



Pensions in a post-crisis world

February 26, 2010

Fully-funded provision is vital

The financial market and economic crisis has focused criticism on fully-funded retirement provision. But not all fully-funded retirement savings products are affected equally severely by the financial market upheaval, nor is the crisis leaving pay-as-you-go state systems entirely unscathed either.

Countries like Germany, where pensioners account for a steeply rising share of the population, need strong pillars of supplementary fully-funded provision as the cost of conventional pay-as-you-go funding is stretched to the limits.

Criticism centres on defined-contribution pension plans that do not guarantee benefits, such as the 401 (k) plans in the USA. Under these schemes older employees due to retire shortly may find themselves confronted with lower than expected retirement assets due to crisis-induced reductions in value.

But the extreme volatility on the stock markets is not in itself an argument against yield-oriented, defined-contribution pension plans. After all, the risk of short-term losses is balanced by the chance of better returns in the longer run. However, plans of this kind should gear their strategy to the age of the provident savers, without in principle restricting their freedom of choice of retirement product.

With regard to the drawdown phase, product market regulation accommodating people's different requirements (inflation protection, heritability) also appears expedient. This would include a level playing field, especially for the taxation of pension products, withdrawal plans and integrated products.

Additionally, the population's financial literacy needs to be increased. As many people as possible should be empowered to make good decisions on their retirement provisioning, including how their precautionary assets are invested.

With defined-benefit pension plans the fallout from the financial crisis has been more or less serious from one OECD country to another, depending on the investment policies of the providers and pension institutions.

Whereas private provision in Germany has weathered the crisis comparatively well, some defined-benefit (occupational) pension schemes in the USA, the Netherlands and the UK, for example, have been plunged into turmoil.

Despite recent improvements on the financial markets, especially the stock markets, the situation for many funded pension schemes remains challenging. The trend towards defined-contribution occupational pension schemes is likely to accelerate.

As companies have folded up in the aftermath of global economic recession, the state safety nets in various countries have come under considerable strain.

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Introduction

The recent global economic crisis has rekindled the old debate on the “architecture” of old-age pensions. Advocates of pay-as-you-go state systems are the most vociferous – not only in Germany – in calling for the build-up of private retirement provision to be brought to a halt and a more prominent role assigned again to conventional pay-as-you-go (PAYG) state pension schemes. Critics of private, fully-funded providential saving insist that the risks it entails are too great. They point to severe price slumps on the stock markets at times and to extreme volatility on the financial markets, especially during the past two years.

But viewing the situation simply in black or white is not appropriate when assessing the state of retirement provision. Not all funded retirement savings institutions and pension products are affected equally severely by the financial market upheaval, nor is the crisis leaving the PAYG state systems entirely unscathed either. On the contrary, rising unemployment and (at best) moderate pay increases are causing problems for state pensions. In Germany, where state old-age benefits track the development in gross wages (modified by the sustainability factor), they are set to rise only marginally for some years to come – or, indeed, to remain flat.

Given the huge variety of fully-funded retirement pension systems the world over, they require nuanced assessment. Another factor to be taken into account is that different groups of players are involved in the individual models. Attention naturally focuses on pension investors, who may be affected in quite different ways, depending on their age and the type of pension plan. But basically the fallout from the crisis is also being felt by the providers of individual pension plans, with employers bearing the brunt in the case of company pensions. The repercussions of the crisis for the individual groups differ considerably from country to country and according to the type of pension product.

In the following we begin by addressing the contentious issue of PAYG or fully-funded old-age provision in the light of recent experience. The study then goes on to examine examples from individual OECD countries illustrating what traces the crisis has left on key product markets for private provision, and discusses the challenges to which this gives rise.

A. Pay-as-you-go versus fully-funded schemes

Pay-as-you-go systems have not emerged unscathed from the crisis

Prior to the recent crisis, widespread consensus was reached after lengthy debate that a viable system of financial provision for later life should ideally consist of a mixture of PAYG and fully-funded elements. In Germany this insight led to the development of state-subsidised private retirement provision to complement the state pension system. Many other countries likewise favour a hybrid system of state and personal provision.¹

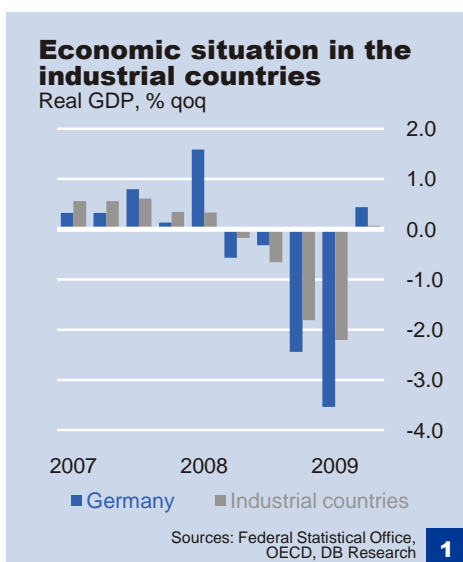
¹ Between the two basic forms of pure-play pay-as-you-go funding and a fully-funded approach there also exist many systems with partial capital funding. For example, several countries such as Denmark, France, Sweden, Switzerland and

Meanwhile, however, fully-funded retirement provision has come under renewed fire in the aftermath of the financial crisis. In Germany, for one, opinion is hardening against the further build-up of private provision. Critics object to what they perceive as funded pension regimes' extreme susceptibility to financial market turmoil. Yet others point to the problem that many people have little financial scope to put savings by – a situation exacerbated by protracted economic stagnation with high unemployment. This debate is of added relevance in that many experts are also demanding capital funding for the statutory health and nursing care insurance system.

But calls for (a return to) the complete dominance of pay-as-you-go pension schemes are misplaced. With the industrialised nations recovering only slowly from the severe collapse in global economic activity, especially in the OECD countries, in the second half of 2008 and the first half-year 2009, the scars left on PAYG regimes such as the state pension insurance system in Germany will remain for a longer period. In a PAYG system financed by payroll taxes, as in Germany, the size of the pensions depends on the development in total wages and salaries. Ultimately, the annual payroll is calculated by multiplying three factors: the average number of workers, the average number of (assessable) hours worked per employee and the average rate of pay. An economic slump can impact all three factors.

In Germany, wages and salaries per employee decreased by 0.4% in 2009, which should lead to a reduction in pensions in 2010, according to the benefit formula.² However, that will not happen owing to the former government's summer 2009 pledge not to cut pensions. But even this undertaking cannot prevent several years of low pensions or negligible increases. The crisis has made such a scenario far more likely, especially if the measures to slow annual pension indexation (by means of the so-called "Riester factor"), which were suspended in 2008 and 2009, really are subsequently made up again. And in the longer term economic and demographic trends cannot be prevented from filtering through to the system anyway.

In the longer run, too, the crisis could negatively impact the state pension scheme in Germany as well as other PAYG systems. That would be the case if the recent monumental recession were to do more than merely dent wage and salary trends, meaning that the previous trend path could no longer be regained even after the next upswing. In this eventuality, calculations by the Mannheim Research Institute for the Economics of Aging (MEA) indicate serious financial losses for people drawing state pensions, notably the 1960s baby boom generation. Their state pension could be 6–9% lower than would have been expected given a steady economic trend.³

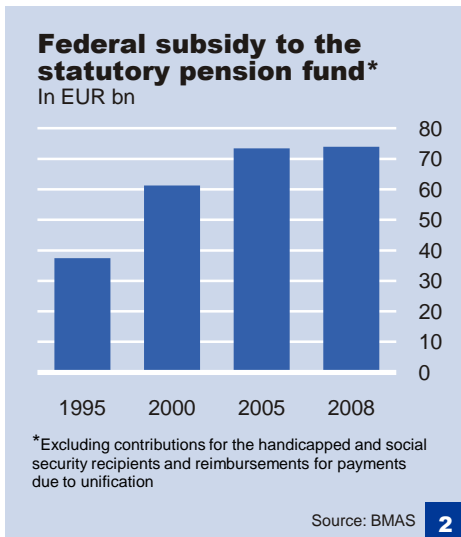


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Norway build up provident capital as part of the state system to augment the PAYG scheme and secure sustainable financing for pensions. On the other hand, certainly not all private pension plans are fully underpinned by capital. In France, for instance, company pensions are based on PAYG contributions, and in Germany too not all occupational schemes are fully capitalised.

² Of specific relevance in the complex German pension indexation formula is the change in gross wages and salaries per employee. The change in the number of people employed is implicitly accounted for through the change in the number of pensioners relative to the number of contributors recorded in the "sustainability factor".

³ Börsch-Supan, Axel, Martin Gasche and Christina Benita Wilke (2009). Auswirkungen der Finanzkrise auf die Gesetzliche Rentenversicherung, ihre Beitragszahler und ihre Rentner. meaStudies 09. Mannheim.



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The PAYG systems have unquestionably stood the test in many countries during recent fraught times. But in Germany this was due partly to comprehensive short-time working subsidies under the *Kurzarbeitergeld* scheme designed to reduce job losses and partly to the high federal subsidy to the statutory pension fund (2009: EUR 79 bn). Of course the state can always prop up a PAYG system in times of crisis by making funds available directly or indirectly and safeguarding pension payments. Guaranteed income for pensioners is desirable not only from a socio-political aspect; it can also help stabilise the economy. Admittedly, an “automatic stabiliser” of this kind cuts two ways. Subsidising pensions directly or indirectly pushes up government debt. The more individual countries put pressure on public budgets with active deficit spending to pump prime the economy, the more problematic this becomes. In many countries the mounting burden of crisis-driven government borrowing accentuates the longer-term funding problems that PAYG systems are already facing as a result of demographic ageing.

