancellor deserves credit. As we detail in this paper, it also provides an historic opportunity for the government to address a series of issues that could be of benefit to the UK economy, reducing the cost of private and public sector pensions, and increasing the accountability of public sector pension bargainers.

Toby Nangle,
Fixed Income Investment Manager
May 2007

¹ The notable exceptions to this are local authority schemes, and the MPs' scheme which aim to be fully-funded.

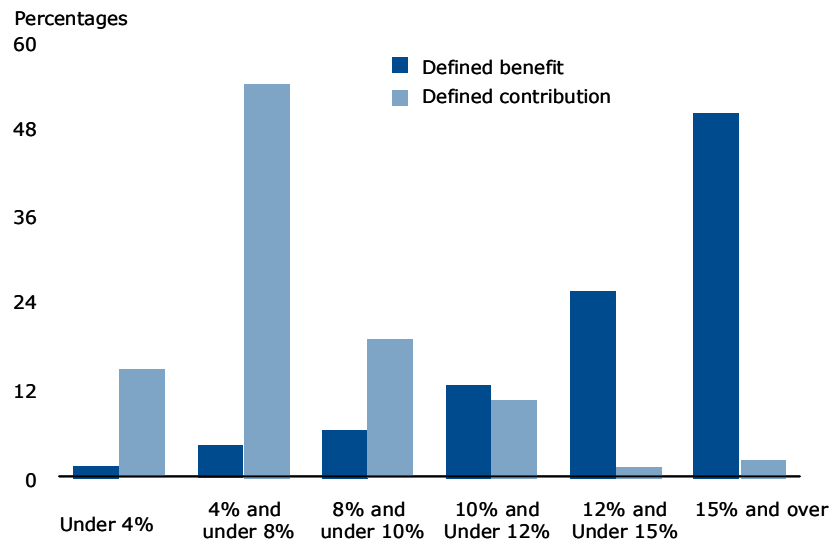
² National Statistics 2007

³ Record, 2006 and Watson Wyatt 2006 estimate the true value of liabilities to be around £1 trillion. The published deficit will most likely be somewhat smaller than their calculation that is based on market-based discount rates since there is every sign that the government intends to present its future liabilities discounted with an imputed corporate bond rate rather than a government rate. The practice of using real corporate bond yields to discount liabilities is defensible where schemes are fully funded and invested in risky assets that can be expected to produce higher returns in the long run, but the logic of doing this for unfunded schemes sponsored by central government is perhaps questionable.

THE PRIVATE SYSTEM 'PENSION CRISIS'

Each year the National Association of Pension Funds conducts a survey of its members. In 2000 it found that 88% of private defined benefit schemes were still open to new members.⁴ Last year's update found that this proportion had shrunk to 33%.⁵ As private defined pension schemes have closed, and individual pension scheme deficits have achieved greater prominence, the idea of a 'pensions crisis' has entered the public psyche. The reason for these scheme closures is widely understood to relate to the increased cost of providing defined benefit pensions. Costs have risen due to a number of factors, two of which stand out as dominant: rising longevity, and falling real bond yields (inflation-linked yields). Defined benefit schemes have been closed and replaced with defined contribution schemes, usually to the benefit of the employer (see chart below).

Figure 1: Employer contribution rates for private sector occupational schemes 2005



Source: National Statistics Office, May 2007⁶

Rising longevity, despite the associated actuarial headache, should be a cause for celebration. The same is not true for the fall in real yields. The fall in real yields is widely understood to be as much a function of the changes that have occurred in private sector pension fund regulation and accounting over the past twelve years, as of macroeconomic developments that would normally determine the path of long-dated real interest rates. Given the indexation of pension benefits enshrined in the 1995 Pensions Act, the consequence of falling real yields has been a corresponding rise in the present value of defined benefit pension scheme liabilities.

To understand the impact that falling real yields have on a scheme, it is worth working through a stylised example. Company XYZ sponsors a defined benefit scheme that pays two-thirds of final salary and an actuarial assessment of this scheme indicates that the scheme liabilities have a duration of 17 years.⁷ UK real yields are at 3%, the scheme is fully-funded, the fund is 100% invested in equities, and both assets and liabilities are valued at £100m. If UK real yields drop to 1%, the present value of the liabilities shoots up to around £142m (taking the scheme 30% underfunded), while if real yields rise to 5%, the present value of liabilities falls to £71m (bringing the scheme 40% overfunded). This assumes that the valuation of the assets stays constant throughout (see chart).

