OECD Labour Market and Social Policy Occasional Papers
No. 21

Private Pensions in OECD
Countries: The United
Kingdom

E. Philip Davis

<https://dx.doi.org/10.1787/114267514347>

**LABOUR MARKET AND SOCIAL POLICY
OCCASIONAL PAPERS - N° 21**

**PRIVATE PENSIONS IN OECD COUNTRIES -
THE UNITED KINGDOM**

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ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

Paris

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SUMMARY

This volume is part of a series of monographs on private pensions in OECD countries. Previous titles have considered the situation in Canada, Ireland, New Zealand and the United States.

The United Kingdom pension system has some distinctive characteristics. Publicly-provided pensions have become less important as a source of retirement income. The ageing of the population will shrink the numbers of those working relative to those receiving old-age pensions, but because of the low rates of public pension payments, contribution rates will not need to rise dramatically to cover pension costs. Funded company-based schemes are extensive, with one of the highest asset to GDP ratios among the OECD countries. Personal private pensions are growing rapidly in coverage. Evidence suggests that these pension funds have boosted saving and increased the supply of long-term funds, so stimulating the development of capital markets.

The size and scope of private pensions in the United Kingdom makes the policy debate particularly relevant to policymakers in other countries who are considering expanding the role of the private sector. Three factors have been particularly important in promoting the use of private pensions.

First, the public pension system is residual. The incentive to make alternative arrangements for retirement pensions is strong. However, the low level of the public pension leaves a sizeable proportion of pensioners dependent on means-tested benefits to maintain acceptable living standards.

Company-provided occupational pensions cover much of the workforce. The official encouragement of personal pension plans is both a means of extending coverage to those working in smaller, non-unionised companies (where occupational pension schemes are less common) and to provide competition to the occupational schemes, perhaps improving their performance.

Second, the case for preferential fiscal treatment of pension funds has been found persuasive in the United Kingdom. However, the generous income tax regime for pensioners relative to those of working age does not seem to be well-justified. Regressive distributional consequences of tax privileges are a cause of concern. Furthermore, the cost of incentives for personal pensions appear to have been excessive in relation to the resultant savings in social security.

Third, the regulatory regime for occupational pensions has provided an appropriate balance between costs for the employer and protection of the beneficiary. For example, temporary shortfalls in funds are not penalised and accounting rules focus on income rather than market values, so avoiding unintended bias against equity holdings. There are limits on the extent to which funds can invest in the employer's companies, and on the ability of predators to extract pension fund surpluses. Nevertheless, the previous regulatory regime was criticised as being unwieldy. The new (1997) regime will improve matters significantly.

In contrast, the regulatory regime for personal pensions has failed to protect clients adequately. Mis-selling of personal plans was widespread. Commission charges on personal pensions are extremely high. Attempts are being made to improve regulation of sales, but information for holders remains inadequate. Furthermore, contributions to such plans are often inadequate, threatening retirement-income security of those concerned.

This brings to the fore an underlying issue which has only recently gained prominence; namely whether personal pensions are by nature unsuitable for the low paid. Evidence suggests that individuals are myopic in accumulating wealth for their retirement and the low-paid particularly so. Permitting opting-out of the public scheme has therefore not proved entirely satisfactory. It is likely that the question of compulsory private provision will receive increasing prominence in future development of UK pension policy.

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INTRODUCTION

The UK pension system displays a number of distinctive features that make it worthy of study internationally by analysts of this sector, providers of pension services and policy makers and reformers active in pension issues. These features include an increasingly active promotion of private pensions by the authorities, while retaining the principal of free choice in the matter both for members and providers; a reduction in the scope of social security as part of this policy; the size and growth of the personal pension sector, which covers around 25% of the workforce; a large occupational¹ pension fund sector, whose assets are among the largest in the OECD as a proportion of GDP, and which invest heavily in equities and foreign assets; voluntary indexation (to date) of occupational pensions and many others. Major regulatory reforms, including minimum solvency standards, and compulsory indexation of pensions are being introduced in the provisions of the 1995 Pension Act, which received its Royal Assent in July 1995. However, given the phased introduction of these provisions (mainly in 1997), their consequences for the structure and behaviour of the sector can only be a matter of conjecture. This paper seeks to draw out these features and the related policy issues in the context of a broad and comprehensive description of the main features of the UK system.

The paper is structured as follows, in the first section, features of the background for private pensions - demography, social security and the patterns of retirement income - are introduced; the second provides an account of the structural features of UK private pensions; the third focuses on taxation, the fourth considers regulation and the fifth concentrates on performance (in terms of benefits, contributions and costs); the sixth examines portfolios and asset returns; a seventh section addresses some of the financial-market issues which are raised by pension funds in the UK; and in a final, concluding section, some of the distinctive policy topics raised in the UK are highlighted, in the context of the broad issues which must be addressed by any system of retirement income provision.

Before commencing, it should be noted that the main data sources are as follows: comprehensive and detailed data for coverage, benefits and contributions of occupational funds are provided in the four-yearly surveys by the Government Actuary, published by Her Majesty's Stationary Office (HMSO). The latest of these, providing data from 1991, was published in 1994. Data for the portfolio distribution and flow of funds of the pension funds sector are given in the monthly Financial Statistics, prepared by the Central Statistical Office (CSO) and also published by HMSO. Income and expenditure of schemes at a macroeconomic level are provided in the annual "Blue Book" of National Income and Expenditure, published by the CSO. Other useful sources, again published by HMSO, are the annual Social Security Statistics (for data on the pensioner income distribution, recipients of benefit, and numbers of individuals opting out of SERPS into personal or occupational funds), the General Household Survey (for micro household data) and the annual Financial Statement and Budget Report of HM Treasury, (for details of rates of social security contributions and benefits and tax rates).

¹ The term occupational is retained in the UK to cover funded company based schemes owing to the prevalence of such arrangements for (current and former) nationalised industries and local authorities as well as private firms.

A further useful private-sector source on regulation is the "Benefits Report Europe USA", published by pension consultants the Wyatt Company, Brussels; a further source for portfolios and asset returns is the annual "Pension fund service annual review" by performance measurement service the WM Company. As regards monographs and articles, recent summaries of the UK pension system include Daykin (1996), Dilnot et al (1994) and Blake (1994, 1995). International comparisons of pension fund sectors are provided in Davis (1995a) - which is used as the main source for this paper - and European Commission (1994). Other sources are given in the list of references.

1 The background

This section seeks to outline the main features of the context of which private pensions operate. The background features considered to be of crucial relevance in the UK, as indeed in other countries, are the demographic structure of the population and the nature of the social security system. The section also outlines the pattern of retirement income in the UK.

1.1 Demographics

In common with most OECD countries, the UK has an ageing population. The population of over retirement age is currently equivalent to 30% of those of working age (15-65 for men, 15-60 for women), and this ratio will rise to 36% in 2020 (Table 1.1). Taking into account the increase to 65 of the retirement age for women which is scheduled for 2020, the ratio of those over 65 to those of working age is expected to be 31% in 2020 and 40% in 2050. This ageing process has been underway for some time, as in 1960 the ratio of retired persons to those of working age was 25%. This implies that the number of workers per pensioner has already fallen by 25%.

As shown in Table 1.2, this demographic shift is common to most OECD countries (as well as developing countries). Nevertheless, it should be noted that the UK is less severely affected by ageing than other OECD countries, for some of which the ratio of over 65s is expected to be almost 50% in 2030. Again, the UK has already reached a relatively high ratio of pensioners to the population of working age, suggesting the adjustment is also more advanced. Elsewhere, the likely impact of ageing on overall systems of retirement income provision is aggravated by generous pay-as-you go social security systems compared to the UK (on the consequent implicit liabilities of governments, see Hagemann and Nicoletti (1989), Van den Noord and Herd (1993), Liebfritz et al (1995)).

In the UK, as in other countries, the demographic shift can be related largely to declining birth rates, as fertility has been below replacement level since the late 1960s. In effect, whereas fertility rates were 2.7 in 1960, by 1980 they had fallen to 1.9, and in 1993 they were 1.8 (Eurostat 1995). It can also, to a lesser extent, be associated with greater longevity² and a decline in the amplitude of migration. So great has been the fall in fertility that the overall support ratio including children as dependants has fallen since 1970, with the number of children declining from 14 million to 11 million. This adjustment is considered likely to be complete, hence in the future the number of children is expected to remain stable.

Even if fertility were to recover, ageing of the population would continue for some time, given the size of the 1950s and 1960s cohort which due to retire early in the 21st century; and indeed, the burden of dependants on the working population would temporarily increase if fertility rose. But given social trends

² In 1960, life expectancy at birth for men was 67.9 and for women 73.7; in 1993 it was 73.6 and 79.0 respectively (Source, Eurostat 1995).

such as increased female education and participation in the workforce, which increase the opportunity cost of having children, a recovery in fertility even to replacement seems unlikely. Immigration could raise the proportion of young people, but significant inflows seem unlikely in the prevailing political climate.

Besides increasing the potential burden of pension provision, this pattern is likely to increase demand for health care. It is consequently putting an increasing strain on the social security system, and has led the UK government to cut back on social security provisions and encourage private sector provision (see below). As is the case for demographic patterns themselves, the progress that has been made in this direction points again to a lower burden on future generations from population ageing in the UK than elsewhere. For example, the OECD (1995) calculate that the discounted present value of UK social security pension liabilities (that is, discounted future pensions less discounted future contributions), is only 23% of 1994 GDP, similar to the US, compared with 51% in France, 58% in Italy, 82% in Japan and 100% in Canada and Germany.

A further important factor influencing the ability of the economy to cope with an ageing population is the labour force participation ratio (i.e. the proportion of the population of working age in the workforce, who are actually in work or seeking work). This ratio has been roughly constant since 1970, but the composition has shifted sharply, with an increase in the labour force participation of women offsetting early retirement and longer periods of full time education.

Nevertheless, it should be stressed that patterns of early retirement are a marked feature of the UK labour market, and may in time be a cause for concern, since the degree to which further increases in entry of women to the labour force can offset it is clearly limited. Whereas in the early 1970s over 80% of men aged 60-64 were in the labour force, in the early 1990s the figure had fallen to 50%. The corresponding figures for those aged 55-59 are over 90% and just over 80%, and for those 65-69 they are 30% and 15%. Figures for early retirement by women are overlaid by the tendency for increased participation by successive cohorts, so a tendency to declining participation is less apparent in the aggregate data. Nevertheless, it is still likely to be present at a micro level.

Also of concern is the fact that the proportion of the labour force actually in work has fallen sharply, owing to a structural increase in unemployment. Although the working age population has risen 2.5 million since 1970, and the workforce has risen 2.1 million, the population in employment has barely risen to support the increased number of pensioners. If the unemployment rate remains constant, the ratio of pensioners to those in employment will evolve similarly, albeit at a higher level, to those ratios highlighted above. The corresponding tax burden on each employed person will probably be higher, however.

1.2 Social security

As in all countries, the scope for developing funded private pensions in the UK is conditional on the nature of compulsory, pay as you go social security pension provisions. Broadly speaking, the development of social security in the UK has been favourable to private schemes, particularly as a consequence of the rather limited scope of social security on offer and the ability of employees to opt out of earnings related social security pensions.

Since the introduction of the compulsory social insurance scheme, after the Beveridge Report in the 1940s, the UK has offered a *basic pension*, intended to provide a means of subsistence, i.e. largely intended as a form of poverty alleviation. The level of the basic pension has varied over time in relation to average earnings. Until 1970 it was typically raised in an ad hoc manner and did not always keep pace

with inflation. Over the 1970s it was raised in line with earnings or prices, whichever was the greater, thus leading to a marked boost. Since the early 1980s indexation has been only to prices. As a consequence of these changing policies, between 1948 and 1973 the pension rose twice as fast as prices, and the level in relation to average earnings peaked in 1977 at 20% of average earnings. Since then it has fallen sharply relative to average earnings, such that by 1994 the ratio was only 18%.

Under the basic pension scheme, all employees and self employed earning above 18% of average earnings, the so-called *lower earnings limit* for national insurance contributions, must contribute to national social security to earn entitlement to a basic pension. In 1995, contributions are 2% of earnings at the lower earnings limit, then 8.2% of earnings up to an *upper earnings limit* of around 120% of average earnings (or around 7 times the basic pension). There are no further contributions on marginal income beyond the upper earnings limit. This pattern implies that contributions are not in any way progressive, beyond the lower earnings limit.

The size of the basic pension depends on a person's contribution record and not his or her earnings. A full pension is only payable to those contributing for over 90% of their working life (counted as 16 to 60 for women³, 65 for men); a proportionately reduced pension is payable to those contributing for at least 25% of their working lives. It is possible for retirees to postpone receiving the state pension for up to five years beyond the pension age; for each year of deferral, the pension is raised 7.5%⁴. As noted, even with full contributions, this basic state pension offers a low replacement ratio⁵ (currently just over 18% of average earnings). This will fall further in future as long as indexation continues to be to prices and not wages, since real average earnings growth in the UK tends to be 2-3%. The basic pension is taxable, as is the earnings-related pension (below) and all occupational and private pensions⁶.

Married women may either receive the basic pension on the basis of their own contributions, or 60% of the pension from their husband's contributions, with a corresponding reduction in their own contributions (although the option of paying lower contributions on the part of married women was foreclosed in 1978 for new optants). Since 1978 there has been a system of credits for those out of the labour force owing to caring responsibilities, as "home responsibilities protection" credits are provided for years when child benefit is received for a child under 16, or when income support was received for looking after an elderly or disabled person and not being available for work.

At present, receipt of the basic pension is strongly related to sex. 95% of retired men get the full basic pension, 27% of women do so on the basis of their own contributions and 45% receive partial pensions on the basis of their own contributions. This bias will disappear over time as household responsibility payments - introduced in 1978 - gradually build up. This should in time reduce the incidence of poverty among widows, as they will in due course be entitled to the full basic pension.

The basic pension is not seen as adequate alone to provide income for retirement, even by the government, in that minimum income levels prescribed for social security purposes typically exceed the basic pension. This is illustrated by the fact that a third of pensioners - around 3.1 million individuals - receive additional means-tested benefits. Of these, 1.2 million receive income support (mainly single

³ The retirement age for women will be raised to 65 in 2020.

⁴ As noted by Blake (1992), the unequal retirement ages mean that a woman can currently stop contributing at 60, then gain a higher pension by working till 65 than a man would having paid another five years' contributions.

⁵ The replacement ratio is the ratio of the pension at retirement to earnings in the last year of working life.

⁶ Pensioners have a more favourable system of income taxation than the rest of the population, see Section 3.

women), 1.9 million obtain community charge⁷ benefit and 1.2 million get housing benefit. (The total exceeds 3.1 million owing to some pensioners receiving two or three types of means tested benefits). These means-tested benefits have the major drawback for economic efficiency that they discourage saving, since there are strict minimum limits on assets held before payment can be considered. On the other hand, given the growing inequality among pensioners (as discussed below), means tested benefits do have the advantage of only going to those who really need them.

This basic scheme is supplemented by a *state earnings related pension scheme (SERPS)*. It was introduced in 1978, following the 1975 Social Security Act, as a replacement for the more modest "graduated pension" introduced in 1961. It was from the start intended as a form of backup for the minority of the working population not in occupational pension funds. Entitlements are calculated as 1.25% of average revalued earnings for each year of membership of SERPS up to 20 years. The best 20 years of earnings are revalued to the retirement date using the annual increase in average earnings. SERPS hence currently offers a maximum replacement ratio of 25% of revalued earnings. Consequently, combined with the basic pension, a worker on average earnings with full contributions may currently obtain a replacement ratio of just over 40%. As discussed below, however, SERPS is due to be cut back in the future.

Contributions to SERPS are payable on income between about 0.2 and 1.3 times average earnings - the lower and upper earnings limits as defined above, respectively. Employee contributions for those contracted in to SERPS, (including basic pension entitlements) in 1995 are 2% of earnings at the lower earnings limit rising to a maximum of 10% of earnings at the upper earnings limit. Employer contributions are 3% at the lower earnings limit and 10.2% on income at and above half the upper earnings limit. Those below the lower earnings limit are not entitled to SERPS and must rely on the basic pension (which is approximately equal to the lower earnings limit).

Neither the basic pension nor SERPS are funded; both are provided on a pay-as-you-go basis. The Government Actuary periodically assesses whether contribution rates need to be adjusted to keep the schemes solvent.

Concerned with the potential burden on future generations, the UK government in the 1986 Social Security Act reduced the maximum benefits from SERPS as and from April 1999 from 25% to 20% of earnings. This was done by reducing the credit for years of contributions from 1.25% to 1%, and changing the wage base from the best 20 years to a lifetime average. Atkinson (1991) has calculated that this could cut the pension of someone earning 120% of average earnings for the best 20 years of his career from 42% to 33% of final salary. This casts doubt on whether social security, even including SERPS, can provide adequate retirement income for those retiring after 2000.

Three further developments may be highlighted which reinforce this point. First, in the future the replacement ratio may decline further if the basic pension continues to be indexed to prices. Moreover, as regards the likely evolution of SERPS in the further future, since the upper earnings limit is indexed to the basic pension, it is falling as a proportion of average earnings. It has already fallen from 140% to 120%. If the rules are not changed, the upper earnings limit will be only 60% of average earnings in 2030, and the maximum SERPS entitlement could be as little as 10% of average earnings. Third, the 1995 Pensions Act had the effect of reducing SERPS entitlements further, by changing the method of calculating the proportion of earnings on which SERPS is paid. As a result of changes in indexation procedures, the amount of earnings from earlier years which count towards SERPS will fall, reducing the amount of the

⁷ Community charge is a form of local taxation levied on a per capita basis.

pension (Disney and Johnson 1995). By 2040 this measure may cut the cost of SERPS in half, in real terms.

1.3 Contracting out

A key element of the social security regulations which has underpinned the growth of occupational pension schemes is the ability of employees to opt out of SERPS. This emphasises the point noted above that SERPS is a backup for individuals unable or unwilling to use private pensions. Indeed, ability to opt out of earnings related social security is one explanation for the high pension asset/GDP ratio in the UK. The only other OECD country with such a system of opting out of part of social security is Japan.

When employees with company pensions 'contract out' in this way from all but the most basic state scheme, there are corresponding reductions in employers' social security contributions equivalent to the estimated cost of providing the liability of the earnings related pension via funding. This so-called contracted out contribution rebate was initially 7% of the difference in earnings between the upper and lower earnings limits; in 1995 it was 4.8% (1.8% for the employee and 3% for the employer).

Not all pension funds take advantage of this system; some occupational funds are 'contracted in' and thus only provide benefits over and above SERPS, but the majority are contracted out. In 1991, 9.7 million pension scheme members were contracted out (representing 68% of employees) and 1 million are contracted in. The latter represented 5% of employees, of these, 3% have SERPS plus a defined benefit scheme and 2% SERPS plus defined contribution. 12% of employees were wholly dependent on SERPS⁸.

As detailed in Section 2 below, the majority of those opting out of SERPS still take an occupational defined benefit plan. This must at the time of writing⁹ offer a pension at least as good as the "Guaranteed Minimum Pension" (GMP). Before retirement the GMP is indexed up to 7.5% of average earnings, whichever is the lower, for early leavers; it is indexed after retirement at up to 3%. The GMP is roughly equivalent to the difference between the basic state pension and the SERPS earnings-related benefit. Since there is often a shortfall between the 3% guaranteed indexation from the firm and actual inflation, to which SERPS is indexed, a pensioner receiving the GMP would usually receive some social security pension to take him up to the SERPS level¹⁰. A contracted-out fund must also provide a widows' or widowers' pension at a rate of half the members' pension. Pensions may not normally commence before age 50 and not after 75.

Since 1988 there has also been the possibility to opt for an occupational or personal defined contribution plan. This may involve either contributions at least as large as those required for the GMP, or contributions at least equal to the contracted out contribution rebate (as for defined benefit funds). For a personal pension, a minimum contribution, equal to the contracted out contribution rebate, is paid by the government - although an individual may also make further voluntary contributions to such personal pensions. Social security regulations require the division of such personal pensions into two parts, first the

⁸ The remaining 15% of employees either earned too little to reach the lower earnings limit (12%) and hence had no right to a supplementary pension, or paid the married woman's reduced contribution (3%).

⁹ The 1995 Pensions Act foreshadows abolition of the GMP as from April 1997 and replacement by a "Requisite Benefits Test". The minimum pension will be based on that of a "reference scheme" accruing 1/80th per year of service applied to an earnings definition based on 90% of the member's earnings which would qualify for SERPS averaged over the last three years of service

¹⁰ The 1995 Pensions Act proposes to remove this additional layer of protection, so that existing rights to the GMP would only be indexed up to 3%.

national insurance rebate which is used to buy a so-called "protected rights pension" equivalent to SERPS, and the remainder, the so-called "personal fund" including employees' and employers' contributions. Regulations state that the so-called "protected rights" element of UK personal pensions must be taken at 60 at the earliest and indexed up to a 3% inflation rate. The disposition of the remainder is more flexible in terms of timing and type of annuity; 25% of the value of the fund at retirement (excluding the protected rights) can be obtained as a tax free lump sum.

In both defined benefit and defined contribution cases there is a form of safety net; an individual who is contracted out may still receive some earnings related pension, if the guaranteed minimum pension payable from a pension fund falls short of the amount of social security to which the employee would have been entitled if not contracted out. Equally, the protected rights element of a personal or defined contribution fund is guaranteed.

Besides providing the general ability to opt out, the government, from 1988 to 1993 also offered further special incentives to individuals without a company pension scheme and thus dependent on SERPS to take a personal (defined contribution) pension instead of an earnings-related state pension. Inducements were rebates of past contributions to the earnings related scheme and an option to re-enter, as well as an increase of 2% in the rebate. In 1993 the bonus was reduced to 1% only for the over 30s - in an attempt to discourage this age group from contracting back into SERPS.

One may conclude that social security in the UK has both proceeded from modest intentions and also has been reduced quite significantly in its scope and ambition in recent years. Dilnot et al (1994) argue that this reflects "political risk" resulting from conflicts over the cost of social security pensions and the burden of the scheme on successive generations¹¹. This pattern of political risk has resulted in pensioners receiving social security pensions, both now and in the future, which are quite unrelated to those they were promised when they entered the labour force. It has also provided a major spur to development of private pensions, and notably in recent years personal pensions.

1.4 Retirement incomes

Patterns of retirement income provide a further background to discussion of structural features of the UK pension system. Broadly, there has been a trend for pensioner incomes to rise quite rapidly in recent years, but from a low base. Thus, although pensioners do not predominate to the same degree as in the past at the bottom of the income distribution, many pensioners remain poor. There has, in effect, been an increase in inequality among pensioners, which means that average pensioner incomes may give a false impression.

The data provided in DSS (1995) show that in 1993 the mean income of pensioner households was £149 in 1993 prices, and £132 after housing costs (Table 1.3). The mean was well above the median (£99) revealing quite a high degree of inequality. After housing costs, the median was £82, well below average earnings. That inequality among pensioners has grown over time is evident from the fact that the mean income of pensioners rose by 52% in real terms between 1979 and 1993, and the median by only 43%.

¹¹ In fact, data suggest that the "burden" is often exaggerated, as the equalisation of pension ages and the rise in the tax base means that on current policies, the national insurance contributions needed to finance the basic pension would fall 3.5 percentage points by 2025. On the other hand a switch to earnings indexation would require 6 percentage points higher NICs by 2035.

As regards the sources of pensioners' incomes, in 1993, 53% of pensioner households' gross income came from social security pensions and other benefits, down from 61% in 1979; private pensions were 25% (16% in 1979), investment income 16% (11%), while earnings were 6% (12%), reflecting the tendency to early retirement noted above. In 1993 only 62% of pensioner households had occupational pensions, although this was well up on the 1979 figure of 43%. Investment income, received by 73% of pensioner households, was both very unevenly distributed and had fallen sharply since 1991 owing to the effect of the decline of short term interest rates on interest receipts.

The overall distribution of pensioner income became sharply more unequal in the 1980s and early 1990s (Table 1.4), with the income of the top 20% of pensioner units rising 59% and the lowest 20% by only 24%. After housing costs, the differences are even more dramatic 72% and 21%, respectively). Hence pensioners were a much less homogeneous group in the early 1990s than at the beginning of the 1980s.

This pattern is partly related to differing cohorts. Pensioner households which were younger (females up to 64, males up to 69) had 30% higher incomes overall in 1993 than all pensioners, and a 38% higher income from occupational pensions. This higher income from private pensions partly reflects a tendency for younger cohorts to have accrued higher overall pension entitlements than older ones (as they benefit from higher real earnings while they remained in work as well as better indexation procedures). It also reflects a greater likelihood of having a private pension (reflecting past expansion of coverage). Hence the pattern of growing pensioner inequality is partly a reflection of this. But this is not entirely the case; there is also evidence of growing inequality within cohorts.

As noted by Giles and Webb (1993), the increase in inequality in the general population has been even greater. Indeed, pensioners have been shifting upwards in a relative sense. In 1979 31% of the poorest 10% of the population were pensioners, and in 1991 it was only 11%. For the poorest 20% of the population the figures are 38% and 24%. Again, whereas in 1979 46% of pensioners were in the lowest 20% of the income distribution, in 1991 it was 29%. The unemployed, the increase in the number of whom has made a major contribution to the increase in general inequality, predominate to a greater extent at the bottom of the income distribution than was the case in the past.

2 Structural features of private pensions in the UK

This section outlines the main structural features of the principal types of private pension funds in the UK, namely occupational (defined benefit and defined contribution) and personal pensions. The main focus is on scope and coverage of the workforce. Note that regulation, taxation, benefit and contribution structure, as well as performance and capital market behaviour, are addressed in later sections.