Pay-as-you-go regime checks economic momentum

Most importantly, it would be wrong to judge the funding method solely in the light of the recent economic and financial market crisis. The current trial by fire delivers little evidence on the funding regime’s long-range serviceability. On a long-term horizon the most pressing issue in many countries, especially in Germany, remains demographic change. Population ageing has lost none of its urgency because of the crisis, which is why solid pillars of private fully-funded retirement provision are vital to sustainable “nest-egging” for old age.

The weaknesses of pay-as-you-go systems in ageing societies are well-known. They are linked inseparably to income redistribution by the state from the economically active population to the generation of pensioners. A pay-as-you-go regime implies that in an ageing society the economically active generation must forgo an increasing share of the national income earned to enable pensioners to spend their retirement in adequate financial circumstances. To be sure, the principle of fully-funded retirement provision is similar, with the working population having to earn the benefits claimed by the older generation. Both funding methods are contingent on dynamic economic growth (see box).

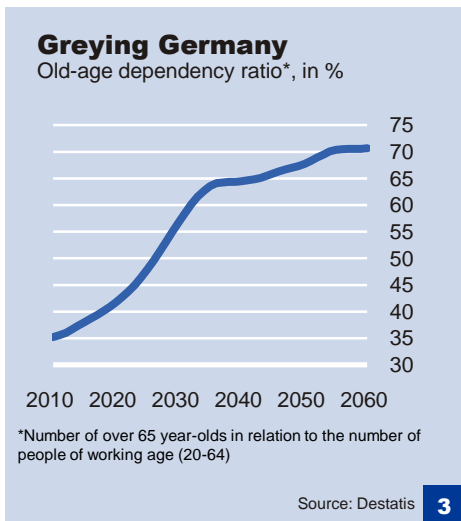
However, an economy’s trend growth does not develop independently of the way in which its pensions are financed. There is much evidence to suggest that in ageing populations the PAYG funding method impairs growth prospects, while funded systems tend to create positive impetus. One reason for this lies in the negative incentives created by the PAYG system. In an ageing society, in which a steadily shrinking working population has to bear the financial burden for a constantly increasing number of pensioners, younger employed persons in particular cannot expect adequate recompense for their contributions when they themselves are old. Viewed across the generational divide, the principle of equivalence of benefits received and premiums paid is therefore breached. The more pronounced this is, the more the allocation assumes the character of a tax on earned incomes.⁴

Reliable old-age provision requires dynamic economic growth

Both fully-funded and PAYG systems depend crucially on the accumulation of capital as the driving force behind economic momentum. In an allocation system designed as a tax or as contributions on earned incomes human capital, that is to say the manpower resources available and their knowledge and skills, act as the engine. The faster the workforce grows and the more productive it is, the more dynamically economic output, incomes and consequently the scope for the redistribution of income from the economically active population to retirees expand. In fully-funded systems, on the other hand, the accumulation of physical capital and its productivity are the key factors.

Both driving forces are interdependent. An economy with a well trained workforce also requires a sufficient stock of capital in order to expand, and the faster that the capital stock increases the more the economy will expand. A growing stock of capital fosters productivity, and this should have a positive effect on earned incomes and also, through allocation, on pensions. On the other hand, in a country lacking in skilled labour it is not as a rule possible to generate adequate returns through the accumulation of capital.

⁴ Systems that exhibit this equivalence are called actuarially fair. Basically, the actuarial fairness of Germany’s statutory pension insurance scheme is relatively high. However, the principle of equivalence on which the calculation of each individual pension is based (points system) is increasingly being undermined by demographic development.



But taxation of this kind tends to have a demotivating effect on employed persons. They limit their availability to work (increased demand for part-time work rather than full employment, trend towards early retirement) and tend to work less productively. Ageing societies relying too heavily on the PAYG model as a means of provision for old age run the danger of building on sand. They have to impose heavy – and rising – funding burdens on the economically active population without being able to offer them the prospect of commensurate pensions. This reduces the human capital available in the official economy and weakens economic drive.⁵

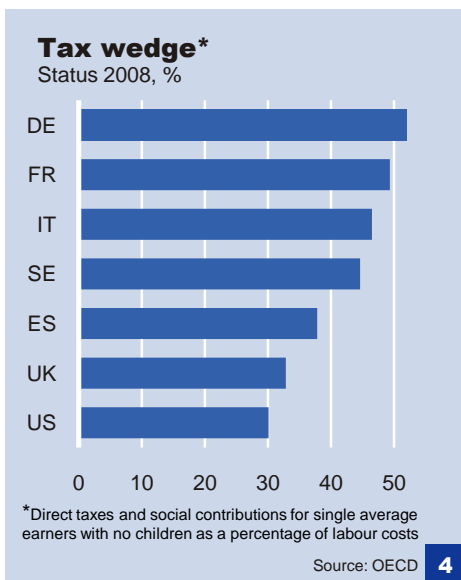
Basically, imposing this levy in the form of a general tax on economically active people's income rather than primarily as contributions on labour income, as is the practice in Germany, does nothing to alter this negative feedback. Making the corporate sector contribute more to pay-as-you-go state pension financing with, say, a general output tax, as variously proposed, is not a solution either, because a tax of this kind would negatively impact their capital investment.

Fully-funded pension schemes foster economic growth

In contrast, fully-funded retirement provision systems can radiate positively onto the formation of capital and onto economic growth at both the microeconomic and macroeconomic level. At the microeconomic level positive effects are to be expected because, unlike state systems, the market-based principle of equivalence applies to private provisioning for old age. This is clearly apparent with individual pension plans such as "Riester" pensions in Germany (privately financed pensions subsidised by state grants and special tax allowances) and the 401 (k) plans in the US, where there is in principle an obvious connection between the amount of premiums paid during working life and the stock of provident capital available in old age. Those who save more while working can expect higher benefits when they retire. Similarly, as a general rule the amount of retirement pension from occupational pension plans will depend on individual performance at work. This reciprocal relationship sends out a signal to workers: saving more during working life, which generally presupposes a corresponding commitment to deliver better performance at the official workplace, pays off in old age. The compound interest effect makes it all the more important to begin building up provident savings as early in life as possible.

People must, of course, feel confident of receiving adequate and fair recompense in their old age. Property rights and reliability play an important part here. In Germany and many other countries one of the merits of private pension schemes is the powerful protection they offer through the rules governing the system of ownership, whereas state models are by nature more exposed to the danger of political intervention.

However, clearly defined and protected entitlement to receive benefits is just one necessary condition for people's willingness to make private pension provision. They must also have the prospect



⁵ Some experts even blame allocation systems for the low birth rates in Germany and other countries – and hence for the neglect of human capital formation in its most elementary form. In their view the development of state pension schemes has eliminated a traditionally important motive for bringing up children. Offspring are no longer needed as a means of support in old age once the state has assumed this task. What is more, pay-as-you-go, collective welfare systems socialise part of the benefit of bringing up children by burdening children's incomes later in life, while the varied and high costs of their upbringing, notably the loss of earned incomes and hence pension entitlements, have to be borne privately, i.e. by their parents.



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of a sustainably adequate return on the capital saved, in other words faith in the stability of the system. It is here that the crisis may have hurt private provisioning, although there is no clear evidence of this in the case of Germany. A survey by the Deutsches Institut für Altersvorsorge (DIA) revealed that in the third quarter of 2009 in Germany the financial crisis and weak economy had made 29% of the people surveyed more concerned than before about their entitlements from private pension plans. And 27% of respondents said they were putting off purchasing private retirement provision because of the uncertainty.⁶ However, this sentiment is not discernibly reflected in sales of the products. At the end of 2009 the certification agency registered 13.25 million Riester contracts, 9.1% more than at the end of 2008. In a recent study the previously quoted MEA stresses that it is not yet possible to make any reliable statements about the longer-term repercussions of the crisis on savings behaviour. According to the study, in Germany 20% of the households surveyed in the first half of 2009 said they had lost money as a result of the crisis (on average not quite EUR 2,500).⁷

But if the crisis leads to a period of significantly higher inflation, confidence in private provision could also suffer lasting damage. Some observers perceive this risk from the marked expansion in central bank balance sheets. Given the still fragile situation on the financial markets and in the global economy, they believe central banks will have difficulty mopping up liquidity again in time. High government debt in many countries is also seen as posing an inflation risk. However, we consider the inflationary hazards manageable – provided, of course, that the extensive programmes rolled out in many countries to stabilise the economy and financial markets are scaled back again early enough.