⁴ NAPF 2001.

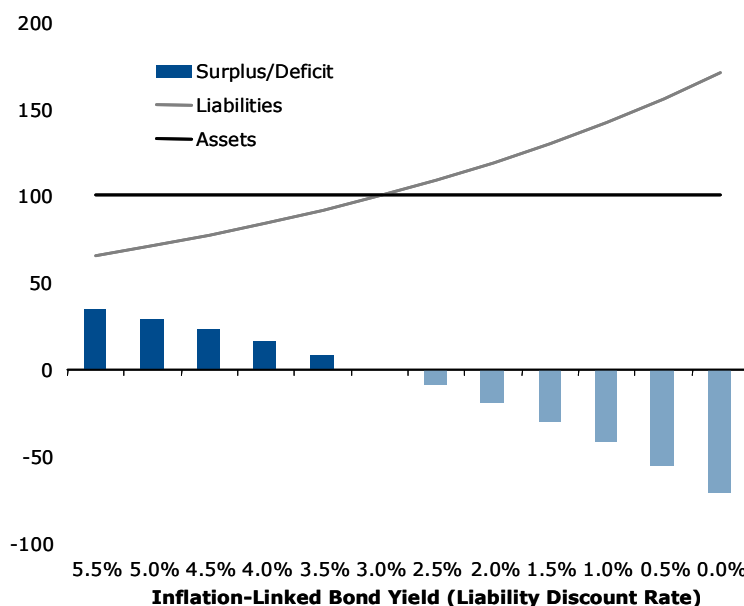
⁵ NAPF 2006.

⁶ From <http://www.statistics.gov.uk/cci/nugget.asp?id=1278> accessed 14th May 2007.

⁷ We assume here that annual pay increases are in line with the all-in yield of inflation-linked Gilts for simplicity's sake.



Figure 2: Hypothetical pension plan asset and liability valuations using different discount rates



Source: Baring Asset Management, May 2007.

In fact, the rate of liability inflation over the past ten years has been very high for the average UK pension fund, with real yields falling by some 250bps, and mortality assumptions changing to further increase their liabilities. During the period 2001-2003 this was accompanied by falling equity values that reduced the asset side of the scheme balance sheet, leading to a significant imbalance between many plans' assets and liabilities. Fortunately, since 2003 there has been a sustained rally in equities that has allowed the asset side of the equation almost to keep pace with the increase in the size of private sector defined benefit pension liabilities. Despite the reduction in the promised real return from bonds, pension funds have been increasing their allocation to them at the expense of equities. The reasons for this shift are reasonably well understood, but it is worth recapping on them briefly.

Firstly, there has been a change in accounting standards that appears to have altered plan-sponsor behaviour regarding asset-liability mismatch risk. Companies sponsoring defined benefit schemes are ultimately responsible for covering any unfunded liability and it is appropriate that shareholders should receive information about the extent of these liabilities as part of the balance sheet. In the early years of this century both UK and International Accounting Standards were amended to reflect unfunded liabilities on sponsor balance sheets. The effect of this was that companies sponsoring schemes that were invested largely in equities reported higher balance sheet volatility. Companies seeking to reduce this volatility increased their allocation to UK inflation-linked bonds or derivatives.