2.1 Occupational funds

There is no general legislative structure for UK occupational pension funds. The key feature is that funds should be set up as irrevocable trusts, where a trust is a legal arrangement between persons for the disposal of assets; assets being provided by one person (the settlor) and held by a group of persons (the trustees) for the benefit of another group (the beneficiaries). Thus in the case of occupational pension funds, administration and financial management of assets provided by the employer (settlor) is in the hands of trustees responsible to the beneficiaries, i.e. the members. The trustees must preserve the trust capital and apply it and its income according to the trust deed.

Occupational pension funds must be funded to cover obligations and not run on a pay-as-you-go basis (the only exceptions are the teachers, civil servants, health service, police and military pension schemes -

the only OECD country to fund civil service pensions is the Netherlands). Occupational funds must be separate from the sponsoring employer - which is an essential aspect of the concept of the trust; the employer should contribute, while funds may only be returned to the employer in certain specified circumstances. To be allowed to contract out of SERPS in the manner outlined above, pension funds must meet minimum conditions on benefits (the so-called Guaranteed Minimum Pension, see above) and there must be preservation of benefits for early leavers (up to an inflation rate of 5%). A feature of occupational funds that should be noted at the outset is their sheer size, with assets equivalent to over 67% of GDP in 1994¹² (Table 2.1). Occupational pension assets were 27% of personal financial assets in 1994, or 52% for life insurance¹³ and pension funds in total. Size reflects coverage, as discussed below, maturity and the fact that they substitute for earnings-related social security in most cases. Growth in recent years has also been remarkable - in 1983 funds were only equivalent to 36% of GDP.

Occupational funded pension schemes in the UK are quite long established, having begun in Victorian times (Blake (1992, 1994a)). The main legislative basis is the Superannuation and other Trust Funds (Validation) Act of 1927. Nevertheless there has been considerable growth in occupational schemes since the Second World War (Table 2.2), before which only 15% of the workforce were members of occupational pension funds ("coverage" was 15%). The peak level of coverage by occupational schemes (53%) was reached in 1967, having risen from 28% in 1953. The date of the most recent survey is 1991, as provided in Government Actuary (1994). In 1991, overall, 48% of employees are in occupational schemes, and 90% of those were contracted out of SERPS. Hence there has been a mild contraction in coverage of occupational schemes in recent years. The introduction of SERPS may have helped to blunt growth of occupational pensions beyond 1978. Meanwhile membership has been in the range of 10-12 million continuously since 1963. As noted, a further 25% now have personal pensions.

Virtually all public sector employers offer occupational pensions, whereas in the private sector it is more common for large firms than small ones. 40% of employees in the private sector are covered whereas in the public sector the figure is over 70% (Table 2.3). Among the latter, it is higher for public corporations (86%) and central government (79%) than local authorities (63%).

As regards the total number of schemes, there are over 128,000 schemes in all, of which all but 180 are in the private sector (Table 2.4). The average size of private sector scheme (50 members) is correspondingly much smaller than in the public sector (23,000). Within the private sector the size distribution is skewed; less than 1,000 private sector schemes have over 1,000 members; conversely, over 122,000 private schemes have less than 100 members; 87,000 of these are not contracted out, whereas virtually all large private sector schemes (and all public sector schemes) are contracted out. Assets tell a similar story of skewness to membership; there are 24300 private schemes with assets of less than £1 million and 35 with assets of over £1 billion (Table 2.5).

Women tend to be less likely to be covered than men; 37% of female employees are members of occupational pension funds and 57% of men. However, the tendency in recent decades is for coverage to increase for women and stagnate or decline for men. Coverage for men peaked at 66% in 1967, in which year only 28% of women were covered. One explanation for lower coverage for men than in the 1960s is increased employment in small firms, which may not offer occupational pensions. Women are tending to

¹² Assets fell sharply in 1994 thanks to trends in bond and equity markets; the ratio to GDP in 1993 was 76%.

¹³ Personal pension assets are included in life insurance, as are occupational funds managed by life insurers. But life insurance assets are of course not solely held for retirement income provision. Particularly important in the UK is use of endowment policies for repayment of loans for house purchase.

enter the labour force in sectors with high coverage, notably the public sector, where 61% of women are covered.

Full time workers are covered considerably more frequently (57%) than those working part time (16%) (Table 2.6), which offers part of the explanation for the lower coverage of women. Nevertheless, scheme membership of part timers is tending to increase. In 1987 it was 10%.

Membership varies considerably between industrial sectors, ranging from 84% in coal mining, energy and water supply to 16% in agriculture, forestry and fishing. In general, in the less covered sectors, many employers do not run a pension scheme, partly as a consequence of the small size of firms.

Coverage by age of workers reaches a maximum in late middle age (Table 2.7). It is only 35% for employees below 25, above which it varies from 49-58%, with the peak being at ages 50-54 (the peaks for men, 72% and for women, 43%, are both in this age group). Young people are less likely to be members owing to minimum age or service requirements, as well as due to opting for personal pensions (see below).

A number of companies have separate schemes for executive and/or white collar workers as opposed to blue collar workers, with higher benefits for the former. This compensates for the lower replacement ratio of the state pension for the former than the latter. 2 million employees are in schemes which exclude works (blue collar) employees, although the majority of employees (7.5 million) are in schemes which cater for all three categories of staff.

The vast majority of schemes impose no waiting period on new employees prior to entry to the scheme, although 0.7 million employees are in schemes that impose waiting periods of a year or more. 0.4 million are in schemes which are closed to new members (Table 2.8); note however that in this case there is generally a replacement fund operating under different conditions for new employees. Again, most schemes (covering 8 million workers) allow entry by age 18, but well over 1 million employees are in schemes which insist on an employees reaching at least age 21 prior to entry. Only 3.5 million workers are in schemes which automatically allow part-time workers to join. 2.5 million are in schemes requiring a minimum of 9-15 hours per week and a further 2 million specify a minimum of 16-20 hours. Over 1 million are in schemes which exclude part time employees entirely.

These data illustrate the lack of regulation of entry conditions in the UK. This is particularly noteworthy compared to strict regulations in other countries, which often make it illegal to have schemes for executives only, disallow imposition of waiting periods or minimum ages, or exclusion of part time workers. (In fact, as discussed in Section 4, a 1995 ruling by the European Court has made discrimination in pension provision against part time workers illegal.)

As regards retired persons in receipt of occupational pensions, this has increased continuously from 0.2 million in 1938 and 0.9 million in 1953 to 7 million in 1991 (Table 2.9) indicating the increasing maturity of schemes¹⁴ and ageing of the population. Since some individuals receive two or more pensions, the number of recipients is estimated to be 6.5 million. These comprise 3.5 million men (68% of retired men overall), 1.6 million women receiving their own occupational pension (20% of retired women overall), and 1.4 million women in receipt of widows' pensions. 3.8 million receive pensions from private funds and 3.2 million from public (Table 2.10). For men, the proportion receiving occupational pensions is roughly constant over the age group 65-80 (Table 2.11), whereas for women receipt is much more frequent

¹⁴ Illustrating maturity, a survey of the National Association of Pension Funds suggested that in 1994, its member funds had on average 5,000 contributing members, 2,800 deferred and 4,700 pensioners.

for those in the age group 60-70 (27%) than 70-80 (15%). This reflects the relatively recent tendency for occupational pension coverage of women in the labour force to increase.

Full maturity of occupational plans, when all pensioners have passed all their working lives in the schemes, will not be reached until the mid 21st century. But tendencies towards maturity are apparent in the decline in support ratios - the number of workers per pensioner. In 1971 this was over 5 in private plans and over 2.5 in public plans (the difference partly reflects the earlier peak in coverage for public sector schemes). In 1991 the respective ratios were 1.8 and 1.4, albeit partly as a consequence of the effects of unemployment.

2.2 *Types of plan*

This section details the features of different types of plan in the UK in general terms¹⁵; the precise regulatory and structural features which determine the incidence of the various advantages and disadvantages that are identified are outlined in later sections.

Pension funds are of two main types, namely defined benefit and defined contribution, which differ in the distribution of risk between the member and the sponsor (a non-financial company, public corporation or local authority). In defined benefit funds, the sponsor undertakes to pay members a pension related to career earnings, in the UK this is typically a predetermined percentage of final salary, subject to years of service, or a flat benefit per year of service. Hence members trade wages for pensions at the long-term average rate of return in the capital market, while employers bear the investment risk, paying benefits even if the fund proves inadequate. In practice, this usually entails an undertaking to top up the fund when assets decline in value or liabilities increase, to keep it in actuarial balance (note that liabilities may increase not merely due to higher pension claims but also a fall in the long-term interest rate at which liabilities are discounted). Such topping up proved to be necessary in the late 1970s. In addition, with defined benefit schemes there may be a transfer of risk between young workers who can bear investment risk, and older workers and pensioners. This enables such funds to have a high share of equity - trading return for risk.

Risk-sharing features are absent from defined contribution schemes (often called "money purchase" in the UK), where contributions are fixed and benefits vary with market returns; all the risk is borne by the employee. In the case of a stock market crash just prior to retirement, such risks for defined contribution plans may be severe - pensions in the UK who retired in 1974 often had pensions less than half the value of those retiring in 1973. However, shortfalls earlier in the working life can in principle be made good by raising contributions if capital market returns fall short. And in principle, risks at retirement can be reduced by gradually switching to less risky assets such as bonds or deposits.

Defined benefit funds may have certain disadvantages, notably if the sponsors are free to set terms and conditions to suit their own interests. This is the case notably in the field of portability, with early leavers being penalised compared with those staying with one firm. This may in turn benefit the firm by reducing labour turnover, and by discouraging shirking at work. Disadvantages to early leavers may arise, for example, if the employer is allowed to institute imperfect vesting (so that employees only accrue pension rights after several years of contributions made on their behalf). In such cases, early leavers do not gain a proportionate share of benefits in relation to contributions and effectively subsidise long-stayers. Again, non-indexation of frozen benefits of a job-changer may make the pension virtually worthless, thus

¹⁵ On the economic advantages and disadvantages of defined benefit as opposed to defined contribution schemes, see Bodie, Marcus and Merton (1988) and Davis (1995a).

discouraging job-switching. Or even 'lifetime' employees may be dismissed before normal retirement age to avoid the high cost to the pension fund, in terms of retirement benefits accrued, of the last few years at work¹⁶.

Even with perfect vesting and inflation-indexing, workers tend to lose out by changing between defined-benefit funds when they move jobs compared with those remaining in one fund, first because average earnings tend to rise faster than prices¹⁷, and also because of promotion - the frozen part of the worker's pensions will be based on the low salaries that they earned early in their careers. In other words, pension accruals in final-salary defined benefit funds tend to increase with the time that the worker remains with the same firm - a phenomenon known as "backloading". Only "transfer circuits" which allow shifts between similar defined benefit funds on an agreed basis, as in the Netherlands, can avoid these problems entirely. Again, within the workers who remain with a firm, there may also with final salary schemes be cross subsidies from those whose earnings rise slowly to those whose earnings rise quickly. Much of the regulation of defined benefit funds seeks to overcome these difficulties (see Section 4).

As regards the motivations of firms for providing the different types of fund, these may be paternalism, for defined benefit funds, typically by large firms, while defined contribution funds are often motivated by desire to reward employees, often by small firms.

Note that both types may also have life insurance aspects e.g. widows' benefits.

2.3 *Occupational defined benefit funds*

Most UK occupational pension fund members are in defined benefit funds; 9.8 million in total compared with 0.9 million in defined contribution funds (Table 2.4). Of the 9.8 million, 9.2 million are "contracted out" as defined above, and 0.6 million are not. 5.6 million are in private sector defined benefit funds and 4.2 million in public sector funds. All 0.9 million in defined contribution funds are in the private sector. Defined benefit funds are more common, the larger the firm; contrary to the figures for coverage, there are actually far more defined contribution funds (91,000) than defined benefit (37,000). However, growth of defined benefit funds has levelled off, partly due to the increased regulatory burden on employers (see Section 4), much of which seeks to alleviate some of the problems of portability and indexation noted above. As noted, some public defined benefit schemes are not funded (teachers, civil servants, health service, police, military). Pension fund assets are thus held on behalf of less members than the pure coverage data would suggest.

2.4 *Occupational defined contribution plans*

Occupational defined contribution plans, so-called money purchase plans, declined in popularity during the 1960s and 1970s, an era of high inflation and low real rates of return to investment. In 1971 they represented less than 2% of occupational pension fund members, and 3% in 1979. But recent years have seen a resurgence of occupational defined contribution plans, to an estimated 0.9 million members in 1991 (14% of occupational pension fund members). 0.4 million are in schemes that are contracted out, of which 0.1 million are on a GMP basis and 0.3 million on a "Protected Rights" basis. There are also

¹⁶ The high cost results from the phenomenon of 'backloading' in final salary defined contribution funds, whereby wage rises in the last years of employment imply an increase in pension spread across all the years already accrued.

¹⁷ As shown in Table 6.2, real average earnings grew by 2.6% per annum between 1967 and 1990.

increased payments of "Additional Voluntary Contributions" over and above normal contributions by those in company schemes who consider their cover inadequate, which are also defined contribution.

Until recently, there has been little evidence of wholesale switches by companies from defined benefit to defined contribution, or of closure of defined benefit funds, except by some small firms. Only 50,000 workers were covered by such switches in 1987-91, and in 1994 the National Association of Pension Funds suggested that only 1% of scheme members were switched to defined contribution in the year before. Rather, new firms were tending to adopt the defined contribution route. Also insurance companies, who provide funds for small firms, are less willing to operate defined benefit funds on behalf of small firms than in the past.

However, since then two of the major banks (Lloyds and Barclays) switched their schemes to defined contribution for new employees, and the retailer WH Smith switched wholesale to defined contribution. The conglomerate Pearson, Standard Chartered Bank and Legal and General Insurance are also in the process of switching. In other words, a move towards defined contribution seems to be gathering pace at the time of finalisation of the paper (early 1996).

2.5 *Personal pensions*

Personal pensions may be set up either in trust or formed as a deed poll. Both give beneficiaries enforceable rights in the case of death of the pension holder, but only in the case of deed poll do the benefits form part of the pension holders' estate. The personal pension trust parallels the form of trust set up for occupational pension funds, except that the individual in question is typically a trustee, as the scheme provides for a pension and decisions when to take it remain under the control of the individual.

Personal pensions are generally based on a 'standard package' by authorised providers which invest on behalf of the individual¹⁸. Authorised providers include insurance companies, unit trusts (open ended mutual funds), building societies and banks. Life insurers are predominant. They may be provided on the basis of endowments¹⁹, unit trusts or deposits. In practice, with-profits endowment schemes and unit-linked schemes are the most common. The latter is based on mutual fund holdings with the highest returns but with no capital guarantee. They may offer severe market risks to investors, whose pension obviously depends on the liquidation value of the accumulated assets at retirement. The 1987 crash could have reduced the pension of one retiring on 23rd October by 30% compared to a week earlier. The risk is less for with-profits endowments where the reversionary bonus accrued each year is guaranteed (although the terminal bonus is at risk). Generally, personal pensions are based on flat contributions, or fixed proportions of salary, although a recent innovation is targeted schemes, which vary contributions and asset allocation so as to reproduce as closely as possible the benefits of a final salary scheme. Pensions from personal schemes must be paid from annuities obtained from life insurance companies. All personal pensions must provide an open market option for the holder to buy an annuity from any life insurer and not just the company that sold the policy. Annuities may be of any type (nominal or indexed).

¹⁸ Since 1989 so-called Self Invested Personal Pensions have also been permitted, allowing separation of administration and investment for those wishing to manage their own investments. But they are marginal, with only 2500 outstanding by 1993.

¹⁹ An endowment offers a form of capital guarantee in return for a lower return than for unit linked schemes (where there is no such guarantee and values may fluctuate freely with the market). With-profits endowments offer reversionary bonuses annually, which once awarded may not be revoked, together with a sizeable terminal bonus; non-profit endowments aim for a (low) guaranteed return.

Most personal pensions are arranged on an individual basis, but there also exist group schemes, where a collection of such individual schemes are organised by the same employer for administrative convenience. They are fully portable and do not offer major savings in terms of costs to the individual. There are also industry wide portable pensions (in engineering and clothing) for employees of small firms in these sectors. The latter are much more like occupational defined contribution funds, although they are fully portable within the industry. Economies of scale lead to lower costs, employers are likely to contribute, and there are death in service benefits which are absent from personal pensions.

Recent growth in coverage of private pensions has been largely in the form of such personal pensions; according to DSS (1995), in 1992/3, 24% of employees were contracted out²⁰ of SERPS by means of personal pensions; 26% of male employees and 21% of female. The total number of holders in 1992/3 was 5.7 million. Although the majority of those accumulating personal pensions opted directly out of SERPS, many of those choosing personal pensions were previously members of occupational funds or chose a personal pension instead of joining their company's scheme. Membership of occupational schemes was made voluntary in 1988; as a consequence, in 1991 23% of those *newly eligible* to join occupational funds did not do so, although many of these remained in the state pension scheme rather than taking personal pensions. According to a survey²¹ in 1993 (Williams and Field (1993)), 49% of those in SERPS at the time as well as no less than 20% of *all* those currently in employers' plans thought they would take out a personal pension in future²².

Supplementary personal pensions are also available, up to certain limits on tax free contributions, to those who remain members of SERPS and of occupational funds, so-called free-standing additional voluntary contributions.

A majority of holders of personal pensions are under 40 years of age, in line with the profile of benefits of such funds relative to SERPS, which makes it optimal to switch back to SERPS between 40 and 50 years of age. This is because the minimum contribution is fixed, whereas the cost of providing a given pension increases with age (age related rebates would be more logical - a move this direction was made by restricting incentive bonuses to the over-30s in 1993) The precise point of optimal switching depends on assumptions regarding earnings growth (which determine SERPS) vis a vis capital market returns (personal pensions). Consistent with these arguments, coverage in the 20s age group is currently 45% men and 40% women, but it declines sharply thereafter [Table 2.12].

The government was surprised by the success of personal pensions. In 1988 1.75 million people were expected to shift from SERPS to personal pensions, in fact even by 1993 5 million had taken personal pensions, most of whom were previously in SERPS. This links to the issue that from a public finance angle, the various incentives have been extremely costly (see Section 3). Mis-selling of personal pensions to those already in occupational schemes has apparently been rife (see Section 4), posing major regulatory issues. As regards performance, contributions are often inadequate to provide a satisfactory pension, while commission charges are extremely high (see Section 5).

²⁰ In practice, those opting for personal pensions pay contributions at the non-contracted out rate and receive a rebate.

²¹ On attitudes to personal pensions, see also Finch and Keegan (1991).

²² But this was before the adverse publicity for personal pensions which emerged as a consequence of mis-selling to those for whom they were unsuitable (see Section 4).

3 Taxation of Pensions in the UK

3.1 *Economic issues*

The basic choice in taxation of savings such as pensions, assuming there is not to be double taxation of contributions and pensions, is between a regime where asset returns are tax free (expenditure tax treatment) and where they are taxed (comprehensive income tax treatment). All taxes distort incentives in some way - one can only choose a "second best" which will lead to less damaging distortions than others, while still accomplishing the objective of the tax or exemption and, if possible, raising revenue²³. For a comprehensive analysis of the economics of pension fund taxation, see Dilnot (1992) and Dilnot and Johnson (1993).

The choice between income and expenditure taxes rests on contrasting views of the appropriate form of neutrality to aim for. Is it between neutrality between consumption and saving (implying returns are taxed) or between consumption at different points in time (in which case they are tax free)? On balance, the former seems more objectionable, since saving, and in particular that which is carried out for retirement, is not a commodity like any other, but an intermediate good, which is carried out as a means to future consumption. It is also difficult in practice to impose a comprehensive income tax treatment on defined benefit funds, since it is difficult to attach ownership to individual scheme members. So an expenditure tax treatment, which taxes consumption at the same rate at all times and does not distort the equality between pre and post tax returns, seems more appropriate. It should be added that expenditure taxes may either tax inflows (contributions) or outflows (pensions). The latter gives two further benefits to recipients, relating to tax deferral and to a form of tax arbitrage (a possibly lower tax rate in retirement).

The other key issue in pension taxation is whether to treat pensions more favourably, thus leading to greater flows of saving being directed through this channel. Under a pure expenditure tax treatment of saving, all forms of saving would be equally tax advantaged. Households save not just for retirement but also to cover sickness, unemployment, years of childbearing, purchase of goods or assets, and for bequests; why should saving specifically to provide income on an annuity basis in retirement be specially favoured? Reasons for taxing pensions relatively leniently include, first, the need to assist people to save enough to maintain post retirement living standards; second, a desire to encourage people to save and thus cut the cost to the state of means-tested social security benefits; third, to raise the general level of saving, and fourth, that pension funds are in some way superior to other types of financial institution.

Focus in the UK is largely on the first and second arguments. The first is the most important, and is largely paternalistic; it suggests the government knows best and accordingly should distort choices to ensure adequate retirement saving. The argument suggests that people are generally myopic and do not foresee their needs in old age, and/or that there is a form of moral hazard, in that they assume they will be cared for by the state even if they do not save. Moreover, a tax system based on income taxation makes postponement of consumption expensive, as noted above, and thus promotes inadequate retirement saving.

A subsidiary argument in this context focuses on the different characteristics of different types of saving. Forms of saving other than pensions may be decumulated at will, or used as security for a loan²⁴, whereas pension funds are unique in being contractual annuities. Thus they are on the one hand most

²³ But as noted by Dilnot (1992), there is no feasible tax regime that is fiscally neutral in all respects and raises revenue.

²⁴ In practice, personal pensions in countries such as the UK - but not occupational pensions - may also be used as security for a loan or mortgage.

appropriate for retirement income provision (as well as long term capital formation), but on the other hand are a priori less attractive to individuals. They may thus need some privileges to appear equally attractive, in the interests of ensuring that saving for retirement is adequate and not dissipated. The argument of encouraging saving and thus reducing social security is applicable because opting out is possible in the UK.

3.2 *Taxation of pensions in the UK*

In line with these arguments, the United Kingdom adopts the expenditure tax treatment of private funded pensions, with taxation of outflows (pensions) rather than inflows (contributions). Employers' contributions are an allowable expense against profits; employees' contributions are tax deductible; employers' contributions are not treated as taxable income of employees; and no tax is payable on income or capital gains of the pension fund (including those from use of futures and options).

In accordance with the expenditure tax, pensions are taxed as earned income. A tax-free lump sum of up to four times salary may be paid on death in service. The tax system ensures that occupational pensions are funded; a private pay-as-you-go scheme in the UK would not gain tax privileges nor be eligible to contract out of earnings-related social security.

An anomaly, which is contrary to expenditure tax treatment (as well as the idea of pension funds as 'contractual annuities') is that up to one and a half times an employee's salary (up to £150,000, equivalent to \$225,000) or a quarter²⁵ of a defined contribution fund may be taken out at retirement as a tax-free lump sum, subject to the employee having completed 20 years service, and the pension benefit being reduced accordingly. Arguments for such a favourable treatment are weak; for example, that the exemption is an established part of tax systems, or that such incentives may encourage saving. If anything, it would seem to be more appropriate to discourage them, since they imply a potential for dissipation of retirement saving. A transition might however be needed, to allow for those anticipating lump sums to pay off mortgages etc.

A key feature of the tax regime is limits on tax free contributions. Tax free employee contributions are limited to 15% of salary and overall contributions to 17.5%. This applies both to contributions to the fund itself and to free-standing additional voluntary contributions. Also limits have long been imposed on the tax free replacement rate of defined benefit funds, at 2/3 of final salary. This is normally accrued in 40 years, but may be accelerated to 20 years in special cases. Since mid-1989 further limits have been imposed on tax-free contributions, for new entrants and new schemes, at a level²⁶ of £76,800 which is only indexed to prices. This regulation that will thus affect an increasing proportion of the labour force over time, since wages typically rise about 2-3% faster than prices. 'Top up' schemes have been permitted since 1989 to increase pensions beyond these limits, but they do not attract any tax relief.

The counterpart of these restrictions for those solely in occupational or personal defined contribution funds is a limit on tax free contributions as a proportion of wages, at a rate that varies with age. For individuals under 36 years old, the limit is 17.5%, 36-45 it is 20%, 46-50 25%, 51-55 30%, 56-60 35%, over 61s 40%. Personal pension holders may carry forward unused tax relief for employees' contributions for up to six years. Or if insufficient income has been made in the current tax year, the tax relief may be carried back to reduce tax liabilities in the preceding year.

²⁵ The calculation excludes the protected rights element of defined contribution or personal funds.

²⁶ Currently around three times average earnings.

All members of occupational funds may under the 1986 Social Security Act make Additional Voluntary Contributions to buy additional benefits up to the limits mentioned. Late starters may thus use them to build up their annuity entitlements (they may not be employed for lump sums). Under the 1987 Finance Act, Free Standing Additional Voluntary Contributions were allowed, outside the employers' scheme, which would be portable in the same way as personal pensions.

The tax authorities define a maximum funding level for tax free treatment of the funds' asset returns. The maximum is 105% of the Projected Benefit Obligation, allowing for planned increases in salary over employees' working lives (see Section 4). To remain tax-free, employers must consequently reduce any fund surpluses to 5% over five years, by increasing benefits or reducing contributions. A further limitation on tax free asset returns is that pension funds are unable fully to recover Advance Corporation Tax against dividend payments. The change to the tax law that enacted this was estimated to have cut the value of dividends received by 7%, which sharply reduced the solvency margins of defined benefit pension funds.