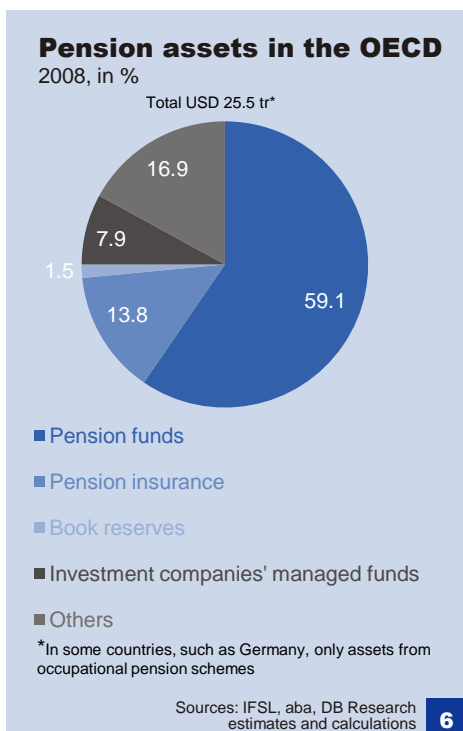
In ageing societies private retirement provision could play a useful role here. Countries with a widespread culture of private provident saving, in which many (older) people already possess substantial retirement assets, have a particular interest in price stability. Since the older, especially risk-averse sections of the population in these countries form an increasing part of the electorate, their concerns are likely to find an open ear among politicians.

This consideration brings us to the positive macroeconomic effects of funded retirement provision. At the macro level capital-forming schemes to provide for later life are positive in that they can improve the supply of capital and boost the efficiency of the capital markets. In many countries, notably those such as the US and the Netherlands, where pension funds basically not subject to any quantitative investment restrictions are widespread, capital-based pension systems have come to play an indispensable role in the necessary provision of risk capital for business. Stock markets, and also the markets for private equity and securitised products, have benefited enormously in the past from investments by pension funds. This has fostered corporate capital spending and innovation and with it productivity and economic growth in the respective economies.

The crisis has of course highlighted the need for adequate, effective capital market regulation. Increased activity by institutional investors is not in itself a guarantee of greater stability. In this respect many advocates of fully-funded provision may previously have set their

⁶ Deutsches Institut für Altersvorsorge (2009). Der DIA-Deutschland-Trend-Vorsorge. 7. Befragungswelle 3rd quarter 2009.

⁷ Börsch-Supan, Axel et al. (2009). Deutsche Privathaushalte in der Finanz- und Wirtschaftskrise - Betroffenheit und Reaktionen. meaStudies 10. Mannheim.



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expectations too high. Particularly on the financial markets, good rules are vital.

B. Fully-funded systems paint a very varied picture

Many different fully-funded supplementary schemes

Capital-based private pension systems are unquestionably among the institutions affected by the recent financial market crisis and global economic recession, although sweeping judgements would be misplaced given the huge international variety of private retirement schemes and providers. A glance at Germany alone gives some idea of just how multi-faceted the spectrum of private pension products and institutions is, with occupational plans and personal schemes offering a wide range of ways to make financial provision for later life. Occupational pension schemes alone comprise five elementary types of financing and pension vehicles, some of them with further sub-options. For private provision, the Rürup-Rente, a funded basic pension, and the Riester pension are two different, state-subsidised systems. People entitled to join the Riester scheme have the choice of four product categories and three occupational vehicles.⁸

Looking across Germany's borders, we also find other, differently structured institutions and products. The occupational pension funds that play a prominent part in retirement provision chiefly in the UK, the Netherlands and the US differ from the *Pensionsfonds* licensed to operate in Germany, which are essentially similar to insurance products. The 401 (k) plans common in America are another vehicle for which there is no counterpart in Germany.

The financial market crisis has hit these retirement provision schemes and pension plans with varying degrees of intensity, depending on how they are structured. This is because the severity of the turmoil has varied considerably in individual market segments. The stock markets, for example, plunged sharply from autumn 2007 to the spring of 2009, during which time the S&P 500 Index shed 57% of its value in the US, the UK FTSE 49% and the DAX-30 in Germany 55%. At times the markets in structured products dried up entirely. Stock and bond markets were also extremely volatile. In the US, the UK, Spain and some other countries the situation was compounded by steeply falling housing and other real estate markets. All in all, global pension assets dropped by 18% in 2008.

Since April 2009, however, the share indices have staged a strong rebound and alternative investments have improved, too. As a result, global pension assets grew by 14% to USD 29.5 tr in 2009, according to IFSL estimates.⁹ But in many countries stock markets are still far away from their pre-crisis levels. The same is true for global pension assets, which already reached USD 31.7 tr in 2007.



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⁸ Private insurance contracts including unit-linked life or pension insurance, mutual fund savings plans and bank savings contracts provided they guarantee at least the contributions paid in and provide for payment of 10% of the residual disburseable balance as a lifelong pension from the age of 85, as well as building society savings contracts or savings-linked building loans (*Bauspardarlehen*) in accordance with the *Eigenheimrentengesetz* (Home Ownership Pensions Act, otherwise known as the "Housing Riester"), employee contributions to a company pension plan through a *Pensionskasse* (a German-style pension fund), a *Pensionsfond* or a direct insurance insofar as they guarantee life-long benefits.

⁹ International Financial Services London (IFSL) (2010). Pension Markets 2010.



The various systems are differently exposed to this turmoil. In part, this is closely related to the investment structure of the retirement assets. Given what has happened on the markets, it is obvious that pension plans committed more heavily to shares, structured products or subprime property investments have run into greater trouble than conservatively invested plans. Additionally, high volatility on the bond markets is in principle also a disruptive factor for pension plans that promise defined benefits to savers in their old age.

Different players are involved in retirement provision. Consequently, providential savers or pension plan beneficiaries are not always affected when the retirement assets (temporarily) fall in value and/or problems arise with funding for the plans. Depending on the type of retirement plan, the risks for savers making personal provision may be fairly narrowly limited. Insurance-oriented plans offer the most comprehensive protection, as do the respective occupational schemes. Unlike individual provision formats, financial market turmoil can hit not only the beneficiaries of occupational schemes and the providers of the pension plans but most particularly the sponsors, that is to say the employers. Insolvency of the sponsor is therefore another risk that must be taken into account with occupational schemes. In various countries this risk is, in turn, hedged by separate insurance systems, often under state supervision.

Distribution of the relevant risks among the individual players, notably the beneficiaries, sponsors and providers of the plan, is a key distinguishing feature of pension plans. According to this criterion, the general distinction to be made is between defined-contribution and defined-benefit models.

Pure-play defined-contribution plans, in which the beneficiaries bear the full risk, have come under fire in the aftermath of the crisis. Many critics consider them too risky and thus unsuitable for building up state-subsidised retirement capital. However, these plans do also have considerable merits, such as a large measure of flexibility and – given suitably professional investment of the funds – the prospect of good returns in the long run. These advantages should not be overlooked.

There are many different versions of **defined-benefit plans**, in terms of both the investment structure and the distribution of risk. With pure-play defined-benefit plans the beneficiaries basically bear no or comparatively little risk, especially when these schemes take the form of classic capital-accumulation life or pension insurance. Under these plans the risks are always borne by the providers (and partly by the community of the insured), although here too they are narrowly ring-fenced in advance by state regulations on solvency and investment of the capital. The corollary to this in the longer term is lower yield opportunities. Insurance-oriented plans are to be found both in personal and occupational retirement provision.

But worldwide the most common vehicles to finance occupational plans are pension funds. These differ from insurances to a greater or lesser degree depending on national regulation. As a rule pension funds enjoy more freedom in investment of the retirement assets. In the past they have successfully exploited the possibility this implies of pursuing more yield-oriented investment strategies. Admittedly, though, the recent crisis has battered pension funds invested this way more severely than insurances.

When pension funds run into financing problems, different recovery or restructuring measures kick in from one country to another. Subject to the statutory labour, regulatory, accounting and tax

framework applied, the players involved may be obliged to contribute towards the restructuring. However, it is a general rule in this case that the sponsors, i.e. the employers, are obliged to put up additional capital – another key difference to insurances. Depending on how the plans are designed, this exposes sponsors to considerable risk.

The crisis has therefore fanned widespread debate on the punitive costs that companies incur by offering defined-benefit plans. The upshot is likely to be acceleration of the move away from company plans featuring (comprehensive) defined benefits that is already underway.

These aspects are examined in greater detail in the following.

Defined-contribution and defined-benefit pension plans

As we have already seen, a key factor with capital-based retirement systems is whether these are defined-contribution (DC) or defined-benefit (DB) pension plans. There is also a growing incidence of hybrid plans containing elements of both basic forms. DB and DC-type pension plans differ with regard to how the retirement provisioning risks (see box) are spread among the individual players. This risk distribution, in conjunction with (national) legal regulations, affects the investment structure of the retirement capital and consequently has considerable influence on pension plan exposure to financial market turmoil.

With strictly DC plans the beneficiaries and provident savers personally bear the full risk for their financial provision in later life. As the name suggests, all that is certain is the amount of contributions that the saver and/or their employer (in the case of occupational plans) have to pay in order to secure entitlement to benefits (draw-downs) in old age. Just how high these benefits will later be is an open question. With defined-contribution systems the amount of the pension payments depends solely on the performance of the financial investment, i.e. the return. The higher the returns in individual years during the life of the plan, the higher the benefits (payout) will be. With DC plans the beneficiaries therefore bear the entire investment risk. They benefit fully from every upswing on the capital markets, but for that they must contend with the consequences of difficult periods. What is more, the beneficiaries are confronted with the problem of inflation eroding the real value of their pensions.