Secondly, there have been progressive changes to the regulatory environment for pensions over the past twelve years, the effect of which has been, inadvertently, to boost the demand for bonds. Most recently, the Pensions Act 2004 continued this tradition through the creation of the Pension Protection Fund (PPF) and the Pensions Regulator. In creating the PPF, the government ran the risk of opening the door to moral hazard, so introduced two main checks: a PPF risk-based levy, and a strong Pensions Regulator tasked with overseeing the interests of scheme members and the PPF. Without these two checks, sponsoring companies and scheme members could have been content with progressively underfunded schemes in the knowledge that the government would pick up the pieces should the sponsor fail. Companies became incentivised to both minimise their pension scheme deficits, but also to take greater interest in the volatility of their deficits. It is no bad thing that company management should be aware of the risks that they are running, but it is unfortunate that the most obvious way to reduce asset-liability mismatch risk is move assets or implement a derivative overlay programme that better aligns asset volatility with liability volatility: this effectively means buying bonds. Given that the shortage of long-dated inflation-linked bonds compared to demand is responsible for the low real yields which have the effect of inflating pension liabilities, any asset shift into long-dated inflation-linked bonds or inflation-swaps has had the effect of compounding the inflation-linked bond bubble, and worsening the balance sheet of the private defined benefit pension system as a whole.⁸ In addition, allocating away from equities has raised the cost of equity for UK companies at the margin, and any lower long-run total rate of return from bonds versus equities would necessitate higher levels of contributions from scheme-sponsors, detracting from private investment.

⁸ One symptom of this has been the almost permanent inversion of the UK yield curve. Over the past ten years, (i.e. since the introduction of the Minimum Funding Requirement) the UK yield curve has been inverted (10yr to 30yr yields) 85% of the time. This compares to 7.5% of the time for the US (after the announcement that 30yr bond auctions would be discontinued) and 10% for the Canadian curve. Neither the German nor Japanese yield curves have been inverted at any time over the past ten years.



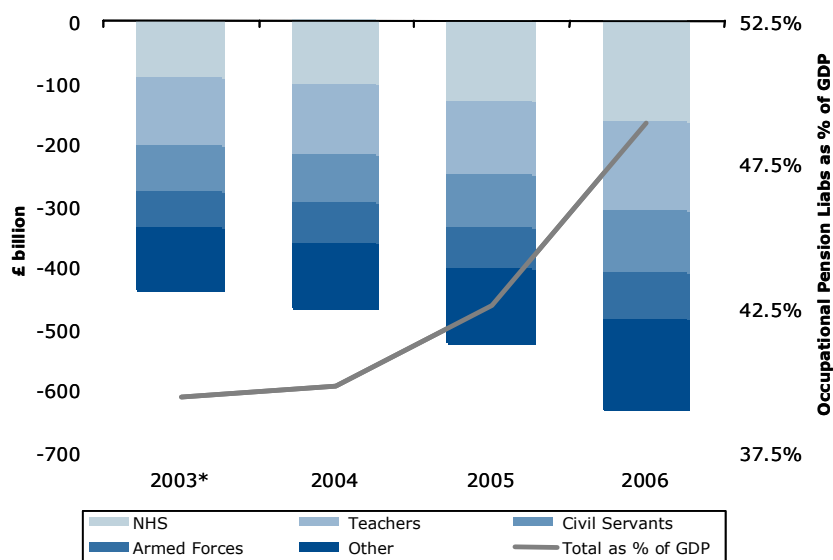
While some have advocated rolling back the changes in accounting that infer the discount rate used to calculate the size of liabilities from long-dated UK bonds (FRS17, IAS19, and Section 179 valuations), this move would simply remove transparency from corporate accounts and hide the problem. A much more sensible approach would be for the government to increase the supply of long-dated bonds, achieving the dual goals of realising very attractive financing rates for the government, and driving up the discount rates for private sector defined benefit schemes, reducing the cost of providing a decent pension. The main criticism of this approach is that the government would need to issue vast amounts of debt to quench the thirst of private sector defined benefit schemes (£600bn is sometimes quoted as the round number needed to achieve this effect), and this would leave the government with large amounts of cash that was surplus to requirement. We will return to this point later.

THE REAL PROBLEM

Over many decades, very large public sector debts have been accumulated off-balance sheet. The government actuary calculates that the deficits for the largest four public sector schemes totalled £486 billion in 2006, and we can expect the total public sector occupational pension deficit to come to around £630 billion once all of the smaller schemes are consolidated (48% of GDP). But this deficit valuation is arrived at using a real yield of 2.8% to discount the present value of the liability. Given the long-term nature of the liabilities, the calculation of the present value of these liabilities is very sensitive to the discount rate. Using market rates, Neil Record and Watson Wyatt each calculate the level of liabilities to be around £1 trillion, making the liability 73% of GDP. This is almost double the level of the national debt as recorded on the country's balance-sheet.⁹