Although the expenditure tax treatment is seen as economically superior to other forms of taxation of saving, as noted it has often been seen as undesirable to accord it only to pension funds, as it diverts saving into this type of asset. In the UK, other forms of saving such as equities (PEPs) and deposits (TESSAs) have been accorded limited expenditure tax treatment. This reduces the relative advantage of pensions, albeit not eliminating it. This is because unlike pension contributions, contributions to PEPs and TESSAs must be made out of taxed income, and hence the benefits of tax deferral and lower tax rates in retirement are not present. They are also very limited in amount. Nevertheless, this has tended to level the playing field somewhat.

3.3 *Taxation of pensioners*

The actual receipts of retired persons from their pension schemes depend on the regime for direct taxation in that age group, which is rather generous. They pay no national insurance contributions and also have higher tax allowances than those of working age. Hence they need a lower gross income for the same net income than workers do workers. This may be seen as inequitable, since pensioners typically do not incur work related costs such as season tickets and special clothes, and also typically own their houses and consumer durables already. Moreover, as noted in Section 1.4, old age is no longer a sensitive indicator of poverty in the UK.

There is a difference between the tax treatment of income received directly from an occupational pension and from the annuity provided by a personal pension. The former is paid net of tax allowances monthly, whereas for the latter all payments are made net of basic rate tax and any allowances must be claimed back at the end of the tax year.

3.4 *Tax expenditures*

Tax treatment of pension funds raises the issue of the scale of tax expenditures, that is, the tax revenue foregone due to the subsidy. A crude measure of this is provided by the taxes which would have been paid on contributions and asset returns less those paid on benefits. The UK Treasury report gross costs (i.e. taking no account of taxes on benefits) of £12 bn (\$23 bn or 2.3% of GDP) in 1989-90. Of course, in practice, sums of this nature could not be recouped in their entirety, due to adjustment of savings behaviour if the tax concession were revoked. Savers might in such cases be expected to switch their saving into the next-most privileged instrument. Dilnot and Johnson (1993) calculate expenditures for the UK based on separate "benchmarks" of switching into tax-free equity accounts (so-called PEPS), and

into ordinary bank deposits, which are the most heavily taxed financial instruments. They obtained vastly different results; £1 billion versus £4 billion given the differing tax treatment. However, both are far below the £12 billion quoted above, regarding which they claim "it is rather hard to think of any useful purpose to which (the figures) could be applied. . ."

Another objection to such simplistic calculations of tax expenditures is that receipts and payments relating to an immature pension system (where there are more contributors relative to beneficiaries than in a long run equilibrium) in any one year do not provide an accurate indication of the present value of the net subsidy over time. Particularly with lower marginal tax rates and closing of loopholes, as has been the case in the UK recently, the tax expenditures over time will be much lower than was the case with high marginal rates.

3.5 *Costs of personal pensions*

It was noted in Section 1 that a special bonus of 2% was offered until 1993 to members of SERPS to take personal pensions. Calculations by the Government Actuary suggest that the scheme of extra rebates to encourage personal pensions has been far costlier than any possible saving of SERPS that might have been achieved. It was estimated by the National Audit Office that between 1988 and 1994, £9.3 billion in National Insurance revenue was foregone, while the gains were estimated at £3.4 billion. The calculations assume that all employees contracting out of SERPS will contract back in when it is advantageous to do so. The rebate appropriate for the average occupational scheme member was paid mainly to younger workers for whom SERPS accruals have a relatively low value. The shift in April 1993 to paying a 1% bonus rebate for over 30s only may be seen as a way to improve the cost-benefit balance, by reducing the incentive to contract back into SERPS on the part of this age group.

4 Regulation

4.1 *Economic issues*

Prior to discussion of the details of pension fund regulation in the UK, it is appropriate to set out the general case for regulation of pension funds. Given that pension funds offer benefits both to employers and employees, why does a free market solution not suffice? Abstracting from issues of redistribution, a case for public intervention in the operation of markets arises when there is a market failure, i.e. when a set of market prices fails to reach a Pareto optimal outcome. When competitive markets achieve efficient outcomes, there is no case for regulation. There are three key types of market failure in finance, namely those relating to information asymmetry, externality and monopoly.

As regards information asymmetry, if it is difficult or costly for the purchaser of a financial service to obtain sufficient information on the quality of the service in question, they may be vulnerable to exploitation. This may entail fraudulent, negligent, incompetent or unfair treatment as well as failure of the relevant institution *per se*. Such phenomena are of particular importance for retail users of financial services such as those provided by pension funds, because clients are seeking investment of a sizeable proportion of their wealth, contracts are one-off and involve a commitment over time. Equally, such consumers are unlikely to find it economic to make a full assessment of the risks to which pension plans are exposed - including the solvency of the sponsor in the case of occupational funds. Such asymmetries are clearly less important for wholesale users of financial markets (such as pension funds themselves in their dealings with investment banks), which have better information, considerable countervailing power

and carry out repeated transactions with each other. However, a partial protection against exploitation, even for retail consumers, is likely to arise from desire of financial institutions such as life insurers offering personal pensions to maintain reputation, or equally for non financial companies to retain a good reputation in the labour market - a capital asset that would depreciate if customers or employees were to be exploited.

Externalities arise when the actions of certain agents have non-priced consequences for others. The most obvious type of potential externality in financial markets relates to the risk of contagious bank runs, when failure of one bank leads to a heightened risk of failure by others, whether due to direct financial linkages (e.g. interbank claims) or shifts in perceptions on the part of depositors as to the creditworthiness of certain banks in the light of failure of others. Types of 'run' may also occur for other types of institution such as investment banks (Davis 1995b). But given the matching of long run liabilities and long run assets, such externalities are less likely for pension funds. There remain some possible externalities from failure of pension funds, notably to the state, whether as direct guarantor or as provider of pensions to those lacking them. Equally, positive externalities may give reasons for governments to encourage pension funds, such as desire to economise on the costs of social security or foster the development of capital markets.

A third form of market failure may arise when there is a degree of market power. This may be of particular relevance for pension funds, notably when membership is compulsory; hence regulatory attention to the interests of members is of particular importance in such cases, whether or not there is also asymmetric information. As argued by Altman (1992), employers in an unregulated environment offering a pension fund effectively on a monopoly basis will structure plans to take care of their own interests and concerns, so for example will institute onerous vesting rules²⁷ and better terms for management than workers. They will also want freedom to fund or not as they wish and to maintain pension assets for their own use, regardless of the risk of bankruptcy. They will not take care of retirement needs of some groups in society such as those changing job frequently, young workers and women with broken careers due to childbearing. Absent an appropriate regulatory framework, union pressure may ameliorate some of these problems for employees, but not for the most peripheral groups.

Some would argue that pension funds should be regulated independently of these standard justifications, for example to ensure tax benefits are not misused, and that the goals of equity, adequacy and security of retirement income are achieved - in effect correcting the market failures in annuities markets that necessitate pension funds and social security. Regulation may also be based on the desire for economic efficiency, for example removing barriers to labour mobility. Indeed Altman (1992) goes further in suggesting that the term "private pension" is itself a misnomer as the distinction between private and public programmes is increasingly blurred. Terms and conditions are often prescribed by the government; private pensions are publicly supported by tax subsidies; there is compulsory provision in several countries; and in countries such as the UK private funds take over part of the earnings related social security provision.

Regulations are of course not costless, and it is emphasised below that excessive regulatory burdens may discourage provision of private pensions when it is voluntary, and reduce competitiveness of companies when it is compulsory. Regulations may be divided into those of pension fund assets (funding, portfolio distributions and surpluses), liabilities (membership, social security integration, benefits, portability) and broader structural regulations (trustees, fraud protection, information, regulatory structures). The current regulations are summarised in Table 4.1; however, given the passage of the 1995 Pension Act, the future regulatory structure will change quite significantly when its provisions are

²⁷ It is of interest that unregulated funds in developing countries do indeed institute such rules.

introduced in 1997. The new regulatory regime is summarised in Table 4.2. Both regimes are covered in the detailed analysis of regulations given below.

4.2 *Funding regulations*

Regulation of the funding of benefits is a key aspect of the regulatory framework for defined benefit pension funds. Note that by definition, a defined contribution plan, whether occupational or personal, is by definition always fully funded, as assets equal liabilities, whereas with defined benefit plans there is a distinction between the pension plan (setting out contractual rights to the parties) and the fund (a pool of assets to provide collateral for the promised benefits). When the fund is worth less than the present value of promised benefits there is underfunding; when the opposite is the case, there is overfunding. Calculation of appropriate funding levels requires a number of actuarial assumptions, in particular the assumed return on assets, projected future wage growth (for final salary schemes) and future inflation (if there is indexing of pensions), as well as estimates of death rates and the expected evolution of the relative number of contributors and beneficiaries over time.

Minimum funding limits seek to protect security of benefits against default risk by the company, given unfunded benefits are liabilities on the books of the firm, and therefore risk is concentrated and pensioners (or pension insurers - see below) may have no better claim in case of bankruptcy than any other creditor. There are usually also upper limits on funding, to prevent abuse of tax privileges (overfunding). Adequate provision of unfunded pensions is likely to be particularly difficult for declining industries, as the worker/pensioner ratio falls²⁸. James (1993) suggests that even in stable industries, a firm with unfunded pensions and a significant number of retirees will be at a competitive disadvantage to one with young workers, for example in Idcs. As the firm life cycle is an ineluctable process, private pension promises based on pay-as-you-go may be inherently not credible. As noted, the tax system in the UK discourages unfunded occupational pensions.

Funding offers a diversified and hence less risky alternative backup for the benefit promise, as well as offering the possibility of unplanned benefit increases if the plan is in surplus. Extra protection against creditors of a bankrupt firm is afforded when the pension fund is an independent trust (as in the UK). Bodie (1990a) suggests that the three main reasons why firms fund, besides regulations *per se*, are the tax incentives, provision of financial slack (when there is a surplus) that can be used in case of financial difficulty, and because pension benefit insurance may not cover the highest-paid employees²⁹. In practice, since surpluses may in the UK only be captured tax free via contribution holidays and since there is no benefit insurance (except in future, against fraud), tax incentives are the main reason.

Some preliminary definitions are needed to discuss funding. The 'wind-up' definition of liabilities, the 'solvency' level at which the firm can meet all its current obligations, is known as the accumulated benefit obligation (ABO). The assumption that rights will be indexed to earnings rises up to retirement, as is normal in a final salary scheme, gives the projected benefit obligation (PBO). The indexed benefit

²⁸ Andrews (1993) points to the US railroad fund as an example of the plight a pay-as-you-go fund can get into in a declining industry.

²⁹ Nevertheless Ippolito (1986) suggests that there are strong reasons in the absence of funding rules for firms to *underfund*, despite the tax advantage, as a bargaining counter for stockholders to ensure via the threat of bankruptcy that unionised workers have a bond-like stake in the long term viability of the firm and will not, for example, raise the wage above competitive levels. High funding levels in countries such as the UK, where there are virtually no minimum funding rules, are a counter argument.

obligation (IBO) assumes indexation after retirement. (See Bodie (1991) for a further discussion of these concepts.)

Key features of the current basic structure of the UK funding rules are (i) there are no minimum funding rules or obligation to remedy an underfund (except for the GMP, see below), although trustees are bound by their duty of care to ensure funding is in place; (ii) no standard method of calculating funding is imposed; (iii) there is no requirement to include deficits in company balance sheets.

As regards funding calculation methods, in practice a continuance basis such as the Projected Benefit Obligation (PBO) or Indexed Benefit Obligation (IBO) tends to be used, depending on whether there is guaranteed indexation. The ABO as outlined above is not employed. Adequacy of funding is judged by current and projected cash flows from assets and not current market values as is common in other countries. This practice is reflected in accounting standard SSAP24, which also bases fund valuation on such actuarial valuations and long run smoothing. The introduction of the standard also was the first time that UK firms were obliged to include the true cost of providing pensions (the growth in assets and liabilities on the basis of standard actuarial assumptions) and not merely the contributions to funding pensions in the profit and loss account. They still need not put deficits in the balance sheet, as is the case in other countries such as the USA.

Meanwhile, regarding interest rates in calculating funding, in the UK the government accepts the (varying) judgement of the actuaries, and generally also allows for an assumption of wage growth.

Funding and accounting rules can affect fund management since they determine the incidence of shortfall risk, whereby owing to assets being below liabilities there is a need to inject funds on an emergency basis. In the UK there has historically been much less risk of such shortfalls owing to the combination of no minimum funding and returns-based accounting, than there would be with minimum funding and market-value based accounting. This has meant volatile assets such as equities may be and indeed are heavily used by UK pension funds, thus cheapening funding (see Section 6). But as noted below, a change in regime is now being introduced.

An important argument in favour of the PBO/IBO over the ABO is that it ensures advance provision for the burden of maturity of the plan, when there are many pensioners and fewer workers, by spreading costs over the life of the plan (Frijns and Petersen (1992)). Indeed, the ease with which UK funds in declining industry such as coal mining and railways coped with sudden switches in the balance of workers and pensioners is a good example of these benefits. More generally, taking account of future obligations instead of purely focusing on current liabilities is likely to permit smoother levels of contributions as the fund matures, which may be better for the financial stability of the sponsor.

If a sponsoring firm in the UK becomes insolvent, then the fund is used to buy annuities for the members. If funding falls short of the ABO, there is a debt of the employer, but not with any priority over other creditors. If it cannot be recovered, benefits are reduced (subject to the GMP, see below), there being no insurance of benefits. Historically, use of a returns as opposed to market value basis for funding has not conflicted with the need to cover obligations if the fund were wound up, since the PBO has tended to exceed the ABO, so funds have had ample assets in the case of bankruptcy. But compulsory indexation (discussed below), as well as increasing maturity, will increase the ABO and could put the system under threat (Riley (1992b)).

A gloss to this overall picture must be provided, in that the reform of the state scheme which introduced SERPS in 1978 enforced a degree of funding on contracted-out schemes sufficient to cover the

GMP. Even if a firm becomes bankrupt with insufficient pension assets to pay the GMP, members may buy back rights in SERPS equivalent to the GMP.

Moreover, while the basic picture continues to hold, a plethora of more recent changes in UK regulations affecting funding have also been introduced, discussed in other sections of the paper. These regulations have limited overfunding to 5% of projected obligations, (in practice, either the PBO or the IBO) - albeit giving five years to remove surpluses; enforced a degree of indexation (up to 5%) of pensions up to retirement for early leavers; have outlawed compulsory membership; limited tax-free contributions and benefits; enforced transferability of assets between schemes and has enforced equal pension ages. These are seen as a considerable burden by fund sponsors. A decline of the company pension fund sector is often predicted to follow, but few companies have closed their schemes, even though some have switched to defined contribution or made their defined benefit schemes less generous for new entrants.

A more significant impact seems likely to arise from the Goode Committee on UK pension law, set up to report on regulatory shortcomings in the wake of the Maxwell scandal (see below), and which reported in 1993. It recommended a minimum solvency standard based on the ABO, with annual actuarial solvency checks to ensure accrued obligations can be covered in the case of winding up. Solvency would be defined in terms of ability of the scheme to buy annuities to finance all accrued pension obligations. A 10% shortfall on the ongoing basis would require a plan to show how the shortfall would be remedied, while Goode suggested that a shortfall of above 10% would lead to winding up.

The government accepted the recommendation of a market value based minimum funding rule. Accordingly, a 'minimum funding standard' for defined benefit funds was introduced in the 1995 Pensions Act (Kelly, 1995). Not all aspects of the Goode proposal were accepted. In particular, the term 'funding' was chosen deliberately instead of 'solvency'³⁰ to show that the calculations were to be made on the assumptions of an ongoing scheme, which could rely on future returns on its assets to pay its obligations, rather than on a winding up basis, which would need to take into account the much higher cost of buying annuities to cover obligations. There is expected to be a variation in the tightness of the funding standard depending on the maturity of the fund. A 90% level of funding will need to be returned to 100% in five years, and a shortfall below 90% to be remedied in 12 months, although the latter will not lead to immediate windup. The Act will also affect funding by withdrawal of the GMP³¹, and its replacement with a obligation to index up to 5%, which will again raise the ABO. Besides inducing a switch to defined contribution, this might alter quite significantly the asset mix of UK defined benefit funds, towards less volatile but also less profitable assets.

Under the Act, there is a counterpart regulation for defined contribution funds which seeks to ensure contribution obligations are fulfilled. A payments schedule has to be agreed, setting out employers' and employees' contributions and the due dates. If arrears build up, the Occupational Pensions Regulatory Authority will take measures to enforce payment.

4.3 Portfolio regulations

Quantitative regulation of portfolio distributions is imposed in a number of countries, with the ostensible aim of protecting pension fund beneficiaries, or benefit insurers, although motives such as

³⁰ Following representations by the actuarial profession.

³¹ There will still be a form of minimum pension, which will be based on that of a "reference scheme" accruing 1/80th per year of service applied to an earnings definition based on 90% of the member's earnings which would qualify for SERPS averaged over the last three years of service.

ensuring a steady demand for government bonds may also play a part. Limits are often imposed on holdings of assets with relatively volatile returns, such as equities and property, as well as foreign assets, even if their mean return is relatively high. There are also often limits on self investment, to protect against the associated concentration of risk regarding insolvency of the sponsor.

Apart from the control of self investment, which is clearly necessary to ensure funds are not vulnerable to bankruptcy of the sponsor, the degree to which such regulations actually contribute to benefit security is open to doubt, since pension funds, unlike insurance companies, face the risk of increasing liabilities as well as the risk of holding assets, and hence need to trade volatility with return. Moreover, appropriate diversification of assets can eliminate any idiosyncratic risk from holding an individual security (such as an equity), thus minimising the increase in risk - and if national cycles and markets are imperfectly correlated, international investment will actually reduce otherwise undiversifiable or "systematic" risk. Such limits may be particularly inappropriate for defined benefit pensions, given the addition "buffer" of the guarantee on the part of the company to the worker.

In fact, unlike a number of European countries (Davis 1996a), there are no quantitative portfolio restrictions on UK pension funds; United Kingdom pension funds are subject to trust law, with trustees required to act in the 'best interests' of beneficiaries. As long as trust deeds are appropriately structured funds are not constrained by regulation in their portfolio distribution except for limits on self-investment (5%) and concentration for defined contribution funds. It can be argued (Blake 1992) that since there are limits on tax free contributions, as well as on pensions paid (the GMP), it is reasonable for investment practices to be largely unrestricted.

A clarification of the legal requirement for trustees' direction of portfolio strategies was made in the context of the so-called Megarry judgement of 1984, which followed a dispute between the National Coal Board and the National Union of Mineworkers over the investment strategy of the Mineworkers Pension Fund portfolio. The union wished to disinvest in overseas securities and also sell shares invested in alternative energy sources to coal, such as oil. When this was not accepted, it refused to endorse the investment proposals of the fund manager for 1982. Judge Megarry clarified that "When the purpose of the trust is to provide financial benefits for the beneficiaries, as is usually the case, the best interests of the beneficiaries are usually their best financial interests. In the case of a power of investment, as in the present case, the power must be exercised so as to yield the best return for the beneficiaries, judged in relation to the risks of the investment in question..." He also argued quite explicitly that it was the duty of the trustees in the interests of the beneficiaries to *use the full range of investments authorised* by the terms of the trust to enhance the funds' return or reduce its risk. Hence although there is no explicit prudent man rule³² in the UK, the duty of prudence to trustees can be interpreted as requiring prudent diversification, which may amount to the same thing.

4.4 Ownership of surpluses

Ownership of surpluses in defined benefit pension funds is a key issue, particularly because predator firms may seek to strip surpluses after taking over another firm, although also because the firm may seek to recoup the funds for its own use. On the one hand, this may be seen both as an abuse of tax privileges and (more contestably) as seizing assets held for the benefit of members. On the other, it can be argued that if the fund is only a backup for the firms' promise of pensions, and if the firm is equally responsible

³² A "prudent man" rule, which is an important component of pension fund regulations in countries such as the USA, requires fund managers to invest as a prudent man would on his own behalf, in particular, with appropriate diversification.

for making good any deficit, then the surplus should belong to the firm. It is important to note that the funding rules outlined above define the surplus. In addition, such issues only arise for defined benefit funds; in defined contribution funds there is no surplus to strip, as assets equal liabilities by definition.

In the UK, this issue came to the fore in the 1980s as high returns in capital markets increased assets while widespread redundancies tended to restrain liabilities³³. The surplus is generally held to belong to the sponsoring company, which can recover it at the discretion of the tax authorities by direct withdrawal (subject to a 40% tax) or by a contribution holiday.

However, court judgements have severely restricted ability of predators to extract surpluses from take-over targets' funds via so-called winding-up³⁴ or spin-off³⁵ termination of schemes - although such strategies have been extremely common in the United States. The two key judgements, the Browne Wilkinson judgement and the Millet judgement were both against Hanson PLC. They set out two important principles, respectively that no management committee had the power to state in advance that it would veto all proposed future pension rises, and that pension schemes can change their trust deeds to prevent predatory take-overs designed to extract pension fund surpluses.

Moreover, the 1990 Social Security Act states that when a plan is terminated, it shall be assumed to provide for indexation of pensions for up to 5% inflation, thus reducing the potential surplus to be extracted. And there is increasing support for arguments on the employee's side, namely that pension rights are not gratuities but part of a remuneration package earned by service. This point of view has been supported by recent rulings of the European Court that suggest that for the purposes of equal treatment pensions are to be considered as deferred pay (Goode (1992)). The logical conclusion - not adopted in the UK - would be to outlaw even contribution holidays and make employers much more restrained in funding. Finally, the 1995 Pensions Act has restricted the amendment power of trust deeds so that members must consent before their accrued rights are adversely affected.

4.5 *Regulation of membership*

Compulsion is a fundamental issue in pension provision; should firms be obliged to provide pensions, or should it be voluntary, and where it is voluntary for firms, should they be allowed to insist on participation of all employees?

Unlike countries such as Switzerland and France, the UK have chosen not to make provision of complementary schemes compulsory for employers. The consequences are apparent from the description of the principal structural features of UK private pension provision given in Section 2; they include aggregate coverage of occupational schemes being only around 50%, and occupational coverage being focused on men, unionists, high income workers, white collar workers, workers in large firms etc (although another 25% of the workforce have personal pensions).

³³ A redundant worker's pension is frozen in real terms rather than rising in line with average earnings, as would be the case for a worker continuing in service.

³⁴ By winding up a scheme, accrued liabilities are frozen in real terms while assets continue to grow at the rate of return in the capital market, increasing the surplus further.

³⁵ The attempt is made to capture the surplus in the pension fund of a subsidiary when it is sold to another company.

Arguments in favour of compulsion include the potential relief to social security provided by coverage of all workers who would otherwise rely on social security. Coverage of low income workers may have a more powerful effect on national saving than voluntary coverage which leaves them out (see Bernheim and Scholz (1992)). Tax advantages are more evenly spread, and can be reduced. Portability and vesting conditions can be standardised, enhancing labour mobility. Market failures in annuities markets may be more readily overcome. On the other hand, competitiveness may be adversely affected. Also low income workers, who would not otherwise have saved, may lose out due to lower consumption over their working lives. Also in the UK, considerable expansions in coverage have been achieved by means of voluntary personal pensions.

The right of employers to insist on compulsory membership of occupational schemes for their employees was made illegal in 1988. In this respect, the UK is somewhat exceptional; membership at a company or occupational level can be made compulsory, often via collective agreement with trades unions, in most other countries. The arguments made at the time of abolition largely related to the benefits of free choice. There may be a reduction in potential transfers from early leavers to long stayers, if the former can opt out from the start, either directly or via amendments of deeds and rules to make such transfers less onerous. More generally, it ensures a degree of "contestability"³⁶ on firms, ensuring they avoid excessively burdensome regulations on members, as otherwise employees will leave the plan. The ready availability of personal pensions made the choice a feasible one; and as noted in Section 2 a significant proportion of those eligible are failing to join their occupational schemes.

Despite the benefits in terms of individual choice, some economic arguments can be proposed which suggest compulsory membership may be desirable, at least if the regulatory framework provide sufficient safeguards for all members of schemes. One difficulty of such provisions is that if only those likely to live longest remain in occupational schemes, they can dilute the risk pool for annuity purchase, thus potentially increasing their cost. Equally, if they induce widespread optouts by young workers, they may also reduce risk-sharing between young and older workers, that can otherwise reduce the cost of the benefit promise by allowing larger proportions of equities to be held.

4.6 *Benefit insurance*

In a number of countries there is public insurance of pension benefits in the case where there is both insolvency of the sponsor and inadequate assets in the fund. Any system of guarantees, including deposit insurance as well as pension insurance, faces the difficulty of moral hazard, i.e. that it may create incentive structures leading honest recipients to undertake excessively risky investments, which in turn give the risk of large shortfall losses to the insurer. In other words, losses may not arise merely from fraud or incompetence but the incentive structure itself. What is needed are means to control risk, which could (pace Bodie and Merton (1992)) include an appropriate mixture of monitoring, asset restrictions and risk-based guarantee premia.

In the case of pension funds, controls could include, first, *monitoring* of the market value of pension assets, with the right to seize and liquidate them if they fall below a certain minimum funding level. It is hence essential that the insurer have access to the assets, the assets have a defined market value, they be liquid and that there be agreed standards for determining minimum funding levels. A second approach is *restricting the asset choice* of pension funds to ensure an upper bound on the risk of the assets serving as collateral for the promised benefits, for example, via portfolio restrictions or by insisting on immunisation

³⁶ Contestable markets are markets where the potential for new entry ensures competitive behaviour, despite a seemingly uncompetitive market structure (Baumol (1982)).

of assets equal to the guaranteed benefits. A third is setting the *premium rate for the guarantee in line with the risk*, which depends in turn on the variance of the value of the collateral and the time between audits (which allow the fund to change its risk exposure adversely³⁷).