Beneficiaries also bear a “longevity risk” because payouts on defined contribution pension plans are independent of how long the provident saver lives. At the beginning of the payment period, as a rule when the beneficiary retires, a stock of capital is always available, accumulated from the premiums paid and the income from returns on financial investment. Savers can then use this sum in different ways, say by converting it into an annuity guaranteeing lifetime benefits, to purchase real estate or for further investment on the capital market, for instance by acquiring shares in mutual funds (see p. 13f).

In Germany strictly DC pension plans do not qualify as state-subsidised private retirement schemes, but in other countries they are by all means widespread. In the EU various countries have recently launched supplementary capital-based systems in the form of DC plans as part of their reform of retirement provision, making such schemes compulsory for the younger workforce at least. This has happened in the Baltic States, Slovakia, Poland, Hungary and Sweden. And in some partner countries, notably the UK, DC plans

Risks of capital-based retirement provision

In line with their function of transferring (financial) resources from the period during which people are employed to their old age, and hence into the future, (capital-based) pension systems are exposed to three main types of risk:

Longevity risk. Adequate provision must be made for the period of old age, the length of which is uncertain. An unexpectedly long life, although of course an essentially welcome occurrence in itself, means that more resources are consumed than planned.

Yield risk or value at risk (VaR). The guiding concept of capital-based investment is the accumulation and profitable investment of pension contributions on the capital market. The interest and compound interest effect means that over the years the stock of capital will grow much faster than the total premiums paid. Assuming an interest rate of 5% and monthly payment of a fixed sum, after not quite 26 years the nominal capital stock can already reach twice the nominal value of the aggregate premiums. But by the same token financial market slumps resulting in negative yields can also significantly erode the capital stock. In the early contribution stages, when pension savers are still young, price downturns of this kind have only very limited impact on the provident assets available in old age. But when pension plans are due to start paying out benefits very shortly, the losses can be painful indeed.

Inflation risk. Retirement provision has a broad time horizon, usually measured in decades. In the case of long-running contracts even comparatively low rates of inflation can seriously reduce the real value of the payments forthcoming from a pension plan in old age. If provision is not made for inflation, hopes entertained in younger years of adequate financial provision in old age may prove illusory. An inflation rate of 3% halves the real value of a given capital stock after just 23 years.

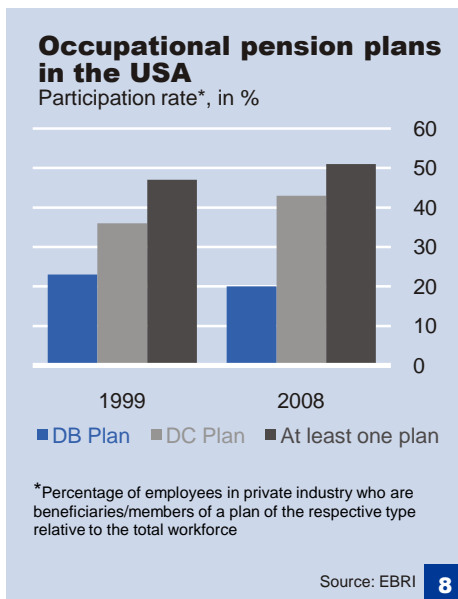


have been gaining in importance for some time for (voluntary) occupational retirement provision. Defined contributions-only systems play a more important part in the US, where Individual Retirement Accounts (IRAs), especially 401 (k) plans, have been popular for years.

In its purest form, a DB plan promising specific retirement benefits basically features a diametrically opposed risk structure. In this case the benefits are agreed upon (by contract) and the premiums set so that they will suffice to finance the benefits to which the plan is committed. The pension agreements have the nature of an insurance contract. With individual pension provision, private insurance companies consequently provide the cover for such plans. The risks essentially lie with the insurer.

In occupational pension schemes, on the other hand, the employers bear the risk of pure-play defined benefit schemes. In this model the employers give their employees a binding promise to provide a clearly defined benefit in old age, such as payment of a lifelong pension, when the pension contract is agreed.¹⁰ This means that as well as financing or sponsoring the pension plan, in principle the employers also assume the function of insurer. There are various ways of financing pension benefits. The traditional route in some countries, especially in Germany, is that of internal financing through the formation of pension provisions in the company's balance sheet. This leaves the risks squarely with the company (see p. 21f). Another possibility is to outsource the risk to insurance companies, in which case the employers effectively confine themselves to the role of sponsor. They take out an insurance policy with an insurer, naming their employees as the beneficiaries, and pay all or part of the premiums. In Germany this is the practice with Pensionskassen (pension institutions) or direct insurances. Another way of transferring risk in Germany is by reinsuring book reserve schemes or provident funds.¹¹ Financing through pension funds is, however, internationally widespread.

In the past, comprehensive defined-benefit commitments featured in many countries' occupational pension provision, but for years now the trend has been emerging in many parts of the world to less comprehensive pension plans (hybrid plans and strictly DC schemes), with employers bearing less (or indeed no) risk. Comprehensive defined-benefit company plans are still predominant in the Netherlands, Switzerland and Germany, while in the UK – and even more so in the US – arrangements of this kind have already fallen sharply in number. Even so, particularly in America many big privately-owned, mainly industrial companies, and above all many local authorities and the federal states, continue to offer their employees fairly comprehensive capital-based DB plans.



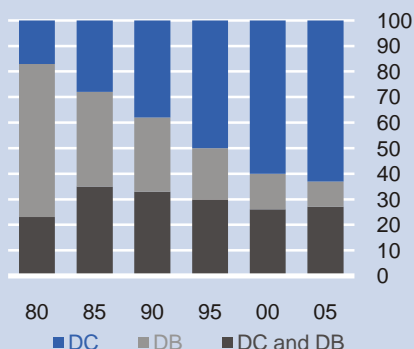
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¹⁰ In traditional occupational DB plans the amount of benefits or pension payments is generally linked to individual eligibility criteria, notably the length of service with the company and the amount of pay the beneficiary receives, with either the salary in individual years, the average salary during the entire period of service with the company (of relevance to the occupational pension) or the salary in the final year of employment (which is generally higher) potentially serving as the basis of calculation. Most important from a risk aspect is how the defined benefit entitlement during the drawdown phase, i.e. the payment period, is adjusted. Normally pensions are indexed to wage trends, consumer prices, indices composed of both aggregates, or fixed rates agreed in advance. The relevant regulations determine who bears the risk in old age of the value of the provident capital being eroded by inflation.

¹¹ In Germany, however, one of the constituent elements of occupational pension provision is that ultimately the employer is always liable for complying with the commitments.

Surge in DC pension plans in the USA*

Percentage of respective plans, in %



*For employees in private industry

Source: EBRI

9

Defined-contribution plans by no means obsolete

In some countries defined contribution-based plans have taken a battering from the crisis, particularly those where DC plans are permitted in their purest form and the pension assets accumulated through such plans are traditionally invested relatively heavily in stocks. Emblematic here are the 401 (k) plans in America, whose title references paragraphs in US tax legislation relating to tax promotion.

Contributions can be paid into occupational DC plans by both employers and employees (through conversion of earnings). These plans are very popular in the US, where more than 60% of employees in private industry who belong to a private pension scheme are covered by defined contribution commitments only – usually in the form of a 401 (k) plan. The appeal of these plans does not lie solely in their generous tax treatment; they are also fundamentally cost-efficient and feature a considerable measure of flexibility. What is more, employees have a say in how their retirement savings are invested. The beneficiaries under these plans usually have the choice of investment vehicles (as a rule mutual funds) focusing on different types of investment (stocks, bonds, money market paper, mixed investments) and hence offering varied risk/opportunity profiles. A decision taken can, moreover, be revised at any time.

So far employees in the US have opted mainly for yield-oriented plan versions strongly slanted towards stocks. As a result many (older) employees and pensioners benefited enormously from the boom periods on the US stock market in the 1980s and 1990s and in the middle of the 2000s. By the same token, the market collapse at the beginning of the decade and last year took its toll on the plans' equity investments.

Most severely affected by market slumps of this kind are older pension savers planning to retire, or having to do so, during these periods. On starting to draw their pensions they discover that their provident savings are considerably lower than expected. It is here that the yield risk manifests itself. And it is compounded by another problem: if, as happened at times during the recent crisis, collapsing share prices go hand in hand with relatively low bond yields, the common practice of converting the assets saved into an annuity becomes more expensive. Pensions acquired this way are doubly reduced. With capital-based plans the size of the pension may therefore depend heavily on the year in which the beneficiary of the plan retires. This is problematic in socio-political terms – all the more

Investment structure of 401(k) plans

By age of participants, 2008, in %

Age group	Equity funds	Lifecycle funds	Mixed funds	Bond funds	Money (market) funds	GICs/Stable value funds	Company stocks	Others	Unknown	Total
20-29	38.0	15.3	12.7	9.3	5.5	8.4	7.8	1.3	1.3	100
30-39	47.0	9.1	8.8	10.3	5.2	7.4	8.7	1.9	1.4	100
40-49	44.1	6.8	8.2	10.9	5.7	10.4	10.1	2.3	1.2	100
50-59	36.2	6.2	8.3	12.7	7.3	16.2	10.5	2.5	0.9	100
60+	28.0	5.5	7.7	14.5	9.4	23.2	8.4	2.6	0.7	100
Total	37.4	6.6	8.2	12.3	7.1	15.2	9.7	2.4	1.0	100

Source: EBRI

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so if the supplementary private provision constitutes a major source of retirement income. In the light of this, criticism has been levelled at these pension plans.¹²

But these problems do not argue against defined-contribution pension plans (individual pension plans) that subscribe to a dynamic investment policy. Rather, they stem primarily from individual shortcomings in investment of the retirement assets. More is involved here than the familiar principle of not placing all one's eggs in one basket. It is crucially important to adjust asset structures appropriately to changes on the financial markets and, most importantly over time, to the providential savers' advancing age. In principle, younger savers should concentrate more on opportunity-oriented investment of their provident capital, especially in ageing countries where state pensions will in future often hardly suffice to protect them against old-age poverty. Then as they grow older the proportion of conservative, less risky investments should be increased. Alternatively, riskier investments can be hedged against losses in value, for example with suitable derivatives. This is the sort of investment strategy pursued by lifecycle funds, which are available in many countries, Germany included.