The sheer scale of this debt begs the question as to how it might have been accumulated. In fact, the mechanics of this accumulation of debt are fairly simple. Public-sector workers accrue defined benefit pension rights. They and their public sector employers contribute portions of their total salaries to a pension plan every month, but rather than being put aside and invested, this money is used to finance current government spending. Although both the employees and public sector employers are charged for these pension assets and the obligations exist in legal form, these are not recognised by the government as liabilities on its balance sheet. It should be noted that there are two areas where this is not the case. Members of Parliament and Local Government employees have funded pension schemes managed by private sector asset management companies. Over the years the scale of off-balance sheet public sector occupational pension obligations has grown significantly, perhaps in part due to their off-balance sheet nature. Watson Wyatt estimates that the largest four public sector schemes constitute 77% of the total unfunded public occupational pension deficit. Using the Government Actuary's figures for these four schemes and this rule of thumb, we can see the evolution of these unfunded liabilities over the past few years in the chart below.

Figure 3: Government Actuary Department's estimate of Unfunded Liabilities for four largest UK Public Sector Occupational Pension Schemes, and Watson Wyatt's Estimate of other public scheme deficits¹⁰



Source: Stationary Office & Watson Wyatt, 2007

* Armed Forces 2003 deficit inferred.



⁹ Record 2006, Watson Wyatt 2006.

¹⁰ Watson Wyatt estimates that the largest four plans represent 77% of the total deficit.

Because of the final salary nature of these pension assets, each public sector pay rise is associated with a commensurate increase in this off-balance sheet public sector pension debt. For example, in the year ending March 2006 only current pensions in payment were recognised in the fiscal accounts, and new promises made were unaccounted for. Using private sector accounting methodology, these increases in liabilities would be recognised as costs. Neil Record estimates that this meant that the UK fiscal deficit was underreported to the tune of around 3% of GDP.

To its credit, the Brown Treasury recognised the idiocy of this system of national accounting some years ago and put in train a large-scale project to produce consolidated Whole Government Accounts (WGA) that would capture not only this pension debt, but also the Private Finance Initiative (PFI) debt, other off-balance sheet liabilities, as well as a range of public sector assets, to give a fairer picture of the nation's finances. Such a large shift has taken time to perfect, but this year the WGA project comes to fruition, and we might expect that this will lead to a change in the way in which budgets are presented henceforth, although there has been no announcement yet to this effect.

OPPORTUNITIES CREATED BY THE SHIFT TO WHOLE GOVERNMENT ACCOUNTS

The WGA project will effectively bring the government's substantial off-balance sheet liabilities on-balance sheet. Given that the public sector occupational pension liabilities are long-dated and inflation-linked in nature, there would be no impact on the new UK WGA balance sheet should the current untradable inflation-linked government obligations be switched for tradable inflation-linked government obligations. In other words, the existing pension schemes could be 'seeded' with tradable securities and would move from being unfunded to fully-funded. But what would the advantages of 'seeding' these pension schemes be? There appear to be four main benefits.

Firstly, if we think back to the first section of this document, we will recall that the cost to the private sector of providing defined benefit pensions has been inflating rather rapidly due to distortions in the UK yield curve and the lack of supply of long-dated inflation-linked bonds. If the Treasury were to issue large amounts of these securities to CalPERS-like public sector pension schemes (even on a no-trade basis), the bond market could begin to anticipate that these securities might be traded some time in the future; the sense of scarcity surrounding inflation-linked bonds would probably diminish. If the effect was a rise in the long-dated real yield, the artificially high cost to the private sector of providing defined benefit pensions would likely dissipate. This would also benefit the PPF (as the solvency of schemes of failing companies improved), thus reducing a contingent liability for the Treasury. More importantly, it would also help stem the closure of defined benefit pension schemes on the part of the private sector.

Secondly, this move would increase accountability in government by making the promises of today more 'real'. The current rate of increase in public debt may not be sustainable and while the move to WGA is an ambitious move that shows great judgement, the creation and transfer of tradable instruments would clarify the situation for the non-accountants and financial market practitioners in the electorate who are ultimately liable for the pension promises made today.