In the UK, absence of such a guarantee scheme for defined benefit company plans, except for the GMP, has to date obviated the need for portfolio regulations, while imposing greater risk on the beneficiaries in cases of fraud such as Maxwell, as discussed below. The absence of insurance in the UK need not exclude discretionary assistance by the government on a case by case basis, which may create less moral hazard than a guarantee scheme (there are strong parallels with the issue of deposit insurance versus lender of last resort for banks, see Davis (1993c, 1995b)).

However, the Goode Committee, noted above, recommended the setting up of a guarantee scheme to cover losses from fraud and misappropriation only³⁸, with the guarantees taking schemes back to a funding level of 90%. It is to be funded by a post event levy on all occupational schemes. This suggestion was accepted in the 1995 Pensions Act. The limitation to fraud should minimise moral hazard problems, and further protection is provided by minimum funding rules and a shift from returns-based to market value accounting rules to accompany the insurance. The 90% funding level is to be calculated on the same basis as the minimum funding rule for ongoing schemes (Section 4.1). This is arguably a weakness, as a scheme that is 90% funded on an ongoing basis (and thus anticipating the future returns on its assets) may be unable to buy much costlier annuities covering 90% of the obligations.

Defined contribution schemes run by insurance companies are covered by (mutual) insurance compensation arrangements, covering 90% of the investment in the case of bankruptcy of the insurance company.

4.7 *Integration with social security*

Certain regulatory issues are raised by the treatment of the relation between private pensions and social security. On the one hand, such so called integration rules may be important to ensure that workers gain an adequate pension, even if social security provisions are changed; on the other, well-designed integration is essential to ensure that savings anticipated for social security via the development of private pensions can be realised.

In the UK, pension funds may substitute for earnings related social security, but may not take flat rate social security into account. The substitution for SERPS reduces future social security costs, at the expense of conceding the tax benefits of pension funds. The structure ensures a falling replacement ratio over the earnings scale, other things being equal. About half of UK private funds integrate in this manner. On the one hand this may be seen as a form of insurance against social security changes as noted above. On the other hand it may in some cases be highly regressive, offering disproportionate pension benefits for those on high earnings.

³⁷ Given the speed with which pension funds can change their risk exposure, it could be argued that anything short of continuous monitoring could lead to this hazard

³⁸ The application is where "there are reasonable grounds for believing that the reduction (in assets) was attributable to an act or omission constituting a prescribed offence".

4.8 *Annuities*

Whether to encourage annuities or lump sum withdrawals is a key issue for all funded pension systems; assets are available for the retired person, why should they not realise them?. This issue is posed particularly acutely in the UK given total tax exemption for sizeable lump sums (up to 25% of the assets for personal pensions and other defined contribution funds, and up to a fixed sum for defined benefit).

Economically, lump sums are less desirable for a number of reasons, such as the fact they may be dissipated and not used for pensions; for defined contribution funds they have an adverse effect on the cost of annuities, as those buying annuities will be assumed to be bad risks; they undercut protection for survivors; and may require a more liquid and hence costlier asset portfolio, reducing overall benefits. On the other hand, compulsory annuity purchase for defined contribution funds on the day of retirement for defined contribution funds exposes the retiree to considerable market risk. Such risks can be reduced by staggered purchase (delay in final purchase is possible up to age 75) or variable annuities (see Section 5)

4.9 *Indexation*

Inflation indexation of defined benefit pensions after retirement has been a controversial issue since rapid inflation began in the 1970s. The move from career average to final salary defined benefit pension plans in the 1970s can be seen as an attempt to correct for effects of inflation prior to retirement (leaving open potential difficulties for early leavers, and the issue of indexing after retirement). Compulsory indexation is generally seen as both costly and risky for the firm, as it increases sharply the level of benefit that it is contractually required to provide. Even where such indexation is customary, there is clearly a crucial legal difference in such a case. In terms of the funding concepts discussed above, it raises the Accumulated Benefit Obligation sharply. Conceptually discretion to index offers a form of risk-sharing between employer and employee in a defined benefit fund. Thus policy makers in most countries have tended historically to avoid legal provisions enforcing indexation.

As shown in Section 5, the data suggest that indexation is prevalent for occupational pensions in the UK even without regulation. However, accrued benefits for early leavers must be fully indexed (up to the level of the Guaranteed Minimum Pension) and the remainder by up to 5% till retirement; and the 1995 Pension Act will shortly enforce indexation of pensions for up to 5% inflation, at an estimated cost to schemes of £165 million per year. This applies to *all* occupational pension funds, whether defined benefit or defined contribution, although in the latter case only for benefits accruing after the Act comes into force. The quid pro quo will be the abolition of the Guaranteed Minimum Pension and replacement by the "Requisite Benefits Test".

Meanwhile, the element of personal pensions which replaces SERPS must be indexed up to 3%. Beyond this it is a matter of choice whether the pensioner chooses a normal or indexed annuity.

4.10 *Eligibility and Portability*

As noted in Section 2, the main disadvantage of defined benefit funds, both in terms of equity and economic efficiency, relates to their effect on early leavers and hence labour mobility. Labour turnover would clearly be higher in the absence of penalties to early leavers arising from pension funds. Women may be particularly vulnerable to losses, as they change jobs more frequently and spend fewer years in one job. In the absence of appropriate safeguards, workers may even be sacked by unscrupulous employers just before their benefits vest (i.e. before they accrue a right to the benefits for which they have contributed).

Since defined benefit funds still predominate in the UK, these issues have been a focus of considerable regulatory attention.

Such issues are of increasing importance in the context of the widely-reported decline in lifetime employment in the 1980s and 1990s, since they imply that early leavers will become much more common, and the employee staying with the same firm will become an exception. The reasons for such a decline reported in the UK include the depth of the recession, increased use of information technology, labour market deregulation which made redundancies less costly, increased competition with the EU Single Market, and so-called delayering resulting in flat or horizontal management structures, see Dickson et al (1994), Coyle (1993).

Such tendencies should not, however, be exaggerated; according to Burgess and Rees (1994), average completed job tenure in 1990 was estimated³⁹ to be 18 years for men and 12 years for women. But this concealed major differences, with around 30 per cent of men having tenures of less than 5 years and 24 per cent over 30 years. They calculated that around 45% of the workforce could expect tenures of over 20 years, consistent with continuing "lifetime employment". Average tenure rises sharply with age (i.e. young people have the shortest tenures). There had been little change in these patterns since 1972, except for a slight decline in average tenure for men, which may link to the patterns highlighted above.

The promotion of personal pensions can be seen as linked to the difficulties of early leavers, since it gives the option of a pension which is not tied to an employer and is hence exempt from the related difficulties, although subject to problems as noted elsewhere. Besides being portable between employers, holders of personal pensions are entitled to change schemes, taking accumulated funds with them⁴⁰, or allow funds to accumulate in the old scheme at the same investment yield as funds of those remaining in the scheme.

Eligibility is important both in itself and in ensuring portability, since accrued rights are essential for a pension to be portable. Accordingly, a new employee has a right to join a fund in two years. Vesting periods have been reduced to a maximum of two years, which ensure that benefits are non-forfeitable on retirement. In 1995, the European Court ruled that barring part time workers from pension funds was a form of discrimination against women and was hence illegal. The ruling was backdated to a previous 1976 judgement which had come to the same conclusion, but had been disregarded⁴¹.

The authorities in the UK have also been active in ensuring portability for defined benefit funds. Cash transfers to another company scheme, a personal pension, an annuity or rights in the state earnings related pension scheme are permitted for an early leaver with full allowance for benefits accrued, although there is no standardised treatment of the actuarial problem of assessing the present day value of acquired pension rights in defined benefit schemes, which may give excessive discretion to the actuary. Service credits in the case of final-salary based schemes are fully indexed (up to the level of the Guaranteed Minimum Pension) and the remainder by up to 5% till retirement.

³⁹ This was based on actual tenure data of 9.5 years for men and 6.3 years for women in 1992, multiplied by estimated chances of them continuing in their jobs.

⁴⁰ As noted in Section 5, transactions costs for such transfers are often extremely high.

⁴¹ Initial estimates suggested costs for UK funds could be as much as £7 billion. However, the likelihood that all those eligible would take up their full backdated rights was limited, because they would have to raise all the employee contributions that they would have made over the period since 1976. Also so-called "objective justifications for barring part timers" were still to be allowed.

Note that the portability problems do not arise with defined contribution funds (although eligibility is equally important). Note also that even with full indexation to prices of accrued benefits in final-salary plans, the early leaver loses out, because his real wage would probably have been higher at retirement; real wage indexation is required to ensure no losses occur, and this is only maintained where there are transfer circuits providing full transferability in line with years of service rather than cash equivalents. There are some such circuits in the public sector, but difficulties arise outside such circuits from the lack of standardisation of the valuation methods for liabilities. Employers will also only wish to join circuits when there is a fairly balanced two way flow of job changers.

4.11 Internal transfers

Difficulties of early leavers, who implicitly subsidise those remaining till retirement, are not the only case of potentially inequitable internal transfers within defined benefit funds. Understanding of these issues by members may be hindered by the complex rules of a defined benefit plan. As noted by Riley (1992a), in the UK the structure of most defined benefit schemes, which base pensions on final salary, give incentives for managers to award themselves large salary increases in their last year of employment, thus benefiting particularly at the expense of workers forced into early retirement (given the expense to the pension fund), early leavers and those workers (such as manual workers) whose real earnings often peak in mid career.

More generally, if contribution rates are based on expected average increases in salaries across the workforce, employee contribution rates may fall short of costs for those whose salaries rise faster than the average, and vice versa for slow climbers. Besides direct transfers between employees, shortfalls are often compensated by highly unequal employer contribution rates. Dilnot et al (1994) suggest that in many UK firms contribution rates may be 10-20% for the bulk of staff, 30% for senior executives and 50% for directors⁴².

Finally, given that the rate at which benefits are accrued typically rises in a defined benefit funds (so-called "backloading") as the worker nears retirement, there are strong incentives for firms to retire workers early, which may not be economically efficient. This will be particularly the case if unions force companies to treat workers as a group and not as individuals with varying productivity, thus forcing them to offer early retirement to the group based on its average productivity. Although firms may find it easy to use early retirement as a painless way of cutting the labour force, it may also unbalance the pension fund, especially if early retirees get more than what is actuarially fair, as an incentive.

4.12 Retirement ages

Tax regulations permit private pensions to commence at any time between the ages of 50 and 75. Traditionally the standard retirement ages have followed those of the state pension, 60 for women and 65 for men till they are equalised at 65 in 2020. Since the Barber judgement in the European Court in 1990, which clarified the practical application of EC Directives on equal treatment⁴³, UK occupational pension

⁴² Note that contributions in excess of 17.5% of salary are not tax exempt.

⁴³ The Barber Judgement was not a one-off event but the culmination of a series of Directives, Acts and Judgements. In December 1978 the Equal Treatment Directive required 'progressive implementation of equal treatment of men and women in matters of social security'; in 1984 a further directive 'there shall be no discrimination whatsoever, on grounds of sex, either directly or indirectly'. In February 1986 the European Court of Justice ruled that men and women should not have different compulsory retirement ages; women

funds have been obliged to equalise retirement ages and pension rights⁴⁴ for men and women for all rights accrued since 1990; costs of this have been estimated to be £2 billion. These costs were, however, thought to have been reduced by a clarificatory judgement by the European Court in 1994, which allows employers to downgrade conditions for women workers in a way to equalise retirement ages at that of men, that is 65.

4.13 Trustees

It was noted in Section 2 that the basis of occupational pension funds is in Trust Law, which was originally a means of ensuring endowments for widows and orphans were correctly managed. Trustees have fiduciary duties to hold the assets in trust for members, act impartially, keep accounts, check funding is in place, and seek expert advice when necessary. Under common law, in doing so they must "act in the best interests of the beneficiaries". The wide bounds offered by the funding rules give considerable responsibility to them to stand up to employers in insisting a scheme be funded. An essential support is provided by actuaries, who must check funding every three years.

There are perceived to be difficulties where trustees are not independent of the employer. Lack of independence may arise through a variety of channels, since employers as well as employees and pensioners are beneficiaries of the trust⁴⁵ (Noble (1992)). As discussed below, this was the weakness that partly enabled the Maxwell fraud to occur (he was able to persuade the trustees to agree to imprudent but legal self-investment), and in addition can lead trustees to accept too readily the case for removing surpluses via contribution holidays etc. One remedy may be more employee trustees. In fact, 67% of members of private sector schemes are already in schemes with some elected trustees, representing about 30% of private sector schemes with over 11 members. The Goode Committee, which concluded that trust law remained a sensible basis for pension funds in the UK, recommended 1/3 of trustees should be elected in defined benefit funds, and 2/3 in defined contribution funds; this was implemented in the 1995 Pensions Act. Schemes with over 100 members must have a minimum of two employee trustees, under 100 they must have one⁴⁶.

Besides such problems, there may be conflicts of interest between scheme members and employer, or pensioners and working members that trustees may find it difficult to resolve. For example, when a mature scheme is underfunded, pensioners may prefer it to be wound up (since the ABO gives them all they wish), while the employees may prefer to take the risk that the employer will fund the shortfall later on. Such inequities in the case of winding up were resolved in the 1995 Pensions Act, which proposed that schemes whose assets were insufficient to pay all promised benefits should limit indexation for existing pensioners until there are enough assets to cover basic pension promises to deferred pensioners.

Some of trustees' responsibilities were also clarified in the 1995 Pensions Act. They are to be obliged to check self investment limits are followed, they will have the duty to set the investment principles for fund managers to follow (in writing), will be responsible for appointing auditors and actuaries; and some

working in the public sector could claim unfair dismissal under the Equal Treatment Directive. This was implemented in the UK in the 1986 Sex Discrimination Act, introduced in 1987, which forced pension funds in both public and private sector to have the same retirement age, although employers could choose what the retirement age was. The Barber judgement clarified that pensions are a form of pay in the terms of Article 119 of the Treaty of Rome, which forbids discrimination between men and women on grounds of sex.

⁴⁴ Note that there is still implicit inequality as women live longer than men.

⁴⁵ Since they obtain the assets in the case of winding up.

⁴⁶ There are provisions for employers to opt out of this provision if employees agree in a ballot.

breaches of rules may lead to fines. Trustees may not indemnify themselves out of the fund for any fines imposed. A person convicted of an offence of dishonesty and deception, who has been bankrupt, or disqualified as a director, may not be a trustee. Actuaries and auditors of the scheme in question may not be trustees of it.

4.14 *Fraud*

Protection of pensions against fraud has come to particular prominence in the UK, given the Robert Maxwell case⁴⁷. Large quantities of his companies' pension fund assets were lent to private companies owned by Maxwell against poor security, or were invested directly in them. When the companies became insolvent, with liabilities of up to £1 billion, the assets were lost⁴⁸. However, as noted by Daykin (1996), the pensions continued to be paid, and even accrued rights seem likely to be fulfilled (i.e. the scale of the loss should not be exaggerated).

The link to appropriate organisation arises because fraud was partly concealed from fund trustees by the fund manager or stock custodian - both again controlled by Maxwell - but was partly legitimate self investment carried out with the knowledge of the (pliant) trustees, among whom were Maxwell himself and two of his sons. In other words, it partly revealed the inadequacy of legal provisions, as well as vulnerability of pension funds to fraud. The case has cast doubt on the use of trust law as applied in the UK, as the means of redress - civil action against trustees by members once things go wrong - were seen as inadequate. This is especially as members lack prudential standards against which to monitor the fund and the trustees - they have no regulatory body to do so on their behalf - and may find it difficult to interpret performance measurement data. Also, except in cases of theft and fraud, there has till now usually an indemnity clause in case of court action against trustees for breach of fiduciary rules. This left the sponsoring company to resolve the problem - and it may be insolvent. As noted, the 1995 Pensions Act introduces fines of up to £5000 for rule breaches by trustees, and eventual disqualification.

Other difficulties revealed by Maxwell include the excessive power of chief executives when this is unchecked by non-executive directors representing investors; the failure of accountants to see the difficulties in advance; and the conflicts of interest of an auditor which is also a financial advisor.

One response to Maxwell was progressive introduction of a 5% limit on self investment; and under the 1995 Pensions Act, trustees were given the obligation to ensure such limits on self investment (and on loans to the employer) are followed. Minimum funding rules, more employee trustees and a guarantee scheme are the other main initiatives proposed to avoid a repetition of Maxwell. Independent custodians⁴⁹, less leverage by the employer over the trustees, better independent actuarial information for trustees and more frequent checks on a higher standard of minimum funding, are among other remedies.

⁴⁷ For a more detailed outline, see Blake (1992, 1994a)

⁴⁸ Other pension funds also made losses from their shares in Maxwell Communications Corp, totalling £200 million. But of course these were part of large and well-diversified portfolios, and hence were of less importance.

⁴⁹ Custody services include dealing with safekeeping, settlement, tax, dividend receipts, rights issues and stock lending.

4.15 *Information*

Standards of information for members are clearly a crucial complement to regulation, if rarely a substitute. For defined benefit schemes, members need to be aware of vesting and portability regulations as well as the state of funding, in order to know at a most basic level what the total remuneration of their employment is worth. Personal and defined contribution pension plans may require even better information for members than defined benefit, given the direct dependence of pensions on the performance of the portfolio. Members need to be able to judge whether contributions are adequate, whether fund managers are performing well and whether investments are not too risky. A public data base of comparative performance may be needed to facilitate such judgements.

Under the 1986 Pension Schemes Regulation, trustees are required to disclose trust deeds and rules on request to members, prospective members, dependants and trades unions; new members must receive information within 13 weeks of entry to the fund, and retiring members must be informed of their options.

Annual reports must be provided to members of all occupational pension funds free of charge. They must provide information such as the names of trustees, actuaries and fund managers, number of beneficiaries, contributions, increase in benefits to current pensioners, distribution of assets across 13 types, and solvency. An actuarial certificate must be included stating to what extent that the scheme is financially viable⁵⁰ in percentage terms. Also the report must present results of performance measurement of fund managers and detail how fund managers are remunerated. Every three years a more detailed valuation report must be included, giving a view of long term viability.

The Maxwell case (above) has brought information further to the fore. Note, however, that published accounts did not hide the high level of self investment by the Maxwell funds. The problem for members was of understanding the associated risk - and the difficulty of redress. The lack of understanding is further illustrated by a 1987 survey of 1000 employees in 27 firms reported in Blake (1992), which showed 80% had never read pension information, 30% did not know what their retirement benefit would be and 20% did not know how much they paid in contributions. Furthermore, leverage of members in pension funds varies greatly. In defined benefit funds in unionised firms there may be a great deal of countervailing power, but this may be much less for defined contribution funds, and a fortiori personal pensions.

Information is a major problem for personal pensions, given it is difficult or costly for the purchaser of such pensions to obtain sufficient information on the quality of the service in question, and they are seeking investment of a sizeable proportion of their wealth, contracts are one-off and involve a commitment over time. Investor protection rules on paper were consequently tough from the outset, as required by the 1986 Financial Services Act. Product disclosure, best advice for the circumstances of the individual and cooling off periods are required under this Act for pensions as for other investment products. Also all companies providing such products had to be registered with a self regulatory organisation or by the Securities and Investment Board (SIB).

The weakness of these rules was shown when, precisely in line with the theoretical concern, the UK securities regulator SIB found in 1993 that during the previous five years over 500,000 people had been wrongly advised by insurance salesmen to leave company pension schemes. The amounts transferred were £7 billion. Insurance salesmen, operating on a commission basis which gives a considerable sum for each

⁵⁰ That is, in terms of the extent to which assets are available to pay obligations.

pension contract, had evidently failed to offer "best advice" on many occasions (Smith (1993), Blake (1995)⁵¹).

The SIB consider that full compensation is needed for those opting out of occupational funds, which could cost insurance companies over £3 billion. Following this scandal, new rules were introduced by the SIB governing transfers out of occupational funds. There had to be explanation in writing of why the shift was best advice; the same assumptions must be used in projecting the returns on the occupational and personal fund; all calculations must be done using a computerised transfer value analysis to increase the degree of objectivity; only specially trained individuals may conduct such business; and all such advice must be double checked within the insurance company. No doubt partly owing to these tighter rules, but also due to a loss of reputation by insurance companies, personal pension sales were hit severely in the wake of this revelation, and at the time of writing the market has yet to recover.

Equally, the government has imposed increasingly tough disclosure rules for commissions. Since 1990 providers have had to declare surrender values for the first five years and commissions earned by salespeople, as a proportion of contributions. Since 1995 commissions have had to be declared in cash terms as well as full information about the cost of early surrender.

Such regulations are shown as being all the more necessary by the data from the Department of Social Security for 1991-2, released in 1994, which gave the first comprehensive demographic breakdown of personal pension holders. As noted by Cohen (1994), it showed that large swathes of the 5 million holders in that year had evidently been ill-advised, since they included 1 million women who earned too little to benefit from the tax incentives which make contracting out of SERPS worthwhile, and also included many people over 45 years of age, who would have been better off remaining in SERPS. 18% of personal pensions had been sold to individuals with no income and 7% to those below the lower earnings limit who did not have to pay NI contributions. The SIB has announced a further investigation of rebate-only personal pensions.

4.16 *Regulatory structures*

Effectiveness of pension fund regulation is influenced by regulatory structures and procedures and their link to organisational structure which in the UK are at the time of writing somewhat unwieldy. Statutory pension fund regulation is administered by different bodies, namely the Occupational Pensions Board on behalf of the Department of Social Security and the Pension Schemes Office for the Inland Revenue. In addition, under the 1986 Financial Services Act, the investment management regulatory bodies regulate insurance companies and other financial institutions offering pensions, asset managers and those offering advice to individuals regarding pensions. The tax authorities are concerned to avoid overfunding, while the Pension Board checks on a three yearly basis whether assets are sufficient to pay the minimal state-guaranteed pension (GMP). It also assesses whether funds meet the standards to contract out of the state earnings related pension, checks revaluation and preservation of rights for early leavers, etc.

The 1995 Pension Act which followed the Goode Report will partly centralise regulation. A seven member Occupational Pensions Regulation Authority will be set up. Members will be appointed by the government but at least one will be suggested by life insurers, one by employers' groups, one by trades

⁵¹ Blake (1995) mentions the case of a miner who took a personal pension in 1989 and retired in 1994 aged 60. He received a pension of £734 pa and a lump sum of £2576. If he had stayed in the Miners Pension Fund, he would have had a pension of £1791 pa and a lump sum of £5125.

unions, one by pensions professionals. A further two will be experts in the pension field. The authority will be able to appoint and remove trustees, set civil penalties, wind up schemes, impose fines on employers and trustees, and order restitution. It will have the power to require documents from advisors, trustees and sponsors and to inspect premises. From its foundation in 1997 it is expected to have a staff of 200, financed by a levy on the pension fund sector. But note that tax treatment will still be dealt with separately. Also, the regulator is to rely on "whistle blowing" by professional advisors and scheme members to discover misdemeanours. This weakens (on grounds of cost) the suggestion of the Goode Committee that the regulator should routinely examine scheme financial statements.

An ombudsman provides redress for individual complaints against funds. Although a pension ombudsman already existed prior to the above mentioned Act, powers to investigate complaints of unfair treatment and adjudicate on disputes is being increased.

5 Performance - benefits, contributions and costs

The structural features and regulatory provisions outlined above partly condition the overall performance of private funded pensions in provision of retirement income, their primary objective. In this section we outline the benefits provided by UK private pensions, the scope of contributions and the costs of administration. The next section covers portfolio distributions and consequent returns on the portfolio, as well as issues in fund management.

5.1 Benefits

Among members of occupational pension schemes, final-salary based defined benefit plans cover all public sector and the majority (86%) of private sector beneficiaries. 14% of private sector beneficiaries are in defined contribution plans, and the residual 1% in defined benefit funds which offer pensions based on average earnings or a flat sum (Table 2.4). Note that in addition to pension benefits, lump sum withdrawals at retirement are permitted, up to 150% of final salary for defined benefit funds.

The accrual rate in defined benefit funds is usually 1/80th of final salary per year of service in the public sector, and 1/60th in the private sector. Hence the typical replacement ratio after 40 years is 50-66%. The public/private difference may be seen as a rough offset for the guaranteed indexation of public sector schemes, and lack of it in the private sector (see below), as well as for the fact that tax free lump sums are usually deducted from pension rights in the private sector and additional in the public sector (equal to three years' pension).

In calculating the final salary, all public sector defined benefit schemes and 2/3 of private sector schemes use the salary in the last year of employment. 1.6 million members in the private sector are in schemes that focus on average salaries over 3 years or more prior to retirement, which may be disadvantageous during periods of inflation. 1 million individuals are in schemes which allow an alternative based on, for example, the three best of the last 10 years of employment, adjusted for inflation. This may be advantageous for manual workers whose earnings may peak early on in their career.

0.1 million members are in defined contribution schemes which undertake to provide a minimum pension (usually the GMP) even if the accumulated funds from a given member's contributions are insufficient to purchase one. 'Protected rights' funds and minimum personal pensions both rely solely on the contracted out contribution rebate, as noted in Sections 1 and 2. They must be used to provide a pension indexed up to an inflation rate of at least 3%, and must generally provide for half the pension to be paid to a surviving spouse. Any excess over the minimum contributions may be more freely used.