Of course, for retirement provision in particular there is no one-size-fits all solution to suit everyone. On the contrary, where financial provision for later life is concerned people's needs are basically just as varied as their circumstances and personalities. It would therefore be wrong to restrict their choice of products with different risk/opportunity profiles. Indeed, many people deliberately base their retirement provision on products with a higher risk/return profile because they personally rate the chance of better returns more highly and are, if necessary, in a position to handle the risks. Aside from the favourable tax conditions, the availability of choice goes a long way towards explaining the success of DC plans in America. As a general rule government should not therefore curtail desirable liberties simply because some people use the leeway given them to make the wrong decisions.

Promote financial literacy instead of over-regulating product markets

With regulation of the markets for retirement provision it is not only a question of how the retirement assets are to be invested during the savings or accumulation phase. Also important are the investment structure and, even more so, the payout modalities in retirement.¹³ A distinction can be made here – by analogy with the basic classification of pension plans into DC, DB, and hybrid – between three kinds of product type, in which the risks of provision for later life are borne by the providers in varying degrees (see box). Particularly for the payout phase, some observers consider comprehensive risk protection necessary for the beneficiaries. Viewed in this light, only defined-benefit plans (annuity plans, see p. 14ff) that invest the retirement assets conservatively and pay out a lifelong pension are suitable for supplementary fully-funded provision. Consequently, only these plans would deserve state promotion through, say, deferred taxation.

But the principle that the security provided by purely conservative capital investment can come only at the expense of more favourable

Types of products for the payout phase*

(Annuity) pension plans. These provide for the payment of a lifelong pension. They therefore cover longevity risk and provide a certain minimum return. The assumption of these risks by the providers implies a rather more conservative investment policy (see p. 14ff). Moreover, annuities are not bequeathable and offer at best limited protection against inflation.

Phased drawdown or payout plans. They distribute the retirement capital saved in the form of periodic payments. Pensioners retain considerable control over the retirement capital. They can bequeath parts of it to their heirs and can basically determine how the capital is invested (yield-oriented, conservative etc.). The inflation risk can be capped with appropriate investments (such as infrastructure, commodities). However, the retirement plan beneficiary bears the longevity risk.

Integrated or hybrid products. They combine the main features of annuities and drawdown plans. As a rule, a substantial share of the capital is initially held flexibly with these plans. Then as the pensioner grows older the proportion converted into annuities increases. Included among these products are unit-linked pension schemes and variable annuities as well as investment-based solutions with a guaranteed minimum return (such as the Riester investment fund contracts in Germany).

* see Maurer, Somova (2009).

¹² Burtless, Gary (2009). Lessons of the Financial Crisis for the Design of National Pension Systems. CESIFO Working Paper No. 2735.

¹³ See Maurer, Raimond and Barbara Somova (2009). Rethinking Retirement Income Strategies – How Can We Secure Better Outcomes for Future Retirees? Frankfurt.

yield prospects in the long run also applies to the payout phase. Especially for younger pensioners, who nowadays may quite possibly live for more than another 20 years, dynamic investment of part of the retirement capital would seem to make good sense. (In Germany 60 year-old men/women live for an average of another 20.8 and 24.7 years respectively.) What is more, for many people the availability, and even more so the bequeathability of their retirement capital is an important consideration. This argues in favour of levelling the regulatory playing field, especially in respect of tax incentivisation of the various types of payout plan.

The wide variety of sensible investment products naturally poses a challenge for provident savers. This must be addressed. As many people as possible should be empowered to make sound, rational decisions on their financial provision for old age and on investment of their retirement capital. This implies (further) improvement of people's financial literacy and financial competence, particularly with regard to pension products.

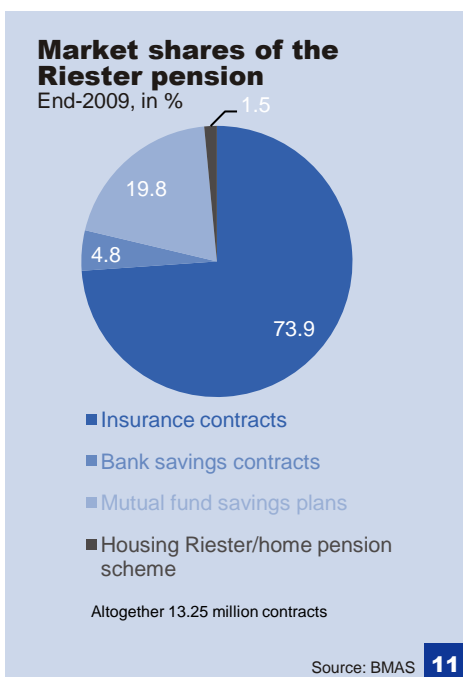
Financial literacy is an important issue for retirement provision in Germany, too. Even if pure-play DC plans do not enjoy state subsidisation there, provident savers still have a broad spectrum of pension products to choose from. Riester insurance contracts, bank savings contracts, unit-linked pension schemes, mutual fund savings plans and the new possibilities of subsidising financing for owner occupied property (the so-called "housing Riester") cover a broad range of different aspects of provision for later life. The relationship between pension security and yield, or the risk/opportunity structure, varies not only between individual product categories, differences also exist within them. Mutual fund savings plans in particular may be very differently structured. They include products in which the providers ensure professional asset liability management, i.e. an investment strategy perfectly attuned to market opportunities and risks and the age of the savers. Investors should be aware of all these distinctions. There is an added factor: people's financial skills and their willingness to build up provident savings are positively correlated. Financially competent individuals set aside more for their old age.¹⁴

Insurance-oriented pension plans – the winners of the crisis?

Defined-benefit pension plans are to be found both in private provision and in occupational schemes – although their importance for the latter is declining. Comprehensive DB pension plans, in which the providers bear the risk, are traditionally offered by insurance companies.

Insurance-oriented pension plans are a particularly popular means of personal provision, for example in France and very much so in Germany, where insurance contracts (including unit-linked insurances) currently make up 74% of the Riester pension. As a rule insurance solutions do not play such an important part in occupational pension schemes. In Germany direct insurance and Pensionskassen account for roughly 11 and 23% of the cover assets for company pension schemes (EUR 439 bn in 2007) respectively.

Insurance-oriented pension plans are characterised by the fact that both the premiums to be paid and the contractually agreed benefits are always fixed in the underlying contract between the insurer and



¹⁴ Bucher-Koenen, Tabea (2009). Financial Literacy and Private Old-Age Provision in Germany – Evidence From Save 2008. MEA Discussion Papers 192-2009.

the insured. Traditionally the contracts are calculated in such a way that the cash value of the premiums equals the cash value of the payouts that will have to be made for the individual insured, based on actuarial expectations. With conclusion of the insurance contract the insurance company effectively assumes the risks of retirement provision – in the case of a pension contract chiefly the longevity risk and the risks involved in investment of the retirement capital.

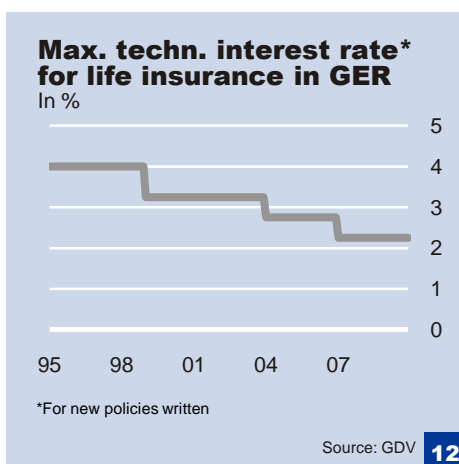
To protect the insured, insurance companies in many countries are subject to rigorous state supervision and regulation. This includes strict solvency requirements and frequently also restrictive regulations regarding the investment of their cover assets. In Germany, for example, a raft of quantitative and qualitative requirements applies to insurance companies' 'tied funds' pursuant to the Insurance Supervision Law (*Versicherungsaufsichtsgesetz – VAG*) and the Investment Regulation (*Anlageverordnung*) based on it. The investment principles security, profitability, liquidity, diversification and spreading are paramount. Furthermore the proportion of shares and other capital investments entailing higher risks may not exceed 35% of the total tied funds, for example. These regulations also apply to Pensionskassen. For insurance-oriented Swiss Pensionskassen, investments in shares are capped at 50%.

The insurance companies must further be in a position to pay out their benefits at all times. Put simply, this means that at all times during the term of an insurance contract the capital stock available up to then plus the net present value of the premiums still expected in the future must equal the actuarially expected payouts under the contract.