Thirdly, higher real yields would mean that retirees buying an annuity would be able to buy a greater income with their lump sums. UK legislation requires the annuitisation of at least three quarters of savings accumulated in a defined contribution pension account by the age of 75. Cannon and Tonks find that annuity rates fell from around 15% to 8% over the period 1993 to 2003, and that a key driver in this fall has been the fall in long-term interest rates.¹¹ Single-life annuity rates for a male retiree aged 65 have since fallen further since 2003 to around 7%, or less than 5% if the annuity is inflation-linked. Insofar as retirees have been victim of the distortion of the long-end of the UK real yield curve, they should benefit commensurately from the removal of this distortion.

Fourthly, by making this move, the government would have the opportunity to create at least four investment institutions with world-class firepower with assets and liabilities perfectly matched on day one. These new organisations would each qualify in the world's largest 20 pension schemes, two of them making the top five.



¹¹ Cannon and Tonks, 2003.

World's Largest Pension Funds, December 2005*

| Rank | Fund | Country | US\$bn |
|------|-----------------------|--------------|--------|
| 1 | Govt Pension Inv | Japan | 871 |
| 2 | NHS | UK | 286 |
| 3 | Teachers | UK | 249 |
| 4 | Govt Pension | Norway | 236 |
| 5 | ABP | Netherlands | 227 |
| 6 | National Pension | Korea | 214 |
| 7 | CalPERS | US | 196 |
| 8 | Pension Fund Assoc | Japan | 183 |
| 9 | Civil Service | UK | 178 |
| 10 | Fed Retirement Thrift | US | 167 |
| 11 | Govt Employees | South Africa | 124 |
| 12 | NY State Common | US | 132 |
| 13 | CalSTERS | US | 134 |
| 14 | Local Govt Officials | Japan | 137 |
| 15 | Armed Forces | UK | 133 |
| 16 | Postal Savings Fund | Taiwan | 117 |
| 17 | Florida State Board | US | 115 |
| 18 | GM | US | 114 |
| 19 | NY City Retirement | US | 106 |
| 20 | Ontario Teachers | Canada | 99 |

Source: Watson Wyatt Global Investment Review 2007, UK Stationary Office, Bloomberg

* UK schemes' size represents the Government Actuary Department's deficit valuation on March 31, 2006, in US dollar terms.

Having created these fully-funded institutions, the Treasury could then slowly allow these institutions to diversify their assets and earn higher returns on them than long-dated inflation-linked government bonds. This could have the effect of reducing the cost of occupational pensions to the taxpayer, in a similar way that occurs for MPs and Local Authority pension schemes. It would also have the effect of boosting the fund management industry, and, more generally, this step would bring the UK in line with best practice as defined by the OECD, and developed over the years by a number of sovereign peers.¹²

There are likely to be many objections to this proposal, but I will deal with only with the most obvious at this stage: the argument that the consequence of this proposal would be for the cost of long-dated government debt issuance to rise substantially and that this would be a negative influence on both government finances, and on the economy as a whole. I would argue that the government is only able to raise debt at such attractive rates today because of the distortion of the yield curve caused by recent regulatory changes. This proposal would have the effect of removing this distortion, and capital will be more efficiently allocated once a distortion-free yield curve exists. Putting this proposal in place would generate a series of positive outcomes for the UK economy.

CONCLUSION

There are substantial off-balance sheet government liabilities that will be recognised as part of the Whole Government Account review process this year. We believe this presents an historic opportunity for the new Brown government. The fully-funding of public sector occupational pension schemes with inflation-linked bonds would bring a number of benefits, including:

- Removing the distortion to the UK yield curve that:
 - has increased the cost of private defined benefit pension schemes and led to their wide-scale closure;
 - has reduced annuity rates for retirees, thus reducing the purchasing power of retirement savings;
- Improving the health of existing private defined benefit pension schemes and reducing the PPF contingent liability;
- Increasing accountability for public sector scheme management;
- Potentially reducing the cost of provision of public-sector pensions, and bringing the UK into line with OECD best-practice.

That so many of the UK's OECD peers have gone down the route of fully-funding public sector pensions means that there is a large amount of international technical experience that could be tapped by the UK Treasury, in addition to the experience gathered domestically in the operation of fully-funded pension schemes for Local Authorities and Members of Parliament.



¹² See OECD 2004 for a broad survey of occupational public sector pension systems in other countries.

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