Since 1978, occupational defined contribution funds and personal pensions have generally allowed members an open market option to purchase an annuity from any provider, and in any form (it may be flat rate or indexed, and with or without protection for the spouse). In effect, the individual is faced with a plethora of choices, which will have an important influence on retirement income, as outlined above. First, the duration or term of the annuity must be selected. The highest income comes with 'single life' annuities which cease to be paid at the time of death. But some protection against the risk of early death (offset by a lower annuity) may be obtained by a 'joint life' annuity, paid till both holder and spouse die, or a temporary annuity which lasts for a fixed period whether the individual dies or not. 'Capital protection' may allow for return of outstanding funds when the annuitant dies. Second, the type of annuity must be selected. A 'level annuity' pays a flat nominal sum for the life of the annuity; 'index linked' rises with inflation; 'with profits' grows in line with an assumed annual bonus rate of 3.5-6.5%; 'unit linked' fluctuates in line with unit prices; and an 'escalating annuity' rises at a fixed rate such as 5%. Table 5.1 gives an indication of the relative income offered on these different annuities. Note that the actual return on a level annuity itself depends on the current yield on government bonds, less any charges the insurance company levies and the costs of any of the variants outlined above. Of course, the risks of the various annuities differ; inflation is the main difficulty in the case of level annuities and market crashes for unit-linked and with-profits annuities. These may be hedged by a combination of annuities. It is also possible to stagger purchase over time, so that the pension fund is converted to annuities in stages. This reduces the risk of retiring when annuity rates are low, owing to low yields on government bonds. It may also maximise the remaining assets, which stay in the pension trust. The third choice is frequency and timing of annual payments. The less frequent and later the payment, the higher the annuity.

As regards indexation of occupational funds, the vast majority of defined benefit funds in the UK provide for annual increases in pensions (Table 5.2). Virtually all members of public sector (defined benefit) scheme members benefit from guaranteed indexation; this is less common in private sector defined benefit funds. But increasingly a degree of indexation is offered by the private sector, subject to a ceiling. Whereas only 20% of pensioners of private schemes had a form of limited guarantee of indexation in 1979, in 1991 the ratio was 80%. Reflecting this, increases in pensions over and above the GMP⁵² by private sector defined benefit funds were broadly in line with inflation in 1987 and 1988, when inflation was 4.2% and 4.6%, respectively. But in 1989 and 1990, when inflation rose to 8.3% and 9.8%, private sector defined benefit pensions rose only 5.9% and 7.1%. Nonetheless, some providers claimed to have given one-off increases to offset these shortfalls. Moreover, the average pattern conceals a wide variation in terms. 14% of pensioners of private sector schemes received full indexation and a further 36% received indexation up a ceiling of 5%. Broadly similar patterns to those apply to workers anticipating deferred future pensions.

Indexation of benefits up to an inflation rate of 5% becomes mandatory under the 1995 Pension Act; indexation of accrued benefits is already mandatory. But as outlined above, all public sector beneficiaries and a majority of those in the private sector already receive such "limited price indexation". As noted above, the issue of discretionary indexation does not arise for defined contribution or personal funds.

Provision for early retirement on the basis of ill health is provided for by virtually all occupational schemes, but on widely differing bases. For private sector defined benefit funds, 40% of covered workers would receive a pension equivalent to that at retirement, whereas 16% would receive no enhancement at all of existing contributions. For half of the latter, the pension paid would be further reduced because of it being paid prior to normal retirement age. Other private defined benefit schemes and all public defined benefit schemes enhance existing service so as to offer a pension on a basis which lies between these extremes.

⁵² The pension equivalent to the GMP is fully indexed, partly from the scheme, and partly from the state.

In occupational defined contribution scheme the usual solution is to pay a pension direct from accrued contributions only. Only a minority of funds allow for enhancement, although some employees have a backup in the form of permanent health insurance (0.2 million defined contribution members and 0.8 million in defined benefit funds), which pays pension-like benefits up to retirement. 'Protected rights' members who retire young owing to sickness are in potentially dire straits, as their contributions may not be used to purchase benefits till age 60. Personal pensions providers follow similar lines to these, although there are sharp differences between providers in the generosity of treatment. Some companies, according to Blake (1995), will allow fifteen years contributions to count as if a fifteen year fund had run to full term, others will charge up to 30% to cover front loading of costs.

Early retirement for other reasons is common in private defined benefit funds, where there are generally provisions for retirement on an immediate pension above a certain age, such as 50, or a certain period, such as five years, prior to normal retirement. Such provisions are virtually absent in the public sector. Retirement beyond the normal age usually leads to withholding of payments, and an increased pension when retirement eventually occurs. In the public sector (where accrual is on an 1/80th basis) contributions usually continue, whereas in the private sector and in public corporations (where they are commonly 1/60th) they cease.

With personal pensions and defined contribution funds, pensions on early retirement depend largely on accrued contributions and investment returns. Given the operation of compound interest, this may entail sharply lower pensions than for those continuing till 65. An additional problem for holders of personal pensions is that the individual is usually asked to nominate a retirement date when the fund started, at which the endowment policy would mature. Early retirement in such cases amounts to early surrender of the policy and may sharply reduce the return (see the discussion of costs below)⁵³.

For defined benefit funds, death benefits in service and after retirement tend to involve a lump sum of up to four times salary, an immediate pension for dependants and for children. Since Barber, these benefits tend to be provided equally to men and women. For most defined contribution funds, death benefits typically entail only a pension paid to the survivor, which is purchased by accumulated contributions, although lump sums are often added. Personal pensions may either return contributions only plus a notional - and low - annual return (common in endowment policies) or the fund as a whole (more common in unit linked). The difference between these bases may be dramatic. If a man pays £1000 per annum from age 35 and dies in service at 60, return of premiums gives £25000, return of fund with 9% growth £75300. Usually the compensation for choosing return of premium in case of death in service is a slightly higher pension if the individual survives. Additional protection for dependants may of course be obtained by choosing term life cover to accompany the personal pension; up to 5% of earnings may be devoted to this by holders of personal pensions, tax free.

Early leaver benefits, if there is at least two years membership, entail either a deferred pension (indexed to at least 5%), or a cash transfer of accrued rights. In some restricted transfer circuits, there may be transfer of years of service, building up to a final salary pension. If there is less than two years membership, there is a lump sum repayment of contributions.

Three million members are in funds that make no adjustment for the social security pension, whereas a further three million are in schemes which adjust both contributions and benefits to allow for this. The most common way is to reduce the salary on which contributions and benefits are paid and received,

⁵³ Blake (1995) notes the case of a UK insurance company which would reduce the value of so-called capital units in a unit linked policy by over 25% if retirement is five years early.

related to the state basic pension or, equivalently, the lower earnings limit for national insurance contributions.

The contribution of private and occupational pensions to income of all retired people was 25% in 1993, having risen from 16% in 1979 (Table 1.3). These figures may be expected to rise further with the maturity of funds and enhanced preservation of accrued rights. They must be seen in the context of the broader pattern of income for retired persons, outlined in Section 1.

The standard retirement age for private schemes in 1991 was 65 for men in 70% of cases, and 60 for women in 55% of cases. In each case there have been declines in these figures since 1987, despite these being the state retirement ages for men and women (phased equalisation of the latter is to occur in 2020). This movement has been strongly influenced by the so-called Barber Judgement of the European Court, which ruled that it was illegal for there to be different retirement ages for men and women, albeit only for pension rights accruing since mid-1990. There have been changes to provisions since 1987, leading to an equalisation of ages, in schemes covering 3 million members (2 million members were already in schemes which had equalised retirement ages prior to the Barber Judgement). This total includes schemes that have equalised for new members only, for rights after 1990 only, and for those where a range of retirement ages have been established for both men and women.

5.2 Contributions

As noted in Section 3, tax free contributions to occupational funds are limited to 17.5% of the employee's salary, and the maximum tax-exempt employee contribution is 15% of salary. To gain tax exemption, the employer must contribute to UK occupational pensions (unless there is a contribution holiday due to overfunding) since they are a benefit provided by employers for employees. In general, the employer is responsible for ensuring that the fund is solvent. In contrast, employee contributions, although common, are not obligatory; 1.7 million employees are in schemes where the employer is the sole contributor (although employees may make voluntary contributions).

In the majority of cases, employees pay less than half of total contributions (the overall ratio of employers' to employees' contributions is 2:1, but this includes schemes where employees do not contribute, see Table 5.3). On average, in 1991, employers contributed 9.75% of salary and employees 5.5%. For defined benefit funds in the private sector, 5% is the most common rate of employee contributions, and it is 6% in the public sector (Table 5.4). In defined contribution funds, 2-4% is most common. In very few cases are employee contributions in excess of 7%. These contributions are generally based on total salary, however, 2 million workers in the private sector are in schemes which base contributions on a reduced salary to allow for social security benefits and contributions. Note, however, that in an economic sense the division between employer and employee contributions may be partly offset by lower wages for those for whom the employer makes relatively generous contributions.

Employers' contributions to occupational defined contribution funds in 1991 varied from over 10% (for 0.1 million workers) to only the minimal rebate of national employment contributions (again 0.1 million). Employers do not generally contribute on behalf of those opting out of company schemes in favour of personal pensions, which typically reduces total contributions to around 6%.

Turning to macroeconomic data, the pattern of employers' contributions to occupational funds over time reflects the incidence of deficits in the predominant defined benefit plans during periods of securities market weakness, such as the 1970s - firms had to make large 'topping-up' payments in the late 1970s (Table 5.5). Employers' contributions as a proportion of GDP accordingly rose from 1.75% in 1971 to a

peak of 3.23% in 1981. More recently (since 1981), asset growth has reflected the strength of capital markets, and with in addition widespread reductions in membership due to redundancy (which reduces projected pension obligations), many schemes became overfunded, with firms taking contribution holidays. Reflecting this, the ratio of employers' contributions to GDP fell to below 2% in 1987, and in 1992 stood at 1.22%. Meanwhile, employees' contributions have drifted upwards over time in relation to GDP, from 0.64% in 1971 to 1.24% in 1992.

In 1992, contributions to personal pensions totalled £6.7 billion, of which £0.5 billion were rebated NI contributions, £5.2 billion new single premia and £1.2 billion annual premia. Minimum contributions to personal pensions are the contracted out rebate which was 4.8% in 1995, plus the 1% bonus for those over 30; the maximum, as set out in Section 3, varies with age from 17.5% of earnings for those under 35 to 40% for those 61 and above, with the same earnings limit as for occupational funds. The main problem of personal pensions is that many employees rely solely on the "minimum" contracted out rebate and do not make further contributions, thus risking to have inadequate pensions. This is true of no less than 60% of personal pension holders. The situation is aggravated by marked delays in payment of rebates, which may mean that investment is only possible 18 months after accrual. Also employers need not contribute to personal pension plans for those opting out of their occupational schemes beyond the rebate of employers' contributions, and generally do not, thus sharply reducing the benefits relative to occupational schemes. Only 2% of public sector employees contribute and 5% of private. Most occupational schemes also exclude those opting out from their life insurance benefits. Equally, there are losses in terms of guarantees in transferring out of an occupational defined benefit fund.

5.3 *Costs*

Hannah (1986) quotes administrative expense to cash flow ratios of 6% for medium sized firms with insured schemes, 2% for large defined benefit schemes, and 1% for social security. The data from the latest survey by the Government Actuary (for 1991) shows that schemes with less than 11 members had average costs of 9% of income, which fell to 3-4% for schemes with up to 10,000 members and 1.4% for schemes with 10,000 and over (see Table 5.6). Costs as a proportion of assets were 1.1%, 0.3-0.5% and 0.1% for the corresponding size classes.

The costs of personal pensions are much higher than for company plans, given lack of economies of scale, expenses of management, advertising, and compliance with the regulatory regime - as well as possible monopoly rents. Charges may be imposed in a variety of ways, for example in endowment policies they may arise via initial charges, management fees, administration fees, annual management fees and unit allocations (where only a proportion of the units bought are actually given by the provider). For unit linked plans sales commissions, bid-ask spreads and fund management fees are levied, as well as disguised, higher, charges on certain types of units.

Blake (1995) suggests that an initial transfer into a personal scheme may cost 25% of the transfer value, with annual commissions of 2.5% of the annual premium. The Institute of Actuaries consider that 10-20% of contributions may be absorbed in fees over the entire span of a personal pension contract. In a detailed survey of 90 providers, Walford (1993) estimated that the various charges would reduce returns on a 5-year pension plan by 13% on average, but with quite a wide distribution from 8.5% for the 10% of firms with the lowest charges, and 18% for the worst 10%.

Owing to front loading of commissions, termination after a short period results in a very low surrender value. If there is termination after one year, 90% of premia may be absorbed in commission, or 60% in two years. The surrender value might not exceed contributions until five years into the policy.

Early surrender penalties are likewise severe, for those wishing to retire early. Low surrender values also make transfer between providers extremely costly. For example, Blake (1995) notes that surrender values for with-profit endowment schemes were on average 28% below maturity value with only one year to maturity (the variation between companies was from 37% to 8%). Transfers between providers may incur charges of a third of the amount outstanding.

Annuity fees, which do not apply for occupational defined benefit plans, impose a further burden. They may be particularly onerous for those seeking to exercise the open market option and buy an annuity from another provider. These may be as much as 3% of the outstanding fund.

These high charges for personal contracts have an important policy implication in the context of the government's aims in encouraging personal pensions (Sections 1 and 2). The Financial Times (1993) notes that owing to the fixed charge element in personal pensions, costs rise hugely for smaller policies, such as those for the lower paid or those who do not pay over an entire working life. "Reputable" insurance companies would reportedly be reluctant to offer personal pensions for those on under £10,000 pa (about 60% of average earnings at the time). Personal pensions are hence uneconomic for the very groups of the population who are not in occupational pensions, and for whom SERPS was conceived.

6 Portfolio behaviour and asset returns

6.1 Portfolio distributions

The portfolio distribution and the corresponding return on the assets held are the key determinant of the cost to the company of providing a given pension benefit in a defined benefit scheme (although obviously the prevailing nature of benefits, by determining liabilities, also influence the overall cost). Alternatively, in a defined contribution fund, the returns determine the pension directly.

In each case, it is crucial that pension fund assets offer a return in excess of real earnings growth, as liabilities of a final salary defined benefit fund depends on them, and so does the replacement ratio of a defined contribution fund (since wage growth determines the salary at retirement). For example, Vittas (1992) shows that in a defined contribution plan with a contribution rate of 10%, 40 years' contributions, 20 years' retirement and real wage growth of 2%, real returns of 3% will only obtain a replacement rate for an indexed pension of 33%, while a 5% real return obtains an indexed pension of 60% of final salary. In practice, and as discussed in more detail below, UK funds have found that real assets such as equities best ensure a return in excess of average earnings, notably as bonds' performance in the UK has been poor in the context of high and volatile inflation.

Changes in portfolio distributions of UK pension funds over the period 1970-93 are shown in detail in Table 6.1. It should be noted that the data exclude pension funds administered by life insurance companies, and hence excludes most defined contribution and personal pensions⁵⁴.

As background, estimates of real total returns and their standard deviations for 1967-90 are shown in Table 6.2. The table was constructed using annual average data on summary or market indices of interest rates, yields and asset prices drawn largely from the BIS macroeconomic database. No allowance is made for transaction costs, which would affect actual returns to funds. Among the notable features of the data

⁵⁴ As noted below, personal pension portfolios run on a discretionary basis are largely indistinguishable from defined benefit funds; those directed by the individual are much more cautiously invested.

for UK assets are that the highest return - and the highest risks - are offered by equities, followed by property. Both are in excess not only of inflation, but also - crucially for final salary plans - the growth rate of average earnings. UK bonds offer a much lower real return, and a highly volatile one (note that the calculations are based on annual holding period returns, i.e. including capital gains and losses arising from changes in interest rates). Meanwhile, international equities⁵⁵ are shown to offer sizeable real returns for sterling based investors (linked to the structural depreciation of sterling), at generally lower risk than domestic shares, despite exchange rate risk.

In principle, the portfolio share of *liquid assets* can be small because withdrawals are predictable. The higher levels that have often been observed at various times (Table 6.1) reflect high market returns on liquid assets relative to other assets. This was particularly true in 1974 when the equity market fell sharply. Funds have since returned to roughly their pre-1974 level of short-term assets.

The *bond* share has fallen sharply, from 50% of assets in 1966 to 11% in 1994. Besides the effective indexation of liabilities to wage inflation, the declining bond share may reflect changing perceptions of risk, with negative real returns on bonds being experienced in the inflationary 1970s. The fall in the UK bond share also reflects alternative means of diversification; after abolition of exchange controls UK funds sold bonds to buy foreign assets. Besides foreign assets, UK pension funds have taken advantage of regulations permitting equity holding and have thus been able to profit from patterns of relative returns which have favoured equities over bonds. On the other hand growing maturity of funds and forthcoming minimum solvency regulations are currently putting a greater emphasis on cash flow to pay pensions, at a time when expectations of dividend growth on equities are becoming less favourable. This may be reflected in the rise in bond holdings from 10% in 1993 to 11% in 1994.

Within the total, the share of *government bonds* in pension funds' portfolios has declined. The decline in the share of government bonds accelerated when there was a contraction in the supply of public debt in the late 1980s as the government ran surpluses. The decline has occurred despite the introduction of consumer price index-linked bonds, which should in principle be an attractive means of pension fund financing⁵⁶ (depending on the real yield relative to growth of average earnings). Equities were seen to offer more attractive returns, and there were concerns about liquidity of index linked bonds.

The forms of *corporate debt* held by UK funds are corporate bonds and preference shares, but not loans (unlike funds in the Netherlands and Germany). Holdings had declined during the high-inflation era of the 1970s and 1980s. The general view appears to be that the role of corporate debt in a pension fund's portfolio should be a minor one, particularly because of the relatively low total returns compared to equity, and also because holdings of debt could in some cases cause difficulties for equity holdings in the same firm. This is reflected in the current portfolio share of 2%. On the other hand the lower interest rates now prevailing put a premium on high yields of corporate debt to cater for minimum funding⁵⁷ and the higher cost of annuities, so there are prospects for increased corporate bond holdings.

⁵⁵ Foreign yields were constructed using the UK effective exchange rate and the yields of eleven other OECD countries' bonds, weighted by their contribution to global market capitalisation in the 1980s.

⁵⁶ See Bodie (1990b).

⁵⁷ Although in the UK minimum funding rules historically only required the low "Guaranteed Minimum Pension" (GMP) to be covered, this could nonetheless have an influence on the portfolio if it is desired to immunise this fixed liability with bonds, and yields are falling. The new minimum solvency law introduced in 1997 will make bonds more attractive.

The *equity* share has grown sharply, as fund managers have become increasingly aware of their ability to outperform average earnings. The high share also partly reflects the accounting standard which permits long-run smoothing and focuses on dividends rather than market values, and hence enables funds to accept the volatility of equity returns (Section 4). Some commentators express concern whether equity holdings are too high given the risks, notably given the risk of recurrence of low real returns as in the 1970s. However, note that 16% of the 61% equity share in 1990 was actually in foreign equities, thus reducing risk somewhat. In 1994 the figure was 69%, of which 52% were domestic and 17% foreign. In no other country do pension funds have anything comparable to this portfolio share of equities. The 1995 Pension Act's imposition of minimum funding rules based on the ABO could radically change UK funds' attitudes to equities, by putting much greater focus on shortfall risk.

Property is in principle also a real asset in the sense that rental yields and asset values typically rise in line with inflation over the longer term. UK funds accumulated a great deal of property followed weakness of the equity markets in the mid-1970s. But once equity returns recovered and exchange controls were abolished, property investment declined owing to disadvantages such as its lack of liquidity, lumpiness and vulnerability to errors in selection. Equally, even for prime properties, costs of management and consequent lower returns made property less attractive than the alternative of foreign equities. This was reflected in a declining portfolio share over the 1980s and early 1990s. In the light of the property crash in the UK in the late 1980s, this strategy proved sensible.

Until 1979, exchange control regulations penalised *foreign investment* by UK pension funds, in common with all other UK residents. They required transactors to use investment currency, which stood at a premium of around 25% to actual exchange rates, with part of the premium being forfeited when the assets was sold and funds repatriated. Although the burden could be reduced by various means, such as back-to-back loans, it remained a major disincentive to international investment. Since the abolition of such exchange controls, UK fund managers have taken advantage of the fact that *international diversification* can offer a better risk/return trade-off to fund managers, by reducing the systematic risk of investing in domestic markets arising from the cycle or long term shifts in the profit share (see Davis 1995a). Alternatively international investment can be seen as a means of hedging against risks of inflationary shocks to import prices (which varies with the openness of the economy). It will also allow investment in industries not present in the domestic economy. In a longer-term context, international investment in countries with a relatively young population may be essential to prevent battles over resources between workers and pensioners in countries with an ageing population (Davis *ibid*).

Fund managers remain aware that international investment poses additional risks compared with domestic investment. Exchange-rate risk means that the returns from foreign assets may be more variable than for domestic instruments, especially in the short term (although as noted, sterling tends to depreciate). Transfer risk may affect the ability to repatriate returns. Settlement risk in some securities markets may be large, with a high proportion of delayed and failing transactions. Liquidity risk, that transactions may move the market against the fund may be significant in narrow markets such as those in less developed countries. Nevertheless, growth of holdings in emerging markets has been marked in recent years, standing (according to WM (1995)) at 6% of overseas equities in 1994 after being 1% in 1991.

Summarising the patterns of UK occupational pension funds' portfolios, it is clear that, reflecting the nature of liabilities and the flexible funding and accounting regulations, there has been a major and continuing focus on real assets and that the broad characteristics of the portfolio are relatively unchanged. This suggests that many of the portfolio shifts discussed above did not imply changes in objectives, but rather an adjustment to market conditions within an unchanged set of goals in terms of real return, marketability, etc.

Obviously, the data shown are only an average and may not indicate the choices of any particular fund. Equally, there are important differences between small and large pension funds in terms of portfolio shares. WM data for 1994 (Table 6.3) shows that at the time large funds held more property than small as well as more government bonds, and somewhat less foreign assets. Lower property holdings may relate to economies of scale in administration, while the pattern of bond holdings probably indicates greater maturity of the largest schemes.

We note in passing that data for personal pension asset holdings are hard to obtain. Evidence from a major player in the UK gives a portfolio comprising 57% UK equity, 27% foreign equity, 7% gilts, 2% foreign bonds, 3% property and 4% cash. In interpreting this quite aggressive portfolio allocation, it should be borne in mind that the plans will be highly immature, given recent growth of the sector, and later should be expected to reduce risk by raising the share of bonds. Also the data are for pooled funds; there is anecdotal evidence in the UK that persons free to choose their asset backing often select highly cautious combinations of assets (Young (1992)). This may threaten the value of pensions that they eventually obtain.

6.2 Returns

The patterns of portfolio distributions and risks and returns on assets can be used to derive estimates of the returns and risks on portfolios, and hence the cost to the firm of providing a given level of pension benefits (for a defined benefit fund), or the return to the member (for a defined contribution fund). The method is simply to weight for each year the annual real rate of return on each asset by the relevant portfolio share, thus giving on aggregation a series of annual portfolio rates of return. Transactions and management costs are ignored; actual returns would be lower if these were significant. The average and standard deviation of these series (with the returns on funds in the G-3 given for comparison) are given in Table 6.4.

Annual holding period returns on marketable fixed - rate instruments are used, instead of redemption yields. In our view, the holding period returns are the more relevant measure for an ongoing portfolio, since they take full account of losses or gains due to interest rate changes (although other assumptions regarding holding periods could also be made). The estimates suggest that pension funds in the United Kingdom obtained a sizeable real return over the period 1967-90. These results must be reflected either in funding costs for sponsoring firms or the level of benefits offered. The result of course partly reflects risk and the share of equity and property, the United Kingdom having a high standard deviation of returns. But compared with other financial institutions, pension funds are well-placed to accept a degree of volatility. This is particularly the case for defined benefit funds where there can be risk-sharing between worker and company as well as between younger and older members. The accounting standards based on returns also facilitate acceptance of volatility. The case for high risk in defined contribution plans is more evenly balanced.

Comparison of the risks and returns on UK pension fund portfolios with the returns on individual instruments in Table 6.2 shows the benefits of diversification in terms of lower standard deviations on the portfolio than individual assets. However, the returns cannot be directly compared, as pension fund returns are free of tax, while assets held directly would not be. Comparison of the results with risk free yields suggests that the funds far outperformed government bonds. Returns were below those on equities, but at a benefit of much lower risk.

It should also be noted that Table 6.4 only shows an estimate of returns to funds from "passive" holdings of the relevant index for each asset, weighted by portfolio share. Appropriate stock selection

could in principle give a higher return - although as discussed below, in practice active asset management often *lowers* returns, when transactions costs are taken into account.

Subject to this caveat, the most crucial test is ability of funds to outperform real average earnings, given that liabilities of defined benefit schemes are basically indexed to them. This is hence the key indicator of the costs of the scheme to the sponsor. Similarly the replacement ratio rate a defined contribution fund can offer will depend on asset returns relative to earnings growth. The headroom is sizeable (over 2% pa) in the UK. As shown in Davis (1995a), this enables a high replacement ratio to be offered for a given contribution rate (Table 6.5). Headroom is far less, or even negative, in many other countries. Often portfolio restrictions are at least partly to blame. Meanwhile Table 6.6 shows that UK funds returns have been volatile within five year periods, linking to the high share of equity in the portfolio, as well as poor returns on bonds in the 1970s.

The data allow a further comparison of effects of ownership and management methods to be made, this time in the same markets, in that public (local government) fund data can be identified separately from private-sector funds. Our estimates suggest that local government funds obtain lower returns than private funds (a real 4.9% compared with 5.4% over 1967-88). This can be related to historically⁵⁸ more conservative portfolio distributions and in some cases portfolio regulations. UK local authority funds held an average of 52% equity over the sample, while private funds held 56%. Interestingly, the risks in real terms were higher for the local government funds (standard deviation of real returns was 13.4%, other funds were 13%), partly as a consequence of the volatility of real returns on bonds.

6.3 Fund management

Fund management methods differ between types of fund in the UK. Only the largest funds have the option of internal management (internal management covers 40% of pension fund members, according to NAPF (1994)); medium to large funds often use external managers such as stockbrokers or investment banks; smaller funds often employ insurance companies. Clearly, the skill and efficiency of managers may have a crucial effect on the performance of a given fund in relation to the estimates outlined above.