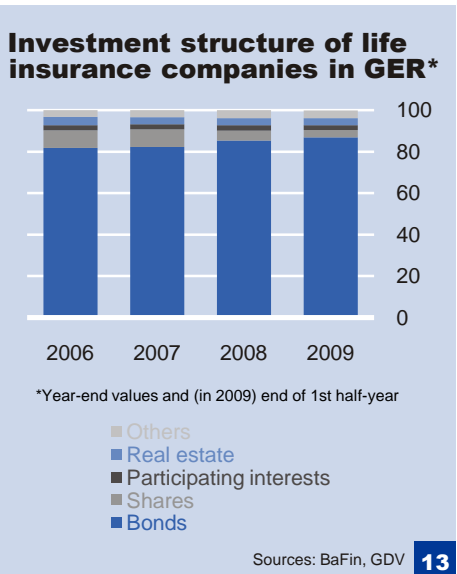
The discount rate is therefore pivotal to insurers' technical calculation of insurance-oriented pension plans and to solvency requirements. As a rule the rate is set according to terms of reference specified by the regulatory authorities, there being a more or less close link between regulatory requirements and the development in relevant market yields. In Germany, the Federal Ministry of Finance sets the maximum technical interest rate that insurers may apply to the cover reserves they are obliged to form subject to commercial and regulatory requirements. The technical interest rate takes its bearing from the current yield on ten-year German Bunds.¹⁵ Since 2007 the maximum permissible rate for new policies written has been 2.25%. For older contracts it is higher. As a rule the maximum technical interest rate is also the (annual) rate of return guaranteed to the insured on their premiums paid.

The returns that insurance companies obtain on the cover assets they invest are generally higher than the guaranteed rate of return or the maximum technical interest rate. This way they are able to accumulate surpluses, some of them substantial, during the term of the investment – which is often long in the case of pension plans. In Germany by far the greater part of these surpluses (an "appropriate amount" is stipulated by law) is returned to the insured in the form of bonus payouts.

From the point of view of pension beneficiaries, these bonus payouts enhance the appeal of private pension insurance plans. However, the bonuses depend on the insurers' investment performance and can therefore fluctuate in size. Financial market turmoil can thus also filter through to the insured through insurers' surplus distribution rates.



¹⁵ To be precise, the ten-year average of the current yield on ten-year German Bunds with a remaining maturity of 9-10 years.



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German insurers traditionally take an especially prudent approach to the investment of their tied funds. The GDV German Insurance Association quotes the proportion of German life insurers' equity exposure as per the end of 2008 at 4.8% (end-2007 8.5%). And many insurance companies additionally hedge a large part of their equity investments. The bulk of insurance firms' capital investments are placed in secure fixed-income instruments. Price slumps on the stock markets thus have only very limited impact on insurers. The inevitable downside to their comparative stability in periods of financial market turbulence is that beneficiaries of insurance-oriented pension schemes are not in a position to reap rewards from phases of stock market buoyancy to the same extent as provident savers committed to equity funds or unit-linked insurance plans. Furthermore, unexpected longer periods of low bond yields can also put pressure on insurance companies.

Regardless of their play-it-safe investment policy, insurers – and Pensionskassen for occupational retirement provision, which operate along very similar lines – are in principle exposed to an insolvency risk, slight as this may be. Insurers can encounter problems, *inter alia*, with highly volatile bond markets and an unexpected rise in the life expectancy of the recipients of pension benefits. Of course, the tied assets to which the insured are entitled are kept strictly separate from the insurance companies' other investments and beyond the reach of other creditors. What is more, the private insurance industry in Germany has put in place a mechanism for the protection of insured parties in the shape of Protektor Lebensversicherungs-AG. This institution would take over the insurance contracts and the guarantee assets of the company concerned and maintain the contracts.

In the past years insurance contracts have steadily lost their market share of Riester pension plans in Germany, albeit from an extremely high starting level of more than 90%. It remains to be seen whether this trend will persist regardless of the recent crisis.

With occupational retirement provision, pension plans financed through insurers (in Germany these are direct insurance, Pensionskassen and basically also *Pensionsfonds* (German-style pension funds), reinsured support funds (*rückgedeckte Unterstützungskassen*) and direct employer commitments based on reinsured book reserves) are protected against insolvency of the employer. Here, the retirement assets are held in safe custody with a legally independent pension institution. In the event of the employer's insolvency, further contributions to employer-funded plans cease but (inalienable) vested rights retain their validity.

Pension funds (temporarily) hit hard

Internationally, most occupational pension plans are financed through pension funds. Particularly in the USA, the Netherlands and the UK, occupational retirement provision is based entirely or for the most part on this vehicle. Pension funds are special funds kept separately from the company's other assets and held by trustees.

Basically, the following budget equation applies to pension funds operating to international standards: the provident capital accumulated from the contributions and their profitable investment must equal the net present value of the benefit or pension entitlements accrued thus far (already earned) by the beneficiaries. Where a pension plan's cover assets exceed the discounted pension entitlements, in other words the obligations towards its beneficiaries,

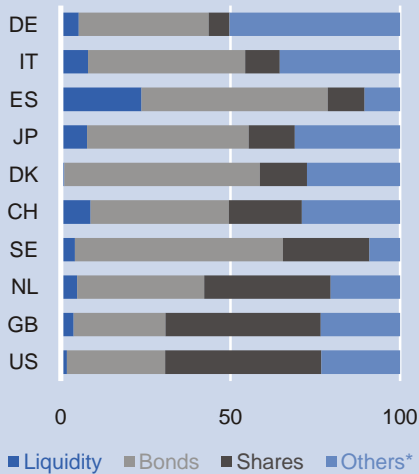


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Investment structure of pension fund assets

2008, in %

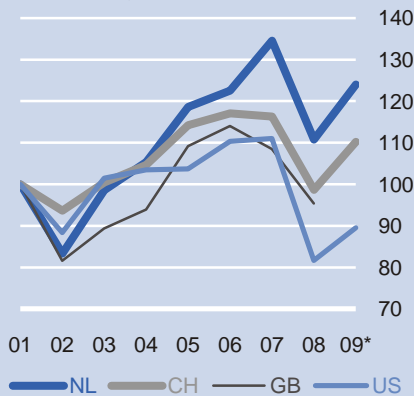


*Loans, property, shares in mutual funds that do not concentrate their investment in stocks, bonds or money market paper, etc.

Source: OECD **15**

Volatile pension fund assets

In % of GDP, 2001=100

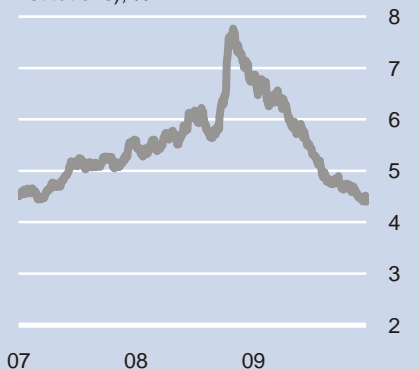


*3rd quarter

Sources: OECD, national sources, DB Research calculations **16**

Euro bond yield

Corporate bonds (excluding financial institutions), %



Source: iBoxx **17**

it is overfunded. It then possesses reserves. In the opposite case there is a funding gap, i.e. the pension plan is underfunded.

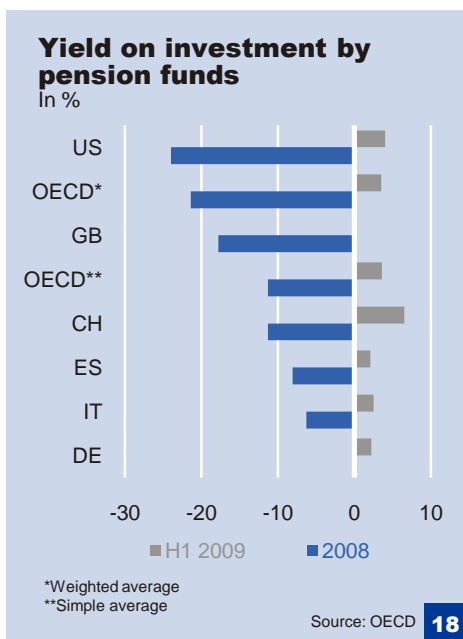
As a rule pension funds are subject to state supervision and regulation. However, both the investment regulations and the solvency or capital requirements are usually less restrictive than for insurance companies. For example, essentially no quantitative investment regulations apply to pension funds operating to international standards (a notable exception being Swiss Pensionskassen, which tend anyway to be more insurance-oriented). Instead the prudent person or prudent expert rule is widely applied. Here the legislator dispenses for the main part with specific quantitative requirements on investments in individual asset classes.¹⁶ But this does not mean that asset managers are free to invest the retirement assets however they see fit. Rather, the prudent expert rule obliges them to observe certain guiding principles, such as risk diversification, and commits them to a perspectivist investment approach, taking into account the age structure of the plan beneficiaries, among other factors. In practice, like solvency or capital requirements this equally gives rise to certain investment restrictions.

Even so, pension funds are traditionally more yield-oriented and consequently relatively heavily invested in stocks. Additionally, pension plans in the US and UK recently held substantial amounts of structured securities backed by real estate and/or mortgage loans, which took a severe battering from the crisis on the housing markets in these countries. As the crisis deepened many pension funds therefore saw their assets shrink considerably, particularly as these have to be marked to market in many countries. But as the international stock markets bounced back, pension funds were able to notch up marked asset growth again for 2009 as a whole. US pension funds' total assets increased by 12% from the end of 2008 to the end of the 3rd quarter of 2009. The respective figure for Dutch pension funds was 4.3%. For the UK pension funds, the nominal rate of return is estimated at 14% for 2009, after a loss of 17.8% in 2008. But many pension funds have not been able so far to fully compensate the losses from the difficult periods in 2008 and the spring of 2009. For the pension funds in some countries, such as the US, the last ten years as a whole might even have been a lost decade.

Turmoil on the bond markets also creates problems for pension funds, whose balance sheet is exposed to a severe interest rate risk on the liabilities side. The current discount rate (or the yield curve of relevance to the maturity pattern of their commitments) is crucial to the net present value of their payment commitments. If the discount rate (curve) falls (flattens), this net present value increases. Where no change takes place in the value of the available capital stock, the pension plan's financial situation deteriorates. If no reserves are then available, the plan may become underfunded. Conversely, the net present value of the payment commitments falls if the discount rate rises (and the cover ratio increases on constant asset values).

Different rules apply internationally to the discount rates that pension funds have to apply. In America and the UK the yield (curve) on high-grade (AA rated) corporate bonds is taken as the benchmark. In the Netherlands discount rates follow the yield curve of very low-risk bonds, which is close to that of government bonds. For Pensionsfonds in Germany, on the other hand, which closely resemble

¹⁶ As a rule limits are merely imposed on investments in individual companies, most particularly in the company sponsoring the pension plan.



insurance products, defined benefit schemes must operate with the maximum technical interest rate set by the Federal Ministry of Finance (currently 2.25%) that also applies to insurance policies. Similarly, in Switzerland pension funds must discount their payment obligations by the minimum rate set by the Federal Council as the compulsory guaranteed rate of return on occupational pension plans. At present this stands at 2%.

Alterations in the discount rate can have huge implications for the net present value of pension commitments that is relevant in supervisory terms. A one-point rate reduction can push up the liabilities under a typical plan by as much as 20%. However, the insurance-oriented plans customary for Pensionsfonds in Germany and Pensionskassen in Switzerland do not incur problems in this respect inasmuch as the discount rate for the individual plans equals the guaranteed minimum return.

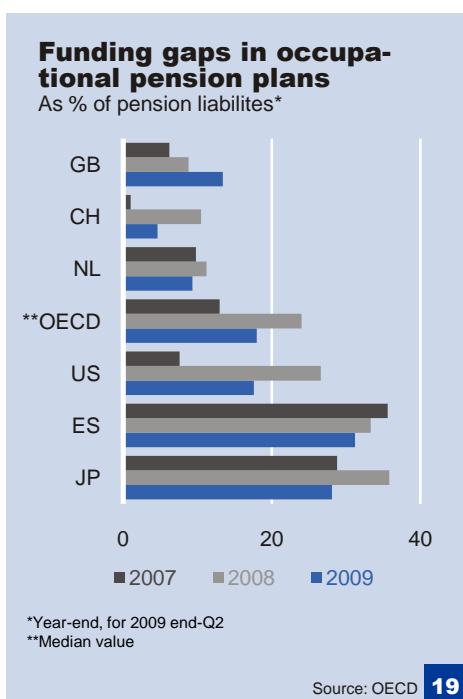
Financial situation has since improved markedly for many pension funds

During the past two and a half years of turmoil on the financial markets, the stock markets and bond markets have performed differently in some instances. In the US, for example, in September 2008 yields on the relevant corporate bonds soared by around one percentage point against their January to September 2008 average. But since the late autumn of 2008 they have dipped sharply. A similar trend is evident in the UK. Pension funds in both countries therefore initially enjoyed relief on the liabilities side in 2008, while the drop in bond yields in 2009 had a negative impact on their financial situation. Given the lower risk on the reference securities in the Netherlands, the relevant yields narrowed from mid-2008 (with a strong widening of spreads between corporate and government bonds in the euro area in autumn 2008) to autumn 2009, with negative repercussions for Dutch funds.

On balance the fallout from the market turmoil on provident assets on the one side and pension plan liabilities on the other has created serious funding problems for pension funds in many countries. The OECD calculates that the median coverage of listed companies' defined-benefit pension plans fell in the industrialised countries from 87% at the end of 2007 to 76% end-2008. Up to mid-2009 the level of funding then edged up again to 82%. The figures indicate that the finances of company pension plans in Japan and Spain are among those most profoundly affected. Mid-2009 pension plans there still exhibited funding gaps of 28% and 31% respectively. It is also striking that during the first half of 2009 occupational pension funding improved hardly at all in some countries. Indeed, in the UK coverage continued on its downward path from around 91% at the end of 2008 to 86.6%, as the result of a steep drop in yields coupled with the development in real estate prices. In contrast, US pension plans saw their coverage climb nine percentage points in the first half of 2009 to slightly more than 82%.

Meanwhile the situation has improved further internationally. The funding ratio of Dutch pension funds, for example, increased from 92% in the 1st quarter of 2009 and 102% in the 2nd to 109% in the 3rd quarter. Nevertheless, the situation for many pension funds remains challenging, given the environment of persistently low bond yields and volatile equity markets.

Different recovery requirements



Funding shortfalls in occupational pension plans (as defined in regulatory terms) trigger different recovery requirements from one country to another.¹⁷ These reflect the emphasis placed on protection for the beneficiaries on the one hand and the interests of companies, as sponsors of the plans, in limiting the costs of occupational retirement provision on the other, as well as the progress made on implementing international standards.

In the past minimum funding levels of 90% were considered sufficient in the **United States**. Moreover, pension plan sponsors were given considerable leeway in choosing the actuarial assumptions and methodology to calculate their liabilities. The Pension Protection Act of 2006 introduced stiffer standards, including the yield curve taken to calculate the discount rate. Additionally, since 2008 corporate sponsors have ultimately been obliged to fully fund their liabilities from pension promises, for which a seven-year transition period up to 2015 has been set. The benchmark set for 2009 is coverage of 94%.

Pension funds in the **Netherlands** have to fully fund their nominal liabilities and maintain a solvency buffer of 5%. What is more, the probability of undershooting the 100% mark may not be greater than 2.5%. According to model calculations by the regulator, this can require coverage of up to 130%, depending on the investment structure of the individual plan. If the funding level lies between the minimum and targeted solvency balance the funds must submit recovery plans indicating how the coverage target can be met in the long term and have them approved by the regulator.

The regulator in the **United Kingdom** does not specify general quantitative funding targets. Instead, qualitative regulations apply, differing according to the type of pension scheme. Funds are required to have sufficient assets to cover their accrued liabilities. In the event of a shortfall, the trustees must prepare a recovery plan. In general, the regulator will intervene if the funding target is less than 100% and/or a recovery period is likely to last more than ten years.

As a general rule defined-benefit schemes in **Switzerland** must likewise be fully funded. Temporary underfunding there is only permissible subject to the proviso that the benefits can be delivered on maturity and the provident scheme takes steps to remedy the shortfall within an appropriate period.

Unlike the other countries discussed, there is no general requirement in **Germany** on the full funding of occupational pension plans. Instead, regulation is geared to the type of plan and pension promise. Whereas book reserve schemes and provident funds do not need to be fully funded, strict regulations apply to Pensionskassen, Pensionsfonds (at least for the drawdown phase) and direct insurance, all being insurance-oriented schemes. For these, the guaranteed benefits must be covered at all times. In the case of insurance-based retirement plans compliance with this condition is fundamentally built into their design (see above).

Just as the regulations on pension plan solvency differ, so too do the measures that sponsor institutions and individual sponsors can or must adopt internationally. Basically, there are three ways of addressing problems:

¹⁷ See Blome Sandra et al. (2007). Pension Fund Regulation and Risk Management: Results from an ALM Optimisation Exercise. OECD Working Papers on Insurance and Private Pensions No. 8.

1. Amending solvency requirements including (actuarial) calculation and valuation principles

The US and Denmark are among the countries that have taken this route to address financial problems with pension funds or corporate sponsors. In the US the valuation of pension fund assets may depart from the market value principle under certain circumstances. Also, funds have been given greater leeway in discounting liabilities. Similarly, instead of marking their assets to market, pension funds and insurance companies in Denmark may state them at the values they expect when the market situation is defused. Moreover, the discount factor may take into account not only the low rates for high-grade bonds but also mortgage rates, which are higher.

2. Raising contributions, including the obligation for sponsors to inject fresh capital

The sponsors of defined-benefit pension plans financed by means of pension funds are obliged to remedy any funding shortfalls with additional contributions (injections of fresh capital). This reflects the yield risk that sponsors bear. (With plans funded jointly by employers and employees, as in the Netherlands for example, both parties can be required to make additional contributions.) But the upside of this risk is the potential opportunity: companies may benefit enormously from positive market trends. In many countries the competent regulators permit contribution holidays if the pension plans are comfortably funded thanks to strong asset growth. In the past this has considerably reduced the cost of occupational retirement schemes to employers. Germany, however, does not permit pension funds to take time out from contributions in this way.