Fund management is a service involving management of an investment portfolio on behalf of a client - in this case a pension fund. Such delegation raises principal-agent problems, as unless the manager is perfectly monitored and/or a foolproof contract drawn up, he may act in his own interests (e.g. in generating excessive commission income) and contrary to those of the fund. One can suggest a priori that such monitoring will be costlier when managers lack reputation or relationships, which otherwise constitute assets that would depreciate in the case of opportunistic behaviour. Also internal managers should be less susceptible to principal-agent problems than external, given a greater degree of control that can be imposed via employment contracts etc. Since companies bear the ultimate risk in defined benefit funds, they will probably put more effort into monitoring fund managers than for occupational defined contribution funds where the ultimate risk lies with the employee. Personal pension holders are clearly yet more vulnerable, with the only protection being regulators and the desire of providers to retain reputation.

Various features of fund management in the UK can be seen as ways to reduce principal-agent problems for occupational funds. For example, managers are offered short (3-year) mandates, with frequent performance evaluation; fees related to the value of funds at year-end and/or performance related fees. The level of management fees (excluding transactions costs) charged by fund managers in the

⁵⁸ Portfolios are now broadly similar.

competitive UK market is quite low by international standards. According to Davis (1993a), a fund would pay no more than 22 basis points on £100 million.

Portfolio management is typically a two-stage process. Traditionally this involves a strategic decision regarding allocation to different assets and national markets ("asset allocation") being followed by a lower level decision over the precise assets to be held within these categories ("stock selection"). The latter may include passive indexation of the market. However, more recently, there is evidence that fund managers are picking core holdings of stocks at a strategic level, and picking national markets at a tactical level, with the use of stock index futures.

The traditional strategic choice, typically taken jointly by managers and trustees, is illustrated by the data above. The results show that there is a trade-off, as would be expected, between return and risk and considerable benefits from diversification. This in turn points to the need for appropriate measures of risk-adjusted returns and identification of sources of portfolio performance in order to evaluate fund managers' performance (Blake (1990), Tamura (1992)). Performance measurement services such as WM and CAPS are widely used in the UK; but they tend to focus on the market average performance when for certain funds a different benchmark may be needed from the market average owing to maturity, liabilities, risk preference of the fund, etc.⁵⁹. Also, a weakness in the UK is that risk-adjusted measures of performance, which may distinguish good returns due to skill of the manager from those due to acceptance of high risk strategies, are rarely used (Blake (1992)).

As regards the traditional short-term asset allocation decision, which tests ability of active management within individual markets to outperform indices inclusive of fees and transactions costs, the evidence is almost uniformly contrary to the efficacy of active management of funds within asset categories. This is in line with the efficient markets hypothesis, which suggests that, given prices already incorporate all available information, there is no net benefit from spending extra cash to try to beat the index. Nevertheless, as noted by Grossman and Stiglitz (1980) and Cornell and Roll (1981), the efficient markets hypothesis does not rule out small abnormal returns as an incentive to acquire information, but those acquiring costly information should have only average net returns after the costs of acquiring information are taken into account.

Data for the UK relevant for this discussion are shown in Table 6.7. These show that even in the home market, funds tend to under perform the index, but under performance is particularly severe in foreign markets. This may be due to poor information on trading practices and company research compared to local managers, as well as high turnover and transactions costs. This in turn justifies an indexed approach to national stocks, where the fund manager's skill is employed in picking undervalued markets rather than stocks, and employing stock index futures to gain rapid exposure to such markets. As discussed in Howell and Cozzini (1991), this is increasingly the approach adopted by large institutional investors in countries such as the UK. Table 6.8 shows that average returns are lowest for external managers, and return is in turn inversely correlated with turnover. These are consistent with the principal-agent problems set out above; managers which are under the most tenuous control of the trustees have higher turnover and lower returns.

The main implication of these analyses is that indexation will be optimal for most UK pension fund assets, with the caveat that the benefits arising from active management are likely to increase with the number of funds adopting such predictable passive strategies, and with the inefficiency of the market more generally. Some suggest that widespread indexation may also weaken incentives to monitor corporate

⁵⁹ In this case so-called asset liability management techniques may be appropriate to find the appropriate asset mix, and managers judged against a benchmark based on this mix rather than the market average.

management; a counter case is given in Section 7. In fact, although explicit indexation has not been so popular in the UK as the US, the number of large UK funds which practice forms of "core indexation" (i.e. zero turnover of core holdings) suggests to some commentators that as much as 30% of UK pension funds' domestic equities were effectively indexed in 1993. Indexation does not, of course, remove the need for selection of asset categories in the light of liabilities and expected returns, as well as choice of national markets. And indeed UK fund managers are putting greater emphasis on this aspect. To the extent these activities remain profitable, they suggest that there is greater efficiency within than between markets.

7 Capital Market Issues

This section probes further some of the issues raised for UK capital markets by pension funds. The sheer size of pension funds - they hold 30% of UK equities - and of other institutional investors, who in total hold 60%, raises key policy issues in this area. Given that pension fund growth is likely in many other OECD countries, these patterns may have a wider relevance (see also Davis 1996b for a discussion of institutions and financial change in the G-7 countries).

7.1 Saving

Globally, the evidence that the growth of pension funds raises the level of saving suggests an effect that is positive but minor (see Feldstein (1978), Munnell and Yohn (1992)). Although fiscal incentives, e.g. for personal pensions, may induce a considerable shift into the relevant privileged instrument, they are partly or largely offset by declines in other aspects of personal saving⁶⁰ and in government saving. In line with this, UK evidence suggests that growth in funded pension schemes is partly offset by declines in discretionary personal saving. Threadgold (1980) suggests an increase in UK personal saving of around 0.35 results from every unit increase in pension fund assets, though the cost to the public sector of the tax incentives to pension funds provides a partial offset to effects on saving at an economy-wide level, reducing the benefit to around 0.2. The key mechanism leading to imperfect offsetting of pension saving seems to be that owing to imperfections in credit markets, individuals are unable to borrow in order to offset forced increases in saving arising from pension contributions. Such an effect should be smaller where credit markets are liberalised and thus access to credit less restricted, or participation in pension funds is optional. It would also be less marked for defined contribution funds, where the worker is more likely to be able to borrow against his pension wealth. For all these reasons there may be expected to be a decline in effects of occupational pensions per se on saving in the UK. And indeed preliminary analysis has confirmed that the effect is somewhat smaller when data for the 1980s are included.

Abstracting from the likely increase in saving and wealth, the implications of growth in pension funds for *financing patterns* arise from differences in behaviour from the personal sector, which would otherwise hold assets directly. Portfolios of UK pension funds certainly hold a greater proportion of capital uncertain and long term assets than households. For example equity holdings of pension funds in 1994 were 69%, comparing favourably with personal sector equity holdings, which are 13% in 1994. On the other hand, the personal sector tends to hold a much larger proportion of liquid assets than pension funds. These differences can be explained partly by time horizons, which for persons are relatively short,

⁶⁰ There may also be offsets within the income distribution. Taxation provisions boosting rates of return will influence retirement saving at the margin for those who are myopic, and are not saving enough, or those well-off enough to consider retirement consumption a luxury good; for those "target savers" whose desired saving is equal to this level (i.e. who were already saving an equivalent amount to provide for their retirement), there will be an income effect but no offsetting substitution effect, and their saving will tend to decline.

whereas given the long term nature of liabilities, pension funds may concentrate portfolios on long term assets yielding the highest returns. But pension funds also have a comparative advantage in compensating for the increased risk, by pooling across assets whose returns are imperfectly correlated. *The implication is that the switch to funding has increased the supply of long term funds to capital markets*, even if saving and wealth do not increase. In effect, funding reduces bank deposits, so long as households do not increase the liquidity of the remainder of their portfolios fully to offset growth of pension funds. Some such offsetting shifts are nonetheless apparent in the UK, where econometric results (Davis (1988)) suggest that the growth of institutions has been accompanied by a shift by persons from securities to deposits. Hence the effect on the supply of long term capital market instruments is somewhat mitigated.

A corollary of these shifts in portfolios is that securities are increasingly held in the UK by large, informed, risk-averse investors facing low transactions costs. Such a capital market should sensitively reflect information on firms' performance. This is confirmed by econometric analysis (Davis (1988)) of the portfolio distributions of UK pension funds, which show they are strongly influenced by relative asset returns. Adjustment to a change in such returns is generally rapid. Assuming adequate information and appropriate incentives to fund managers, this should imply an *efficient allocation of funds and correct valuation of securities*. The results contrast with those for households and companies (Davis (1986)) where adjustment to changes in returns tends to be slow, due to higher transactions costs and poorer information.

7.2 Innovation

Whereas in countries such as the US, pension funds have been at the forefront of financial innovation, in the United Kingdom, the contribution of pension funds to innovation is less clear cut. Many trust deeds used to prevent funds from using derivatives, though these restrictions have been relaxed more recently. Education of trustees to see derivatives as means of hedging and not merely speculation is also important (Davis (1988)). Taxation was also a disincentive until 1990 (use of derivatives was counted as 'trading' and taxed); it is notable that in 1990 when the tax treatment was liberalised, the turnover of stock index futures on the London International Financial Futures Exchange (LIFFE) rose by 40%.

There also appears to be a more general difference in attitudes to innovation between United Kingdom and United States managers. (See Davis (1988).) This may be related mainly to the symmetric and flexible accounting treatment of funds in the UK, based on estimates of trends in dividend income, which is not so dependent on market prices, and where there is no sudden cut-off point where liabilities must enter the balance sheet. Liabilities are based on the PBO and indexation is assumed to a greater extent than in the US. Also minimum funding standards only apply to a subset of pensions (the GMP). Thus funds have so far been happy to hold an overwhelming proportion of unhedged (UK or international) equities, and indeed the exchange rate exposure of the latter is seen as part of the benefits of diversification.

However, Blake (1992) suggests that as funds mature and raise their holdings of bonds in order to reduce the risk of not meeting liabilities when they fall due, immunisation strategies designed to ensure that assets do not fall below the level of liabilities⁶¹ will come to the fore. And introduction of minimum funding standards based on the ABO as in the 1995 Pension Act could change behaviour markedly in the direction of hedging and immunisation strategies to avoid the 'shortfall risk' of underfunding.

⁶¹ Technically, *immunisation* involves construction and maintenance of a portfolio of assets of the same duration as liabilities, so that both are subject to offsetting changes in value. Derivatives facilitate construction of such portfolios.

However, one area in which UK funds have already been active is use of derivatives in international investment. As discussed in Davis (1995a), stock index futures are seen as particularly useful in tactical asset allocation, facilitating rapid shifts between different national markets, which would later be translated into stocks. Derivatives might also be used for long term strategic movements into markets or stocks, if they enable such shifts could occur without moving the market against the fund. This will be the case if the derivatives markets are more liquid than the underlying (as, for example, in Japan, where in mid-1991, outstanding futures contracts represented three times the daily number of shares traded on the stock market). Also temporary adjustments in exposure could be obtained by purchase and sale of index futures without any transaction in the underlying (overlay strategies), thus avoiding disturbance of long-term portfolios, see Cheetham (1990). And at times⁶² forwards may be used to hedge foreign exchange exposures. Such strategies facilitate 'unbundling' of fund management into currency, market and industry exposure. Finally, a UK pension fund might invest cash flow awaiting long term investment in derivatives, as it ensures the manager is always invested and will not miss an upturn.

7.3 *Capital market structure*

The development of pension funds has had a pervasive effect on capital market structure. Their key demand is liquidity, i.e. ability to transact in large size without moving the price against them⁶³, anonymously and at low transactions costs. Rapid and efficient settlement is also essential. They are relatively unconcerned by the firmness of investor protection regulation, as they have sufficient countervailing power to protect their own interests against market makers and other financial institutions. But they are also extremely footloose and willing to transfer their trading to markets offering improved conditions. In effect, this feature renders the market for securities trading services "contestable" (i.e. any excess profitability is vulnerable to new entry). Specialised wholesale markets which focus transactions and increase liquidity, usually centred on well-capitalised position-taking market makers ready and able to facilitate large trades, have tended to benefit from their activity in recent years. Liquidity of wholesale capital markets may be aided by deregulation and reduction in commissions, that pension funds have proven well-placed to press for. Increases in liquidity should in turn be beneficial more generally to the efficiency of capital markets, and lead to a reduction in the cost of capital.

As regards equity markets, London's SEAQ International benefited in the late 1980s and early 1990s relative to competitors in Continental Europe from continuous trading, capitalisation of market makers and lack of transaction taxes on non-UK stocks. Its initial success was marked; in the early 1990s it carried out 50% of French and Italian equity trading and 30% of German, for example. 64% of global cross border equity transactions, and 95% of European ones, were handled by SEAQ⁶⁴. Its relative liquidity was reflected in transaction sizes - \$275,000 compared with \$25,000 in Paris and \$50,000 in Frankfurt. But contestability means such markets are not invincible. SEAQ stimulated deregulation and shifts from open-outcry call-auction markets to electronic continuous auction markets in Continental Europe such as Paris, Madrid, Brussels and Milan (Pagano and Steil 1996). Their competitiveness in trading domestic stocks - notably for UK pension funds - was helped by their inherent informational advantages, as well as liberalised commissions, block trading, and dual-capacity intermediaries. These developments eroded SEAQ's comparative advantage and, combined with a lesser willingness of London market makers to

⁶² Notably when current exchange rates are seen as highly vulnerable, as for EU currencies in 1992-3, see Davis (1995a and b).

⁶³ Whether they also require immediacy is open to dispute (Schwarz and Steil 1996).

⁶⁴ Howell and Cozzini (1992). Note, however, that not all the trade was diverted, some was new trade generated by the rise of international portfolio investment by US institutions (see c(ii) below).

commit capital to their operations following some major losses, led to a decline in liquidity (although SEAQ remains popular for block and programme trades).

An emerging challenge to all traditional exchanges is posed by off-market trading via proprietary trading systems (such as Instinet in the US and Tradepoint in the UK), which enable direct and anonymous trade to occur among pension funds and broker-dealers. In effect, institutions provide their own liquidity in periodic call markets in such systems. Profitability of market making is hence under further pressure, encouraging "proprietary trading". Meanwhile, the growth of institutions may entail a tiering of markets, with order-driven and heavily-regulated domestic markets retained for retail investors and for small company stocks.

This section focuses on equity markets, but as discussed in IMF (1994), governments such as the UK have also sought to modernise the infrastructure of bond markets, driven by the need to make their debt more attractive to pension funds and other international institutional investors (in effect, emulating US market practices). They hope thereby to reduce costs, in the context of abolition of exchange controls, which mean domestic funding would only be available at damagingly high interest rates. But they hence also provide infrastructure which private issuers could utilise. Measures taken include auctions; issue calendars; vehicles for financing positions (such as repos); abolition of withholding taxes⁶⁵; derivatives markets; tailoring of issues; benchmark issues; and improvements in clearing and settlement systems.

7.4 Corporate governance

In a nutshell, the issue of corporate governance arises from the divorce of ownership from control in public limited companies, which gives incentives for managers to depart from shareholders' objectives unless there are effective offsetting organisational structures. These may include a take-over mechanism, high indebtedness, relationship banking or shareholder representation on company boards/meetings (see Davis (1995a), also Charkham (1990)). Increasing focus has been put on the last mechanism in recent years, notably due to the ebbing of the take-over wave.

Boards of directors, and in particular non-executive directors, act as shareholders' representatives in monitoring management and ensuring the firm is run in their interests. Shareholder influence is ensured by their right to vote on choice of directors (as well as other elements of policy proposed by management or, more rarely, proposed by shareholders themselves). These mechanism may be supplemented by direct links from investors such as pension funds to management either formally at annual meetings, or informally at other times.

In the UK, such direct pressure from shareholders (and the Bank of England) led to formation of the so-called Cadbury Committee (1992) on corporate governance, which set a code of good practice. Its key recommendations include separation of chief executive and chairman, appointment of a minimum of three independent non-executive directors, disclosure of directors' pay and that directors' appointments be only for three years. The National Association of Pension Funds has orchestrated pressure on managers to accept the Cadbury guide-lines. More recently, institutional investors have been active in opposing lax and overlong executive contracts, pensions and share options, which were not covered in detail by the Cadbury guide-lines; a few cases have reached the headlines, notably the removal of the chairmen of the corporations Asda and Budgen in 1991 (Blake (1992)). The Maxwell affair crystallised dissatisfaction with

⁶⁵ When New Zealand abolished withholding taxes, the immediate fall in the bond yield was reportedly more than sufficient to cover the loss of tax revenue.

existing means of control. And the fact that hostile bids evaporated in the recession of the early 1990s again spurred interest in direct means of influence over companies.

On the other hand discussions with UK fund managers conducted by the author in December 1993, (Davis 1995a) revealed mixed views on activism. All the managers noted that it was easier and cheaper to sell stock in a poorly performing company than to be involved in "litigation and press wars". Lack of expertise and the risks of possibly endorsing poor management both tell against activism for pension funds. Some suggested employing suitable experts to respond and deal with corporate governance issues could make pension provision costlier. In any case, there seemed little pressure from trustees to vote proxies - a contrast to the US, when such voting is a legal obligation. Some felt the Cadbury guide-lines to be useful in highlighting the shortcomings of certain board structures, while others felt they could distract from other important features of a company such as management information processes. Some felt that improvement in management compensation methods (such as profit-related pay) was in any case narrowing the divorce of ownership and control. However, it was noted that time spent in correcting managerial deficiencies in small firms where the funds have a sizeable stake could pay dividends. Also if a fund indexes then it has to be involved in corporate governance in order to improve its return. As one manager put it, it is a waste of money being "active-active" (in fund management and corporate governance), but equally not sustainable to be "passive-passive". Some funds would insist on use by firms in which they had stakes of external finance so as to fund fixed investment to ensure a market test of efficiency, with cash flow being distributed or used for other purposes.

7.5 *Some criticisms levelled at UK pension funds*

Without going into great detail, it is important to note that UK pension funds and other institutional investors have been subject to criticisms for aspects of their capital market behaviour:

One important point is that pension funds and other institutional investors may not readily invest in *small firms*, given illiquidity or lack of marketability of their shares, levels of risk which may be difficult to diversify away, difficulty and costs of researching firms without track records and limits on the proportion of a firm's equity that may be held. Tightly held companies are particularly unattractive, given the inability to control managers' behaviour. Funds may also lack the business expertise to supply risk-taking venture capital, given the need for close monitoring of the clients of such finance. For example, Revell (1994) shows that in 1989 UK pension funds held 32% of large firms and only 26% of smaller ones. Small firm financing problems may be of particular economic importance if, as is often asserted, small firms are crucial for economic growth⁶⁶. Securitisation is one possibility, but historically the securitisation of loans to small firms has proved difficult, due to the importance of idiosyncratic information and high systematic risk.

Direct venture capital provision requires significant resources, there is a long tie-up period, a slow realisation of returns which puts a drag on performance, illiquidity, lack of information about performance and inability to control managers of the small firms. Such investment via mutual funds involves high fees. Conservative accounting which rapidly writes down the value of companies performing poorly are a further problem, particularly in the context of the 1995 Pensions Act which sets minimum solvency standards. Data in Investors Chronicle (1995) shows that, correspondingly, in 1994 only £430 million was

⁶⁶ It can be argued that these problems would be overcome if, given a greater degree of tax neutrality between types of saving, more funds were directed through banks rather than institutional investors. On the other hand, it may be best to avoid the associated tendency of banks to monopolise the financial markets.

invested by UK pension funds in venture capital and other forms of private equity out of a total of £2.6 billion. UK funds reportedly invest at most only 1-2% in such assets compared with 5-10% in the US.

Lack of investment in small firms will be of concern particularly if other sectors do not take up the slack - i.e. if the banking sector is weakened or monopolistic, and individuals do not focus on the good value in small company shares. These are causes for concern in the UK (Davis (1993b)). The consequence of neglect of small firms may be biases in the market - and hence the economy - towards sectors with larger firms, such as financial services, which may be contrary to the comparative advantage of the economy as a whole. The development and improvement of stock markets for small company shares is one initiative that may make such holdings more attractive to pension funds.

Capital market volatility may be created by pension funds, notably owing to pressure on fund managers from performance evaluation, which may lead to similar approaches to investment or 'herding' (see Davis (1995c)). Interviews with UK fund managers, presented in Davis (1988, 1995a), suggest herding may be an important feature not only in domestic but also in international markets. It may underlie the contagion between markets observed in the wake of the stock market crash of 1987 (Bertero and Mayer (1989)). As noted in Howell and Cozzini (1991), the rise of global asset allocation as a tool of fund management, and the development of markets such as those for stock index futures have stimulated and facilitated massive increases in short term cross border equity flows. One equity transaction in three in Europe now involves a foreign transactor; and trading in stock index futures often far exceeds that in the underlying. Although the investors desire by adopting such strategies to reduce risk, the focus of funds on a small number of leveraged instruments can lead to destabilisation of markets and sharp swings in asset prices. Nor need the behaviour be confined to equity markets. Besides the fact that equity flows themselves have a direct effect on the exchange rate, evidence in mid-1992 suggests that fund managers switched to cash in the light of relative returns, and were at least partly responsible for the prevailing exchange rate tensions.

Abstracting from herding, Blake (1992) notes that volatility may increase with maturity of funds, as it implies less inflows to rebalance the portfolio, and the need for large and potentially destabilising portfolio shifts to adjust from equities to bonds.

These points regarding volatility should, however, not be exaggerated. There is no systematic tendency in monthly equity market volatility over longer periods in the G-5 markets, despite the rise of institutional investors. Volatility in the UK and US, for example, was higher in the 1970s than in the 1980s and 1990s⁶⁷.

As is the case for excess volatility as outlined above, regular performance evaluation of pension fund managers by trustees is said to underpin the *short-termist hypothesis*, that is held to entail, for example, undervaluation of firms with good earnings prospects in the long term, and willingness of funds to sell shares in take-over battles (in each case, to maintain short-term performance). This in turn is held to discourage long term investment or R&D as opposed to distribution of dividends, as firms undertaking long term strategies may be undervalued and/or taken over. In terms of the theory of regulation, with small holdings, pension funds may seek "exit" from situations where returns and performance are unsatisfactory, rather than "voice". Rapid turnover of shares, rather than long term holdings, is a consequence.

There is considerable controversy regarding the existence of such effects. For example, Marsh (1990) notes that in the absence of information relevant to valuations, excessive turnover will reduce performance

⁶⁷ This may, of course, reflect a lower incidence of shocks to the economy.

of asset managers, and reaction to relevant information on firms' long term prospects, which itself generates turnover, is a key function of markets. He also notes that the research and development performance of the UK and other Anglo-Saxon economies is comparable to that of those with bank-dominated financial systems⁶⁸, and that high stock-market ratings of drug companies, with large research and development expenditures and long product lead times, would seem to tell against the short-termist hypothesis. Indeed markets seem to favour capital gains over dividends (Levis (1989)), and some research suggests announcement of capital expenditure or R&D boosts share prices (McConnell and Muscarella (1985)). On the other hand, other recent research seems to confirm the existence of short termist effects in the UK, with overvaluation of profits in the short term (Miles (1993)). And even if the phenomenon does not exist, economic effects may ensue if managers behave *as if* it does - which Marsh (1990) admits may be the case.

Both short termism and volatility are often thought to necessitate forms of transactions taxes in equity, bond or foreign exchange markets, to reduce turnover. One example is the 'Tobin' tax on gross foreign exchange transactions to slow the response of financial markets (Eichengreen, Tobin and Wyplosz (1995)); others point out the well known shortcomings of this suggestion (Garber and Taylor (1995)), notably that a country imposing such taxes unilaterally would face disintermediation, while a global tax could still be avoided by undertaking of separate positions and transactions, particularly via use of derivatives, to mimic a foreign exchange deal, necessitating application to an ever wider range of instruments. And since success of such a tax would likely entail a decline in liquidity, and liquidity tends to be stabilising, it might have directly counter productive effects on volatility.

8 Policy issues

The distinctive approach of government towards private pensions in the UK, as well as the behaviour of funds themselves, raise a number of policy issues and implications. These may be of particular interest internationally in the light of the size and scope of the sector that has been achieved in the UK, despite provision or membership of funds not being compulsory. In this respect, the data speak for themselves; 75% coverage has been achieved (including personal pensions) and assets (excluding personal pensions) are equivalent to around 70% of GDP.

In this context, this section seeks to bring together some of the key policy aspects of the UK system already mentioned in the text, with a particular focus on those which may be of wider interest to regulators, experts and reformers of pension systems in other countries. For convenience, in this concluding section these issues are categorised as follows, broadly following the plan of the paper; social security; the role of government in promoting private provision; fiscal treatment; the regulatory framework; the need for compulsion; and the impact on saving and capital markets.

The *UK social security safety net* is set at a rather low level, with a basic scheme promising only 15-20% of average earnings, and an earnings related scheme which even at its inception promised a replacement ratio of only 25%, and is being cut back radically. Such measures may be justified given the future demographic difficulties which the UK, in common with other OECD countries, is about to face. It can be argued, moreover, that social security's comparative advantage in alleviating poverty is retained by maintenance of a basic social security pension as a safety net. Some features of the UK social security system are of wider interest, such as the household responsibility payments to cover those caring for dependants and prevent them suffering poverty in old age. Clearly, private pension provision is

⁶⁸ It is less clear that this is the case if military-based research is excluded.

encouraged by the low level of social security benefits independent of any other incentives that may be provided.

But one could still question whether UK social security has been pruned too much. Already a sizeable proportion of pensioners are dependent on means tested benefits to maintain acceptable living standards (although one argument in favour of such means tested benefits is that the pensioner population is not homogeneous, so a generally available benefit would go to those who do not need it as well as those that do). The social security replacement ratio early in the next century seems likely to be lower than at present, even for those with full contribution records, given the cutback in SERPS. Moreover, the issue of early retirement, which imposes additional burdens on the overall system of retirement income provision, has not really been addressed, although the shift for women to retirement at 65 is a move in the right direction. As noted, whereas so far early retirement has been offset by the entry of women into the labour force, it seems unlikely that such patterns can continue. Last, the structure of social security contributions is not at all progressive.

Beyond its influence on social security per se, the government has been active in *promoting private pension provision* in the UK - an objective seen as justified by the need to reduce the future costs of social security, in the light of demographic projections. Most crucial is the ability of employees and employers to opt out of the state earnings related scheme into occupational or personal pension plans. In combination with the low level of state provision, this has clearly stimulated the development of private-funded schemes, since supplementary provision is both open to all and virtually essential for an adequate retirement income, not least in view of the ongoing downgrading of SERPS. From a broader policy point of view, the result in terms of a mixture of pension funds and social security is clearly sensible, given the conflicting arguments for funding as opposed to pay-as-you-go, as well as public versus private provision, and the risk diversification benefits of providing both (so future pensioners will rely on both taxation of current workers and ownership of much of the capital stock to pay their pensions)⁶⁹.

Beyond ability to contract out, the government offers further incentives to private provision. All types of private pension provision benefit from the tax regime relative to alternative assets, for example. Meanwhile, legislation on the nature of benefits and legislation on funding have helped make setting up of occupational funds attractive to firms, and their use attractive to employees. Encouragement of personal pensions via additional incentives has helped ensure coverage of supplementary pensions extends well beyond that which would be offered by occupational schemes alone, given that voluntary occupational pension provision tends to focus on certain groups and sectors (large firms, unionised firms, manufacturing etc.). Indeed it is notable that coverage of occupational funds was declining *before* personal pensions were introduced. Encouragement of personal pensions also provides a form of competition for occupational plans which should improve their performance.

But the responsibility of government is not confined to social security and fiscal and regulatory provisions for private pensions. The ongoing provision of a stable macro environment of low inflation and steady economic growth, would via its influence on the returns on capital market instruments further reduce the cost to employers of providing funded pensions. It would also protect the interests of early leavers who only benefit from guaranteed indexation of up to 5%, and of pensioners themselves, who will

⁶⁹ Also there are important questions, not addressed in this article, whether the difficulties of an ageing population are really avoided by funding, if funds are invested in domestic assets (since pensions must still be paid out of GDP). The last point can be answered in two ways; first, property rights may be a more secure basis for retirement than taxation, and, second, the difficulties can in principle be avoided by investing in countries with younger populations, a practice that is beginning to gather pace in the UK.

from 1997 benefit from such limited price indexation. Past performance, with average inflation of 9% over 1966-90, was clearly inadequate in this respect.

The case for preferential *fiscal treatment* of pension funds has been found persuasive in the UK, with the expenditure tax treatment being a long established feature. Fiscal rules ensure that all funds are externally funded, thus ensuring benefits accrue to the capital market, which would not be the case for unfunded or reserve-based schemes. Separation from the firm (for all occupational funds), which is also enforced by fiscal means, gives a measure of protection against the consequences of bankruptcy of the firm. There has been a shift to greater neutrality between types of saving by according expenditure tax treatment to other forms of saving as well as pensions.

However, there are also a number of problems in the fiscal regime. The generous income tax regime for pensioners relative to those of working age does not seem to be well-justified. And the tax free lump sum is both contrary to an expenditure tax treatment of pensions and to the need for pensioners to buy annuities to prevent the risk of poverty in case of longevity being high. Regressive distributional consequences of tax privileges are a cause for concern; whereas measures to minimise abuse of tax privileges by high earners by imposing a ceiling on tax exemption are clearly justified in this light, the price indexation of the ceiling on tax exemption signals future distortions. Also the cost of incentives for personal pensions appear to have been both excessive in relation to the related savings in social security themselves (particularly if those concerned contract back into SERPS in their 40s).

It may be suggested that the development of occupational pensions require a balance, that may be provided by appropriate *regulations*, between cost to the sponsor, economic efficiency, equity and benefit security. Rules ensuring adequate institutional structures (independent trustees etc.), and indexation of pensions, as well as effective regulatory structures and protection against fraud are clearly desirable for all funds. For defined benefit funds, funding rules, rules on treatment of surpluses, portability and vesting, are also essential. More contestable are the need for quantitative portfolio restrictions and benefit insurance. Apart from self investment limits, portfolio restrictions may reduce returns and increase risk, thus increasing costs unduly relative to a prudent man rule, while experience in countries such as the US suggest benefit insurance may entail either incentives to boost risk or require stringent and costly portfolio restrictions to protect the insurer.

In the light of the above, it may be suggested that the rules adopted for occupational funds in the UK have historically tended to provide an appropriate balance between costs for the sponsor and protection of the beneficiary; for example, the absence of minimum funding rules beyond the GMP, which do not discourage equity holding by penalising temporary shortfalls, and associated tax laws which allow funding on a projected benefits basis; accounting rules which focus on income rather than market values, and which also encourage equity holdings; implicit prudent man rules on asset allocation, with a low level of permitted self investment; limits on ability of predators to extract surpluses; transferability and indexation of accrued benefits for early leavers and vesting periods of two to five years (these being increasingly essential in the light of the decline in 'lifetime employment'); and independence of the fund from the employer; however, the regulatory structure has until now been unwieldy, with several statutory bodies jointly responsible for regulation.

There are arguments both for and against the new regulatory regime being introduced in the 1995 Pension Act, and due to come into effect in 1997. A single regulator is being introduced, which will improve the situation in terms of oversight considerably, although there remain gaps in its powers (relying on 'whistle blowing' for example). A degree of mandatory indexation of pensions; some codification of trust law (while retaining the basis of the trust, which has generally worked well); and adequate disclosure to members would also seem to be sensible. More controversial are the need for minimum funding rules

and for benefit insurance. Minimum funding rules, albeit much diluted compared with original proposals, will clearly increase focus on shortfall risk, and may change asset allocation (and hedging by use of derivatives) quite considerably. It may be asked whether the extra cost is warranted, given the lack of problems in this respect in the previous regime (the Maxwell case being more one of fraud and weakness in trust law). Insurance against fraud but not insolvency for other reasons (being introduced) are hoped to avoid the moral hazard which has arisen elsewhere.

Outstanding regulatory issues for occupational funds include controls on internal transfers within defined benefit funds. Better information for members would help in this respect. Also it would be desirable for 'transfer circuits' minimising losses to early leavers in defined benefit funds to be available more widely.

Moreover, there remain inadequacies in the regulatory regime for personal pensions, as the widespread mis-selling of such plans indicates, although attempts are being made to improve regulation of sales. Information for holders remains inadequate, (although the issue of transparency of charges has been addressed) not least given the complex choices they are faced with (such as choice of annuities at retirement) and their total dependence on fund managers' performance. To some extent, holders need *understanding* and not merely *information*. A problem which has not been addressed by regulation is inadequate contributions to such plans, which threatens retirement-income security of those concerned. This raises the question as to whether employers should be obliged to contribute to personal pensions of their employees (in the author's view, they should not, if they are already offering an adequate occupational fund). Again, the commission charges on personal pensions are extremely high, and no attempt has been made to reduce them by regulatory means. Early retirement may be particularly costly if it entails early cashing in of an endowment policy. There is a more general underlying issue, namely whether personal pensions are *by nature* unsuitable for the low paid who were previously in SERPS, and for whom the government designed the array of opting-out incentives in the 1980s.

In the context of the fiscal and regulatory regime, governments such as those in the UK also face certain key choices in influencing the development of pension funds, of which the most crucial is perhaps the *defined benefit/defined contribution choice*. The choice comes down to the balance between the advantages of defined benefit in terms of retirement-income security (superior insurance) and the broader economic difficulties with defined benefit (labour mobility, etc.). A choice must also be made between book reserves and separate funding.

The UK government has not sought actively to promote either defined benefit or defined contribution, which seems a sensible compromise (letting the market decide). Neutrality came rather late, however, as till 1988 opting out was only permitted into defined benefit funds. The government has also sought to overcome some of the difficulties to which defined benefit funds are subject (ensuring rapid vesting, actuarially-fair transfer values, indexation of accrued benefits), thus also raising costs for sponsoring firms. A degree of control on abuse of occupational defined benefit funds is also provided by banning compulsory membership, combined with availability of additional voluntary contributions, top up schemes and promotion of personal pensions. On the other hand, capital-market risks of the rapidly-growing defined contribution funds have not been addressed. Both occupational and personal defined contribution funds offer markedly inferior terms in respect of early retirement due to ill health and death in service than do defined benefit funds. Moreover, as noted, many individuals are also contributing minimal amounts (the contracted out rebate) to their personal pensions, which will provide inadequate pensions even if capital market returns are adequate.

It should be added that the arguments for *mandatory occupational or personal schemes* have not found favour in the UK, unlike countries such as Chile, Switzerland and France. Compulsion is needed if

the view that individuals are myopic is taken seriously; and the evidence seems quite strong (for example the number of individuals accumulating clearly inadequate personal pensions). Compulsion would also avoid the biases in coverage (men, high earners, unionised and white collar workers etc.) that tend to occur when schemes are voluntary, and would facilitate job mobility by standardising terms and conditions. Notably for personal pensions, compulsory participation should help to avoid adverse selection problems which typify free markets in annuities. It could be argued that if funds are compulsory, then relative tax advantages are not needed, and all forms of saving should ideally receive expenditure-tax treatment. On the other hand, compulsion could also have an adverse effect on the corporate sector, since it would impose an unavoidable burden on companies, which in turn could affect international competitiveness of the economy.

Moving finally to *capital market issues*, UK evidence suggests that pension funds boost saving, albeit not in a one-to-one manner, while perhaps more crucially, externally-funded pension plans also increase the supply of long-term funds and thus stimulate the development of capital markets. As regards the development and functioning of capital markets, UK pension funds appear to be beneficial in promoting efficient allocation of funds, innovation, liquidity and efficiency, while also influencing the market structure. The beneficial effects are stimulated by the form of UK regulations such as those for external funding, accounting and absence of detailed portfolio regulations as well as the structure and behaviour of the fund management sector. These ensure that the equity market benefits from developing private funded schemes are enjoyed by the UK corporate sector.

Funds are also subject to certain criticisms such as causing volatility and so-called short-termism. From time to time, in the UK as elsewhere, policy measures are mooted to offset these perceived tendencies, such as transactions taxes - but the likely adverse consequences have meant they have never been given serious consideration in the UK. Perhaps a more serious problem from a broader economic point of view is lack of finance of small firms. The development and improvement of markets for small company shares is one possible initiative in this respect. There are also concerns that the share of equity in the portfolio is excessive given the growing maturity of funds. The concern is that a repetition of the market conditions seen in the 1970s, as opposed to the very favourable conditions seen since 1980, would lead to major financial difficulties for pension funds. As noted, the regulatory structure in the UK has tended to favour equity holdings, and this is viewed favourably by sponsors and fund managers owing to a perception of lower cost of equity finance (i.e. the premium over bond is more than is sufficient to compensate for the risk of holding equity, for a risk neutral investor such as a pension fund). A further contribution to this high equity share may be the practice of trustees to focus on fund managers' performance relative to the whole sector rather than allowing liabilities to influence the chosen portfolio. To some extent, the new minimum funding regulations will tend to reduce equity holdings. Also the scope of international investment helps to mitigate the increase in risk, given imperfect correlation of markets.

GLOSSARY

ABO; Accumulated benefit obligation liability of a defined benefit pension fund if it were to be wound up immediately

Accrual of benefits process of accumulating pension credits for years of service (for defined benefit funds) or accumulation of assets (defined contribution funds).

Actuarial assumptions assumptions made by actuaries in assessing the funding status of a defined benefit fund (such as expected rates of return, mortality rates, discount rate, projections of rate at which employees join and leave the plan).

Actuarial fairness concept in insurance implying the expected present value of benefits (on a given set of actuarial assumptions) equals the present value of contributions.

Adverse selection situation in which a pricing policy induces a low average quality of sellers in a market, while asymmetric information prevents the buyer from distinguishing quality. When it is sufficiently severe, the market may cease to exist.

Agency relationship contract under which one or more persons (principals) engage another (the agent) to perform some service on their behalf which involves delegation of some decision-making responsibility to the agent.

Agency costs costs arising from the deviation between the agent's and principal's interests in an agency relationship. Includes both the costs to the principal of the behaviour of the agent and any expenditures incurred by the principal (or agent) in order to control the agent, such as monitoring expenditures by the principal and bonding expenditures by the agent. Two main types of agency problem are identified in this book, first the costs arising in the debt contract between debtors and creditors, which may include pension funds, and second the costs arising in the relationship between managers of a firm and shareholders such as pension funds.

Annuity form of financial contract, usually offered by insurance companies, to provide a given income at a regular interval from retirement till death; usually backed by long term bonds; can be flat rate or indexed.

Backloading feature of final salary defined benefit funds, whereby benefits accrue more rapidly as retirement approaches.

Basis point 1/100 of 1 per cent.

Contracted out feature of private pension plan in the UK permitted to replace earnings- related social security.

Corporate governance mechanisms whereby providers of external finance to a company ensure management is not acting contrary to their interests.

Coverage proportion of the working population covered by pension plans.

Credit risk risk that the borrower will fail to repay interest or principal on debt at the appointed time. Used interchangeably with default risk.

Defined benefit pension scheme pension scheme where the benefits are defined in advance by the sponsor, independently of the contributions and asset returns.

Defined contribution pension scheme pension scheme where only contributions are fixed, and benefits therefore depend solely on the returns on the assets of the fund.

Dependency ratios (old age) ratio of persons over the retirement age to those of working age; (total) ratio of those over retirement age and below school leaving age to the population of working age.

Disintermediation diversion of funds that are usually intermediated into direct finance. May be used more narrowly to imply any shift away from banks to other intermediaries.

Duration average time to an asset's discounted cash flows.

Early leaver employee who leaves the firm before retirement age.

EET shorthand for exemption from tax of contributions and returns on assets, and taxation of pensions; the expenditure tax treatment of pension funds.

Efficient market market where prices continually and instantaneously reflect all available information.

Emerging market stockmarket in less developed country.

Exchange rate risk risk that the domestic currency value of foreign assets will vary as a consequence of exchange rate adjustment.

Expenditure tax tax that falls only on consumption, which ensures a post tax rate of return equal to the pretax rate and hence does not distort choice between consumption now and in the future.

External management fund management conducted by a company other than the sponsor.

Fertility rate number of children an average woman has during her lifetime.

Final salary/Final average plan defined benefit plan where the benefit is based on earnings at or near retirement

Funded pension scheme scheme where pension commitments are covered by real or financial assets.

Global portfolio portfolio entailing proportionate holdings of each security market according to its weight in global market capitalisation. Minimises risk if markets are globally efficient.

GMP Guaranteed Minimum Pension, the portion of a contracted out plan in the UK which replaces earnings related social security.

Goode Committee UK government-appointed committee set the task of reviewing pension law in the wake of the Maxwell scandal.

Hedging taking an offsetting position in one security in order to reduce risk on another, for example taking a position in futures equal and opposite to a cash position. A perfect hedge removes non-diversifiable/systematic risk.

Holding period return return on an asset including capital gains or losses over a given time period (holding period).

Home asset preference feature of investment portfolios that hold more assets in the home country than the global portfolio would indicate.

IBO: Indexed benefit obligation liability of a defined benefit pension fund that indexes retirement pensions to prices or wages.

Immaturity an immature pension fund has more workers relative to pensioners than it will in long run equilibrium.

Immunisation construction and maintenance of a portfolio of assets of the same duration as liabilities, so that both are subject to offsetting changes in value.

(Comprehensive) income tax taxation falling on all income regardless of source, which maintains neutrality between consumption and saving at any one time but drives the post tax return on saving below the pretax rate.

Indexation (inflation) rule that benefits be increased in line with prices or wages. (portfolio) holding of all the securities in a market in line with their relative capitalisation, or a subset whose combined risks and expected returns approximate those of the market index. (global) holding of assets in all securities markets proportionate to their global capitalisation weights.

Indexed bond bond whose return is tied to an index, such as consumer prices.

Integration treatment of the relationship between benefits from private pensions and from social security.

Internal finance finance generated within the borrower - retentions and depreciation.

Internal management fund management conducted under the auspices of the sponsor.

Investment risk risk of holding assets; in a defined contribution fund, risk that value of assets will fall sharply just prior to retirement.

Life cycle pattern of saving, borrowing, and consumption over a person's lifetime; life-cycle hypothesis is of borrowing in young adulthood, repayment and saving in middle age, dissaving in old age.

Liquid assets assets easily transformed into cash.

Market maker intermediary in securities market that offsets fluctuating imbalances in demand and supply by purchases and sales on its own account, increasing or reducing its inventories in the process (i.e. taking positions), at its announced buying (ask) and selling (bid) prices.

Market risk risk that the value of marketable securities will change while the investor is holding a position in them. Sometimes used more narrowly to indicate systematic risk that cannot be eliminated by diversification.

Maturity (1) time between issuance and repayment of principal on a debt instrument. (2) a mature pension fund has a long term equilibrium ratio of workers to pensioners.

Minimum funding regulations rules to ensure that a satisfactory relationship between assets and liabilities is maintained in defined benefit funds

Money purchase plan form of defined contribution plan where employer makes regular payments equal to a proportion of employee's compensation. Often used more loosely as a synonym for defined contribution plans.

Moral hazard incentive of beneficiary of a fixed-value contract, in the presence of asymmetric information and incomplete contracts, to change her behaviour after the contract has been agreed, in order to maximise her wealth, to the detriment of the provider of the contract.

Occupational pension fund term used in the UK to cover funded company based schemes owing to the prevalence of such arrangements for (current and former) nationalised industries and local authorities as well as private firms.

Passive management holding of securities without seeking to profit from trading them; usually associated with portfolio indexation.

Pay as you go form of pension scheme wherein contributions of employers and employees are relied on to pay pensions directly.

PBO: Projected benefit obligation liability of a defined benefit pension fund assuming continuation of the fund and hence allowing for future wage rises for employees that will increase their accrued benefits

Pension fund assets accumulated to pay retirement obligations. For defined contributions, it is the same as the plan (see below), for defined benefits, it is the means to back up or *collateralize* the employer's promises set out in the plan.

Pension plan contract setting out the rights and obligations of members and sponsor in an occupational pension scheme.

Personal pension individual defined contribution pension contract, usually arranged with a life insurance company.

Political risk risk that promises made regarding benefit levels for social security will be reneged upon by a future government.

Portability right of an employee to transfer vested pension rights between employers without loss of value.

Preemption rights rights of existing shareholders to first refusal on new issues of securities.

Prudent man rule obligation of pension managers to invest as a prudent investor would on his own behalf (in particular, with appropriate diversification).

Real return return on an asset less inflation.

Replacement ratio ratio of pension to earnings at the point of retirement.

Reversion attempt by the sponsor to recapture pension fund surplus for its own use.

Securitisation the term is most often used narrowly to mean the process by which traditional intermediated debt instruments, such as loans or mortgages, are converted into negotiable securities which may be purchased either by depository institutions or by non-bank investors such as pension funds. More broadly, the term refers to the development of markets for a variety of negotiable instruments, which replace bank loans as a means of borrowing. Used in the latter sense, the term often suggests *disintermediation* of the banking system, as investors and borrowers bypass banks and transact business directly or via institutional investors such as pension funds.

SERPS State Earnings Related Pension Scheme, UK earnings-related social security.

Shortfall risk risk that assets in a defined benefit pension fund will not cover the liabilities.

Sovereign risk risk of lending to a given government.

Spread difference between the yields on two securities; in the text generally refers to the difference between yields on risky and risk free debt. Also used for difference between bid and ask price offered by a market maker.

Surplus excess of assets over liabilities in a defined benefit fund.

Tax expenditure government revenue foregone as a consequence of exemption from tax of a certain activity, such as pension fund contributions and asset returns.

Termination closure of a pension plan, usually associated with bankruptcy or reversion.

Total return holding period return.

Treasury bill short-term negotiable debt issued by the government.

Trust basis of private pension law in the Anglo-Saxon countries. Trustees are appointed to act "in the best interests of beneficiaries" under common law.

Universal basic social security systems systems which offer flat rate pensions, and which seek to provide a minimum standard of living for all pensioners, financed by general taxes

Vesting right of an employee to benefits he has accrued, even if he changes employer.

Vesting period period during which contributions are made by and/or for the employee before he obtains corresponding rights to a pension.

Wind-up term used for termination in the UK and Canada.

Yield current rate of return on a security (for an irredeemable instrument, coupon as a proportion of market price; for a dated security, also takes into account investor's capital gain or loss over the period to maturity).

REFERENCES

- Altman N (1992), "Government regulation; enhancing the equity, adequacy and security of pension benefits", in "Private pensions and public policy", Organisation for Economic Co-operation and Development, Paris.
- Andrews E S (1993), "Private pensions in the United States", OECD Series on Private Pensions and Public Policy, OECD, Paris.
- Atkinson A B (1991), "The development of state pensions in the United Kingdom", Discussion Paper No. WPS/58, STICERD, London School of Economics.
- Baumol W J (1982), "Contestable markets, an uprising in the theory of industrial structure", American Economic Review, 72, 1-15.
- Bernheim B D and Scholz J K (1992), "Private saving and public policy", National Bureau of Economic Research Working Paper No. 4213.
- Bertero E and Mayer C (1989) "Structure and performance: global interdependence of stock markets around the crash of October 1987", Discussion Paper No 307, Centre for Economic Policy Research, London.
- Blake D (1990), "Financial market analysis", McGraw-Hill, London.
- Blake D (1992), "Issues in pension funding", Routledge, London.
- Blake D (1994), "Choices, trust and public policy, an analysis of pension provision in the United Kingdom", paper presented at a conference on "Pensions privatisation", in Santiago, Chile, 26-27 January 1994.
- Blake D (1995), "Pension funds and pension schemes in the United Kingdom", Oxford University Press.
- Bodie Z (1990a), "Pensions as retirement income insurance", Journal of Economic Literature, Vol 28, 28-49.
- Bodie Z (1990b), "Inflation, index-linked bonds and asset allocation", Journal of Portfolio Management, Winter 1990.

- Bodie Z (1991), "Shortfall risk and pension fund asset management", *Financial Analysts Journal*, May/June 1991.
- Bodie Z, Marcus A J and Merton R C (1988), "Defined benefit vs. defined contribution plans: What are the real trade-offs?", in eds. Bodie Z, Shoven J B and Wise D A, "Pensions in the US economy", University of Chicago Press.
- Bodie Z and Merton R C (1992), "Pension benefit guarantees in the United States; a functional analysis", in ed. R Schmitt "The future of pensions in the United States", University of Pennsylvania Press.
- Bos E (1994), "World Population Projections 1994-95", The World Bank, Washington DC.
- Burgess, S. and Rees, H. (1994), "Jobs for life still available to many", *Financial Times*.
- Cadbury Committee (1992), "Report of the committee on the financial aspects of corporate governance", Gee and Co., London.
- Charkham J P (1990), "Corporate governance and the market for control of companies", Bank of England Panel Paper No.25.
- Cheetham C (1990), "Using futures in asset management", *The Treasurer*, September 1990, 14-18.
- Cohen N (1994), "Figures suggest 1m women given wrong pension advice", *Financial Times*
- Cornell B and Roll R (1981), "Strategies for pairwise competitions in markets and organisations", *Bell Journal of Economics*, 12, 201-3.
- Coyle, D. (1993), "No end to the recession for middle managers", *Investors Chronicle*, 4/6/93.
- Davis E P (1986), "Portfolio behaviour of the non-financial private sectors in the major economies", Bank for International Settlements, Economic Paper No. 17, BIS Basle.
- Davis E P (1988), "Financial market activity of life insurance companies and pension funds", Bank for International Settlements, Economic Paper No 21, BIS, Basle.
- Davis E P (1993a), "The UK fund management industry", *The Business Economist*, 24/2, 36-49..
- Davis E P (1993b), "Whither corporate banking relations?", in ed. K Hughes, "The Future of UK Industrial Competitiveness", Policy Studies Institute, London.
- Davis E P (1993c), "Problems of banking regulation, an EC perspective", LSE Financial Markets Group Special Paper No. 54.

- Davis E P (1995a), "Pension funds, retirement-income security and capital markets, an international perspective", Oxford University Press
- Davis E P (1995b), "Debt, financial fragility and systemic risk, revised and expanded edition", Oxford University Press.
- Davis E P (1995c), "Institutional investors, unstable financial markets and monetary policy", Special Paper No. 75, LSE Financial Markets Group.
- Davis E P (1996a), "Pension Fund Investments", in B. Steil et al "The European Equity Markets, the State of the Union and an Agenda for the Millennium", The Royal Institute of International Affairs, London.
- Davis E P (1996b), "The role of institutional investors in the evolution of financial structure and behaviour", paper presented at a conference on the "Future of the Financial System", Reserve Bank of Australia, Sydney, Australia, 8-9 July 1996.
- Daykin C (1995), "Occupational pension provision in the United Kingdom", in eds. Z Bodie, O S Mitchell and J Turner, "Securing employer-based pensions, an international perspective", University of Pennsylvania Press.
- Dickson, T., Lorenz, C. and Kellaway, L. (1994), "Bosses find it's a snip at the top", Financial Times, 19/3/94.
- Dilnot A (1992), "Taxation and private pensions; costs and consequences", in "Private pensions and public policy", Organisation for Economic Cooperation and Development, Paris.
- Dilnot A and Johnson P (1993), "The taxation of private pensions", Institute for Fiscal Studies, London
- Dilnot, A, Disney R, Johnson P and Whitehouse E (1994), "Pensions policy in the UK, an economic analysis", Institute for Fiscal Studies, London.
- Disney R and Johnson P (1995), "The strange death of a pension scheme", Financial Times, 3.2.95.
- DSS (1995), "Social security statistics 1995", Department of Social Security.
- Eichengreen B., Tobin, J. and Wyplosz C. (1995), "Two cases for sand in the wheels of international finance", Economic Journal, 105, 162-72.
- European Commission (1994), "Supplementary pensions in the European Union", Report by the EC's Network of Experts in Supplementary Pensions, Brussels.
- Eurostat (1995c), "Demographic statistics 1995", Eurostat, Luxembourg

- Feldstein M (1978), "Do private pensions increase national savings?", *Journal of Public Economics*, 10, 277-93.
- Financial Times (1993), "Portillo's mini-pension", FT, 9/11/1993
- Finch H and Keegan J (1991), "Regarding pensions; attitudes to personal pensions amongst people under the age of 45", Social and Community Planning Research, Department of Social Security.
- Frijns J and Petersen C (1992), "Financing, administration and portfolio management; how secure is the pension promise?", in "Private pensions and public policy", Organisation for Economic Co-operation and Development, Paris.
- Garber, P. and Taylor, M.P. (1995), "Sand in the wheels of foreign exchange markets, a sceptical note", *Economic Journal*, 105, 173-80.
- Giles C and Webb S (1993), "A Guide to poverty statistics", *Fiscal Studies*, 14, 74-97.
- Goode R (1992), "Consultation document on the law and regulation of occupational pension schemes", UK Pension Law Review Committee, London.
- Government Actuary (1994), "Occupational Pensions in 1991", HMSO, London.
- Grossman S and Stiglitz J E (1980), "On the impossibility of informationally efficient markets", *American Economic Review*, 70, 393-408.
- Hagemann R P and Nicoletti G (1989), "Ageing populations; economic effects and implications for public finance", Department of Economics and Statistics Working paper No 61, OECD, Paris.
- Hannah L (1986), "Occupational pension funds; getting the long term answers right", Discussion Paper No. 99, Centre for Economic Policy Research.
- Howell M and Cozzini A (1991), "Games without frontiers; global equity markets in the 1990s", Salomon Bros., London.
- Howell M and Cozzini A (1992), "Baring Brothers' Capital Flows 1991/2 Review", Baring Brothers, London.
- IMF (1994), "International Capital Markets Report", International Monetary Fund, Washington DC.
- Investors Chronicle (1995), "Private equity survey; institutional investors", *Investors Chronicle*, 20th October.
- Ippolito R A (1986), "Pensions, economics and public policy", Pension Research Council, Dow Jones Irwin, Homewood, Illinois.

- James E (1993), "Income security in old age; conceptual background and major issues", Working Paper No. WPS 977, The World Bank, Washington DC.
- Kelly A (1995), "UK Pensions Bill and Implications for Occupational Pension Schemes", *Journal of Pensions Management*, 1, 73-79
- Levis M (1989), "Stock market anomalies; a reassessment based on UK data", *Journal of Banking and Finance*, 13, 675-96.
- Liebfritz, W, Roseveare D, Fore, D and Wurzel, E (1995), "Ageing populations, pension systems and government budgets, how do they affect saving?", OECD Economics Department Working Paper No. 156.
- Marsh P (1990), "Short-termism on trial", Institutional Fund Managers Association, London.
- McConnell J J and Muscarella C J (1985), "Corporate capital expenditure decisions and the market value of the firm", *Journal of Financial Economics*, 14, 399-422.
- Munnell A H and Yohn F O (1992), "What is the impact of pensions on saving?", in eds. Bodie Z.
- National Association of Pension Funds (1994), "Annual survey of occupational pension funds 1993", NAPF, London.
- Noble R (1992), "Reform of occupational pension funds", lecture to the LSE Financial Markets Group Regulation Seminar.
- OECD (1995), "Economic Outlook", OECD, Paris
- Pagano M and Steil B (1996). "Equity trading I; the evolution of European trading systems", in ed. B Steil "The European Equity Markets", Royal Institute of International Affairs, London
- Phillips and Drew (1993), "Pension fund indicators, a long run perspective on pension fund investment", Phillips and Drew Fund Management Ltd. London
- Revell J (1994), "Institutional investors and fund managers", *Revue de la Banque*, 2, 55-68.
- Riley B (1992a), "Who gets what in pensions", *Financial Times*, 5/92.
- Riley B (1992b), "The cost of safer pensions", *Financial Times*, 13/7/92.
- Schwarz R A and Steil B (1996), "Equity trading III; institutional investor trading practices and preferences", in ed. B Steil "The European Equity Markets", Royal Institute of International Affairs, London

- Smith A (1993), "Compensation looms over personal pensions", Financial Times, 9/12/93.
- Tamura M (1992), "Improving Japan's employee pension fund system", Noruma Research Institute Quarterly, Summer 1992, 66-83.
- Threadgold A (1980), "Personal saving, the impact of life insurance and pension funds", Bank of England Discussion Paper No. 1.
- Van den Noord P and Herd R (1993), "Pension liabilities in the seven major economies", Working Paper No. 142, Organisation for Economic Cooperation and Development, Paris.
- Vittas D (1992), "The simple(r) algebra of pension plans", Mimeo, The World Bank.
- WM (1995), "WM UK pension fund service annual review, 1994", The WM Company.
- Walford J (1993), "Personal Pensions 1994", Financial Times Business Enterprises, London.
- Williams T and Field J (1993), "Pension choices; a survey on personal pensions in comparison with other pension options", Research Report No. 22, Department of Social Security.
- Young H (1992), "Adequacy and private pensions; how adequate are they?", in "Private pensions and public policy", Organisation for Economic Cooperation and Development, Paris.

Table 1.1: Age distribution of the UK population 1960-2060

Millions	1960	1970	1980	1990	2000	2010	2020	2030	2040	2050	2060
Working age	31.0	31.9	32.5	34.4	35.2	36.0	37.5	35.8	34.4	33.8	32.5
Pension age	7.6	8.7	9.4	10.4	10.5	11.7	11.5	13.5	14.3	13.5	13.2
Support ratio	4.1	3.7	3.5	3.3	3.4	3.1	3.3	2.7	2.4	2.5	2.5
Ratio of pensioners to working age (%)	25	27	29	30	30	33	31	38	42	40	41

Source: Government Actuary, reported in Dilnot et al (1994)

Table 1.2: Age Distributions of the Population in selected OECD countries 1960-2030

Population 65 and over as a percentage of population 15-65	1960	1990	2000	2010	2020	2030
UK	17.9	24.0	24.4	25.8	31.2	38.7
Germany	16.0	21.7	23.8	30.3	35.4	49.2
Netherlands	14.7	19.1	20.8	24.2	33.9	45.1
Sweden	17.8	27.6	26.9	29.1	35.6	39.4
Denmark	16.5	22.7	21.6	24.9	31.7	37.7
Switzerland	15.5	22.0	23.6	29.4	37.8	48.6
France	18.8	20.8	23.6	24.6	32.3	39.1
US	15.4	19.1	19.0	20.4	27.6	36.8
Japan	9.5	17.1	24.3	33.0	43.0	44.5
Canada	13.0	16.7	18.2	20.4	28.4	39.1
Australia	13.9	16.0	16.7	18.6	25.1	33.0
Italy	13.3	21.6	26.5	31.2	37.5	48.3

Source: Bos et al (1994)

Table 1.3: Levels and composition of pensioner incomes (£ per week, 1993 prices)

	1979	1993	percent change
Gross income	113	170	50
of which:			
Benefit income	69(61%)	90(55%)	30
Occupational pension	18(16%)	42(25%)	133
Investment income	12(11%)	27(16%)	125
Earnings	13(12%)	9(6%)	-30
Other	1(1%)	1(1%)	0
Net income (before housing)			
Mean	98	149	52
Median	69	99	43
Net income (after housing)			
Mean	84	132	57
Median	55	82	49

Source: DSS (1995).

Table 1.4: The pensioner income distribution in 1993 (£ per week, 1993 prices)

Quintile	Before housing costs		After housing costs	
	Median income	Growth since 1979 (%)	Median income	Growth since 1979 (%)
1	67	24	54	21
2	86	36	62	25
3	99	42	82	50
4	142	65	126	82
5	262	59	250	72

Source: DSS (1995).

Table 2.1: Assets of the occupational pension fund sector

	Total value in £ billion	Value in 1992 prices	Percent of GDP
1963	4.5	45.4	14.4
1968	8.1	66.3	18.2
1973	12.2	68.1	16.2
1978	35.4	95.0	20.8
1983	111.4	178.1	36.1
1988	267.4	336.7	56.2
1990	302.7	323.7	54.8
1991	343.7	352.5	59.8
1992	382.0	382.0	63.5
1993	481.0	472.0	76.0
1994	451.0	434.0	67.0

Source: Philips and Drew (1993), Financial Statistics

Table 2.2: Membership of occupational pension funds in selected years (millions)

Year	Private sector		Public sector		Total	Total	% employed who are members		
	Men	Women	Men	Women	Members	Employed	Men	Women	Total
1936	1.3	0.3	0.8	0.2	2.6	-		-	-
1953	2.5	0.6	2.4	0.7	6.2	21.9	34	18	28
1967	6.8	1.3	3.1	1.0	12.2	23.2	66	28	53
1979	4.6	1.5	3.7	1.8	11.6	23.4	-	35	50
1987	4.4	1.4	2.8	2.0	10.6	21.6	60	35	49
1991	4.5	2.0	2.3	1.9	10.7	22.5	57	37	48

Source: Government Actuary (1994), Blake (1995)

Table 2.3: Occupational pension scheme coverage 1991 (percent)

Sector	Men	Women	Total	Total Employees (million)	Total Members (million)
Private sector	48	27	39	16.7	6.5
Public sector, o/w	83	61	71	5.5	3.9
Public corporations(1)	90	75	86	0.7	0.6
Central government(2)	100	68	79	1.9	1.5
Local authorities(3)	73	55	63	2.9	1.8
Total civilians	56	37	47	22.2	10.4
Armed forces	100	-	100	0.3	0.3
Total	57	37	48	22.5	10.7

1. Total coverage in nationalised industries is 90%, other public corporations 70%; (2) Total coverage in HM forces is 97%, civil service 94% and health authorities (excluding NHS trusts) 66%; (3) Total coverage of lecturers and teachers 79%, police and fire officers 100%, other local authority employees 56%.

Source: Government Actuary (1994)

Table 2.4: Private sector occupational pension funds by type and size

Type of scheme and number of members in scheme	Contracted out		Not contracted out		Total	
	Schemes	Members	Schemes	Members	Schemes	Members
Defined benefit						
1-99	18500	390	14800	145	32300	535
100-4999	4190	2015	620	265	4810	2280
5000 and over	170	2635	5	150	175	2785
Total	22860	5040	14425	560	37285	5600
Defined contribution						
1-99	18100	235	72900	380	90000	615
100-499	430	140	277	70	707	210
5000 and over	6	55	2	20	8	75
Total	17536	430	73179	470	90715	900
Total both types	40396	5470	87604	1030	128000	6500
Public sector defined benefit	180	4200	-	-	180	4200
Grand total	40576	9670	87604	1030	128180	10700

Source: Government Actuary (1994)

Table 2.5: Self administered private sector occupational pension funds by assets 1991

Market value of assets (£ million)	Schemes	Members (000)	Total value of assets (£ billion)
Under 1	24300	340	8
1-10	8000	830	23
10-50	2080	1020	49
50-100	260	390	18
100-250	185	610	30
250-500	90	660	30
500-1000	50	590	34
1000 and over	35	1360	108
Total	35000	5800	300

Source: Government Actuary (1994)

Table 2.6: Pension scheme coverage for full- and part-time employees (%)

Sector	Men		Women		Total	
	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time
Civil employment:						
Private sector	50	7	37	14	46	13
Public sector	88	25	95	23	91	23
Total civilians	58	13	54	17	57	16
HM Forces	97	-	97	-	97	-
All employees	59	13	54	17	57	16
Memo: number of employees (million)	11380	650	5840	4650	17220	5300

Source: Government Actuary (1994)

Table 2.7: Occupational pension scheme coverage by age in 1991

(percent)

Age group	Men	Women	Total
16-19	16	11	13
20-24	37	33	35
25-29	53	43	49
30-34	62	41	53
35-39	64	38	52
40-44	68	42	55
45-49	69	41	55
50-54	72	43	58
55-59	67	42	56
60-64	60	26	48
65 and over	11	0	7
All	57	37	48

Source: Government Actuary (1994)

Table 2.8: Eligibility for membership (thousands of members)

	Private sector	Public sector	Total
Service required before entry:			
None	4500 (69%)	4080 (97%)	8580 (80%)
less than 1 year	750 (12%)	-	750 (7%)
more than 1 year	680 (10%)	-	680 (6%)
Varies by employee category	190 (3%)	-	190 (2%)
Discretionary	110 (2%)	-	110 (1%)
Closed to new members	270 (4%)	110 (3%)	390 (4%)
Minimum entry age:			
16 (or none)	2590 (40%)	3440 (82%)	6030 (56%)
18	1260 (19%)	630 (10%)	1890 (18%)
20	750 (12%)	10 (1%)	760 (7%)
21	870 (13%)	-	870 (8%)
24	100 (2%)	-	100 (1%)
25 and over	340 (5%)	-	340 (3%)
Discretionary	320 (5%)	-	320 (3%)
Closed to new members	270 (4%)	120 (2%)	390 (4%)
Minimum hours for part timers:			
All employees admitted	2700 (42%)	820 (20%)	3520 (33%)
9-15 hours	460 (7%)	1870 (45%)	2330 (22%)
16-20 hours	1090 (17%)	910 (22%)	2000 (19%)
21-25 hours	210 (3%)		210 (2%)
26 hours or more	180 (3%)		180 (2%)
Varies by employee category	40 (1%)		40 (1%)
No part timers admitted	1060 (16%)		1060 (10%)
Employer has no part timers	490 (8%)	480 (11%)	970 (9%)
Closed to new members	270 (4%)	120 (3%)	390 (4%)
Totals	6500	4200	10700

Source: Government Actuary (1994)

Table 2.9: Number of pensions in payment in selected years (millions)

Year	Private sector		Public sector		Total
	Former employees	Widows and dependents	Former employees	Widows and dependents	
1938	0.1	-	0.1	-	0.2
1953	0.2	-	0.6	0.1	0.9
1967	0.8	0.2	1.1	0.2	2.3
1979	1.2	0.2	1.8	0.5	3.7
1987	2.3	0.6	2.4	0.7	6.0
1991	3.0	0.8	2.5	0.7	7.0

Source: Government Actuary (1994), Blake (1995)

Table 2.10: Number of pensions in payment in 1991 (millions)

Sector	Former employees		Widows and dependents	Total
	Men	Women		
Private sector	2.15	0.85	0.80	3.80
Public sector, o/w	1.65	0.85	0.7	3.2
Public corporations	0.45	0.05	0.25	0.75
Central government	0.6	0.4	0.25	1.25
Local authorities	0.6	0.4	0.2	1.2
Total	3.8	1.7	1.5	7.0

Source: Government Actuary (1994)

Table 2.11: Recipients of occupational pensions by age in 1991 (percent)

Age group	Men	Women	Total	Memo: population (000)	Memo: pensioners (000)
16-44	0	0	0	24570	30
45-54	5	2	4	6590	240
55-59	19	11	15	2910	440
60-64	40	26	33	2890	940
65-69	71	27	48	2790	1330
70-74	70	19	41	2280	940
75-79	70	12	33	1870	650
80 and over	56	11	24	2170	530

Source: Government Actuary (1994)

Table 2.12: Personal pension coverage (percent)

Age group	Men	Women
16-19	13	12
20-24	44	41
25-29	46	38
30-34	41	27
35-39	36	21
40-44	28	11
45-49	22	3
50-54	3	1
55 and over	1	0

Source: Dilnot et al (1994)

Table 4.1: Principal current regulations of assets and liabilities

Portfolio regulations	Regulation of funding	Ownership of surpluses
Prudent man concept; 5% self investment limit, concentration limit for defined contribution plans	Maximum 5% overfund of PBO or IBO. Funding only obligatory for contracted out part of social security	Contribution holidays permitted. Tax on asset reversions. Terminations must provide for indexed benefits.
Insurance	Indexation of benefits	Portability
No insurance, although state pays minimum pension if pension fund defaults.	Discretionary	Vesting in 2 years. Indexation of accrued benefits up to 5%. Transfers must be made to other pension plans.

Source: Davis (1995a)

Table 4.2: Principal regulations of assets and liabilities when provisions of 1995 Pension Act are fully introduced (in 1997)

Portfolio regulations	Regulation of funding	Ownership of surpluses
Prudent man concept; 5% self investment limit, concentration limit for defined contribution plans	Maximum 5% overfund of PBO or IBO. Minimum funding rule based on the ABO for an ongoing scheme	Contribution holidays permitted. Tax on asset reversions. Terminations must provide for indexed benefits.
Insurance	Indexation of benefits	Portability
Mutual insurance against losses due to fraud.	Obligatory up to 5%.	Vesting in 2 years. Indexation of accrued benefits up to 5%. Transfers must be made to other pension plans.

Source: Kelly (1995)

Table 5.1: Comparison of initial pension payable on annuities

Level annuity for man, 65, =100	Man of 65	Couple of 65 and 63
Level annuity	100	77
Constant growth of 5%	65	49
Index linked annuity	62	45
Unit linked annuity	47	31
Unit linked annuity with 10% growth	96	79
With profits annuity with 3.5% bonuses	47	31
With profits annuity with 6.5% bonuses	96	79

Source: Blake (1995)

**Table 5.2: Increases in pensions in payment in 1991
by occupational defined benefit funds**

Amount of promised increase	Private sector	Public sector	Total
Fixed increase of:			
5% or more	100 (3%)	-	100 (2%)
4%-4.99%	70 (2%)	-	70 (1%)
3%-3.99%	440 (13%)	-	440 (7%)
Less than 3%	90 (3%)	-	90 (1%)
Percent of RPI	30 (1%)	-	30 (1%)
Full RPI linking	460 (14%)	2830 (88%)	3290 (50%)
RPI link with 5% maximum	1220 (36%)	100 (3%)	1320 (20%)
Other	390 (11%)	270 (8%)	660 (10%)
None	600 (18%)	-	600 (9%)
Total	3400	3200	6600

Source: Government Actuary (1994)

Table 5.3: Share of contributions to private sector occupational funds paid by employees

Proportion paid by employees	Number of members	Percent of total
n/a	190	3
nil	990	15
1-9%	200	3
10-19%	310	5
20-29%	960	15
30-39%	1340	21
40-49%	540	8
50-99%	1310	20
100%	660	10
Totals	6500	100

Source: Government Actuary (1994)

Table 5.4: Contribution rates to occupational funds 1991

Percentage of salary	Private sector		Public sector	
	Contracted out	Non contracted out	All	Total
Defined benefit				
Under 3%	170 (3%)	30 (5%)	650 (15%)	850 (9%)
3% and under 5%	1005 (20%)	145 (26%)	5 (0.1%)	1145 (12%)
5% and under 7%	2815 (56%)	155 (28%)	3045 (59%)	6015 (61%)
Over 7%	105 (2%)	35 (6%)	210 (5%)	350 (4%)
Total paying percentages	4095 (81%)	355 (63%)	3910 (93%)	8360 (85%)
Non contributory	945 (19%)	205 (37%)	290 (7%)	1440 (15%)
Total	5040	560	4200	9800
Defined contribution				
Under 3%	65 (15%)	85 (18%)		150 (17%)
3% and under 5%	85 (20%)	110 (23%)		195 (22%)
5% and under 7%	60 (14%)	70 (15%)		130 (14%)
Over 7%	20 (5%)	10 (2%)		30 (3%)
Employees NI contracted out rebate	170 (40%)	-		170 (19%)
Total paying percentages	400 (93%)	275 (59%)		675 (75%)
Non contributory	30 (7%)	195 (41%)		225 (25%)
Total	430	470		900

Source: Government Actuary (1994)

**Table 5.5: Contributions to occupational pension funds as a percentage of GDP
in selected years**

	Employer contributions	Employee Contributions	Total
1971	1.75	0.64	2.39
1975	2.5	0.82	3.32
1980	2.72	0.86	3.58
1985	2.43	1.0	3.43
1990	1.68	1.2	2.88
1992	1.22	1.24	2.46

Source: National Income and Expenditure

Table 5.6: Administrative costs of occupational pension funds 1991

Members:	1-11	12-99	100-999	1000- 4999	5000- 9999	10000 and over	All sizes
Administrative costs (£mn)	421	199	202	206	157	71	153
% of income	8.8	2.6	4.1	4.3	3.1	1.4	2.9
% of assets	1.1	0.3	0.5	0.4	0.3	0.1	0.3

Source: Government Actuary (1994)

Table 6.1: Portfolios distributions of UK pension funds (percent of assets)

	1970	1975	1980	1985	1990	1993	1994
Short term assets	4	8	5	4	7	3	4
of which:							
Market paper	2	5	3	1	1	1	2
Deposits	2	3	2	3	6	2	2
UK bonds	32	24	24	20	14	10	11
of which:							
Govt bonds	18	18	22	18	11	7	9
Private bonds	14	6	2	2	3	3	2
UK equities	47	45	43	47	45	53	52
Mortgages and loans	0	0	0	1	0	1	0
Property	10	15	18	10	9	5	5
Foreign assets	2	5	9	15	18	20	18

Source: Davis (1995a), Financial Statistics

Table 6.2: Characteristics of real total returns in the UK, 1967-90
Mean (standard deviation) of real total/holding period return (in sterling)

percent	Mean	Standard dev.		Mean	Standard dev.
Loans	1.4	(5.0)	Foreign bonds	-0.1	(15.0)
Mortgages	2.0	(5.2)	Foreign equities	7.0	(16.2)
Equities	8.1	(20.3)	Memo items:		
Bonds	-0.5	(13.0)	Inflation (CPI)	8.9	(5.3)
Short-term assets	1.7	(4.9)	Redemption yield on government bonds	1.9	(4.3)
Property	6.7	(11.4)	Real earnings growth	2.6	(2.5)

Source: Davis (1995a)

Table 6.3: Portfolios of large and smaller UK pension funds 1994

	Large funds	Smaller funds
	(WM 50)	(WM 2000)
Short term assets	4.1	3.3
UK bonds	11.1	7.6
of which:		
Conventional	6.5	5.0
Index linked	4.6	2.6
UK equities	52.0	57.6
Property	8.6	3.3
Foreign equities	21.5	23.7
Foreign bonds	2.7	4.6

Source: WM (1995); the fifty largest funds account for half of the assets (£313.5 billion) of the WM performance measurement services' sample of UK pension funds. The WM 2000 smaller funds account for the rest.

Table 6.4: Returns on Pension Funds' Portfolios 1967-90

Mean (Standard deviation) of annual real total returns (domestic currency)

	US		UK		Germany		Japan	
Using holding period returns on bonds (all countries) and on fixed-rate mortgages (US)	2.2	(11.9)	5.8	(12.5)	5.1	(4.4)	4.0	(9.4)
Average earnings	0.2	(2.1)	2.6	(2.5)	4.0	(3.1)	4.2	(4.2)
Portfolio return less average earnings	2.0		3.2		1.1		-0.2	
Memo: using redemption yields on fixed rate instruments	3.9	(7.6)	6.3	(10.7)	5.5	(3.0)	2.9	(5.7)

Source: Davis (1995a)

Table 6.5: Targeted replacement rates with indexed pensions

Percent	Indexation of	Indexation of
	pensions to prices	pensions to wages
United States	37	37
United Kingdom	60	50
Germany	39	27
Japan	29	20

Source: Davis (1995a)

**Table 6.6: Real UK pension fund returns in sub-periods
(using holding period returns on bonds)**

	1966-70	1971-75	1976-80	1981-5	1986-90	Memo: average
Real return	4.2	-2.8	4.9	12.4	10.1	5.8
Standard dev.	(11.5)	(19.4)	(5.2)	(7.3)	(12.7)	(12.5)

Source: Davis (1995a)

**Table 6.7: UK Pension funds: Long term returns on equity relative
to benchmark indices⁽¹⁾ 1981/92**

Percentage points	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	Avge
USA	-3.5	-4.2	-4.1	-8.3	-2.7	-3.0	-3.7	-3.4	-0.5	-1.0	-1.8	-0.3	-3.0
Japan	8.5	6.9	9.3	-15.4	-8.7	-1.1	-13.6	-8.9	5.3	7.9	-1.3	2.9	-0.7
Continental Europe	-6.8	5.7	0.8	-5.3	-4.6	-4.0	-3.0	-0.4	1.7	2.1	-1.3	1.3	-1.2
World	-3.8	-3.6	1.9	-8.5	-1.9	-2.6	-10.1	-5.8	6.7	8.2	-2.3	2.5	-1.6
UK	0.5	1.2	-0.5	-1.6	-0.5	-1.2	-0.8	-1.0	-0.1	-0.1	-0.6	0.3	-0.3

1. Prior to 1987, local indices for US and Japan, MSCI for Europe. After 1987, FT-A indices.

Source: WM

Table 6.8: UK Pension funds: Performance and turnover by management method, 1986-90

	Nominal Annual returns (%)	Activity ⁽¹⁾
Part internal/external	10.9	118%
2 or more managers	10.6	119%
Financial conglomerates	10.8	106%
Life company managed	11.2	96%
Life company segregated	10.4	117%
Independent managers	10.6	118%

1. Activity is element of turnover in excess of net investment of new money, as a percent of assets.

Source: WM

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