The additional funding obligation imposed on companies is not without its problems, especially if – as happened in the recent crisis – financial market upheaval coincides with an economic crash. Funding problems for companies weakened by the business situation may be exacerbated, and may indeed potentially threaten their very existence. This explains the easing of restrictive valuation rules in some countries. Special solvency relief also applies in some jurisdictions during crisis situations. US regulators, for instance, have temporarily set aside the obligation to make progress on full funding for sponsors of certain underfunded pension plans. In the Netherlands the period during which underfunded schemes must advance to minimum funding of 105% has been increased from three to five years.

3. Benefit cuts

Reducing benefits is an option mainly where occupational pension plans are funded exclusively by voluntary contributions from employers. But cuts to existing plans are usually made only as a further step in a series of unavoidable recovery measures. As a rule this is preceded by the closure of more comprehensive plans to new or younger employees. In the past many companies have already adopted this response to longish periods of slack business and, most importantly, to the cost pressures resulting from globalisation. This explains the international trend away from defined-benefit plans towards defined-contribution or hybrid schemes. The recent crisis is likely to heighten this development. In the UK, for example, only 22% of DB private-sector schemes were still open to new members in 2009, compared to 35% in 2006, and membership of active DB schemes has halved to 2.6 m since the early 1990s.¹⁸

Termination of pension plans in the USA

There are two possible options under US law:

1. **Standard termination.** This is conditional on the pension fund's possessing sufficient assets to meet all existing commitments (i.e. entitlements accrued thus far). In this case the company sponsoring the plan must compensate beneficiaries for the rights they have acquired either in the form of a non-recurrent capital payment or by purchasing a pension plan of equal value with an insurance company.
2. **Voluntary distress termination.** This procedure can kick in if a plan is underfunded and the employer finds itself in a difficult financial situation (distress) and unable to continue operating the plan. In this case a federal relief agency, the Pension Benefit Guaranty Corporation (PBGC), takes over the plan and the retirement assets in it (also see p. 23f).

¹⁸ IFSL (2010).

Possible adjustments to occupational pension plans in Germany

The adjustment or amendment of occupational benefit commitments in Germany is a complex issue. We can therefore do no more than give a non-binding summary here of a few basic principles of employer-sponsored plans. A distinction must be made between changes during the qualifying period and in the drawdown phase. Whereas very narrow limits are imposed on the scope for changes to current pensions, employers may reduce or discontinue the benefits promised during the qualifying period under certain conditions. As a rule, however, alterations to benefit commitments require the cooperation of the works council. Safeguards to protect existing entitlements are also in place, graduated according to the scale of intervention (three-stage theory of the Federal Labour Court). According to this, there are three types of reasons – compelling, reasonable and objectively proportionate – justifying varying degrees of alteration to existing entitlements. However, entitlements already accrued and based on past events enjoy full protection.

As a general rule current pensions are inviolable. The only possibility open to employers is to postpone or (temporarily) suspend adjustments prescribed by law under certain circumstances – depending on the type of commitment or pension plan. This is the case, for example, if the company's resources are at risk.

In accordance with Article 16, paragraph 1 of the German Occupational Pensions Act (Betriebsrentengesetz), employers are bound to review adjustments to their current benefits every three years. Paragraph 2 deems this obligation to have been fulfilled if adjustments to benefits are at least in line with the increase in the consumer price index for Germany or with the net increase in wages of comparable groups of employees in the company. Alternatively, employers may undertake (paragraph 3) to increase benefits annually by a minimum of 1%. With pension plans implemented through direct insurance and Pensionskassen the obligation to make pension adjustments does not apply if all surpluses earned on assets earmarked to pay benefits to present retirees are used to increase current benefits. Similarly, there is no adjustment requirement in the case of defined benefit plans called Beitragszusage mit Mindestleistung in which the accumulated capital at retirement must equal at least the contributions made less risk contributions, where applicable.

As a rule the barriers to reengineering existing occupational pension contracts are higher. They are designed to protect employees' interests in reliable retirement provision. In the US employers are not only allowed to suspend the payment of contributions, under certain circumstances they may even terminate the pension plans (see box on p. 20). In the Netherlands the indexation of company pensions to inflation may be suspended temporarily, and when times are very hard entitlements already accrued may even be reduced. In Switzerland 'vested rights' are fundamentally protected. Cuts may only be made for the future. Possibilities here are lowering the rate of return on retirement balances, cutting back future pension payments to people still employed and reducing the pay insured and/or risk benefits (invalidity and death) that have not yet fallen due.

Germany likewise allows restrictions on benefits in times of crisis (see box). Employers have the right to decrease or (temporarily) suspend the allocation of funds to occupational pension schemes, meaning that company pensions will be lower further down the line. As a rule, however, measures of this kind require an in-house agreement, i.e. the participation of the works council.

Internally financed occupational pension plans indirectly affected

In Europe the practice of funding company pension plans through the formation of internal reserves is to be found in Italy, Austria and Sweden, among others. But it plays a more prominent part mainly in Germany in the form of book reserve plans (for occupational pensions). This type of plan offers employees the benefit of deferred taxation of all the contributions by the employer. However, employees may not claim state subsidisation under the Riester model for book reserve plans, although *Entgeltumwandlung*, i.e. the right to have part of their earnings paid into a company pension scheme, is possible.

With a book reserve scheme the company forms pension reserves to fund the obligations resulting from its benefit commitments. The formation of reserves reduces the company's (distributed) profits and its tax load. This way the company acquires resources which are then available for investment. Inasmuch as these funds are invested in the company, reserves are a means of corporate finance. In the payout phase the pension provisions are then gradually written back, with the effect of increasing profits, while at the same time the current pension payments reduce profits as tax-recognised expenditure.¹⁹ Ultimately, internally financed pension plans pay benefits to the company's retirees from the business's cash flow. This type of funding is affected at times of crisis on the financial markets and in the real economy inasmuch as the solvency of the company as a whole is jeopardised as a result. Comprehensive benefit commitments to a relatively large number of company retirees may increase the sponsor's risk of insolvency. Book reserve schemes are protected against this risk by the German pension protection fund (PSVaG) up to a certain amount (in 2009 the maximum was EUR 7,500 per month, see p. 23f).

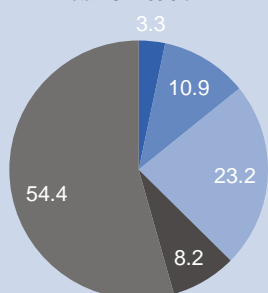
Critics compare these kinds of internally financed pension plans with pay as you go systems. It is correct that these plans do pose

¹⁹ Effectively tax is deferred during the qualifying period (and dividend payouts postponed). The financing effect for the company ultimately results from the interest it is able to earn during the qualifying period.

Assets of occupational pension schemes in GER

2007, in %

Total EUR 438.8 bn.



- Pension funds
- Direct insurance
- Pensionskassen
- Support funds
- Book reserve plans

Source: aba

20

Pension reserves

The amount of pension reserves acknowledged for tax purposes is based on the net present value (Teilwert) of the benefit commitment. The statutory methodology used to calculate this (subject to Article 6 a of the German Income Tax Act – EStG) is the so-called modified Teilwertverfahren, or entry age normal method, according to which funding must be in place for the whole period of service from entry into the company's employment until retirement age or the receipt of a pension, and under tax law the future benefit entitlements must be discounted at a minimum rate of (at present) six percent. The provisions stated in the tax balance sheet do not adequately reflect pension liabilities owing to the high discount rate and the fact that no allowance can be made for future salary and price increases.

Pursuant to the German Accounting Law Modernisation Act (Bilanzrechtsmodernisierungsgesetz, BilMoG) the statement of pension reserves in a company's commercial balance sheet is no longer governed by tax legislation. Instead the new statutory regulations apply. A technical interest rate has to be chosen that is marked to market and corresponds to the remaining term of the provisions. Future salary and pension increases must also be included in the valuation. First-time application of the new requirements may trigger a steep rise in the pension liabilities to be reported. Should initial application of the BilMoG lead to an increase in pension reserves, the additional expenditure in which this results may be spread over 15 years. The BilMoG brings German accounting regulations more closely into line with the international standards (IAS 19) that big corporations have been using for some time now.

problems for employers, who are assuming considerable costs and risks that weigh on the company. Pension provisions have to be reported in the accounts, which may have a negative impact on the rating of the companies concerned because nowadays financial analysts and rating experts in particular interpret provisions as outside capital.

Trend to external investment of cover assets likely to persist

But instead of ploughing the liquidity resulting from the creation of provisions into their businesses, companies can also invest the funds externally on the capital market. It is estimated that in Germany roughly 50% of the total cover assets of around EUR 240 bn (2007) held under book reserve schemes are invested outside the company. At large companies the percentage is even higher on average. Investing cover assets externally on the financial markets gives the companies concerned a chance of participating in the opportunities of positive market trends, depending on the type of investment. The higher the yield obtained, the lower the subsequent financial burden on the companies. Conversely, of course, periods of financial market weakness may have negative temporary effects.

There are various ways of investing book reserve schemes' cover assets outside the company. Important are asset funding and trustee models.

- With **asset funding** the sponsoring company purchases securities or shares in mutual funds. These remain part of the company's assets, acting as "internal cover funds" for the pension reserves. In the case of substantial investments (several million euros and more) pension provisions can be secured with special funds. These are professionally managed by investment companies which, although subject to strict state supervision, are nonetheless permitted to act under liberal investment regulations.
- Cover assets are also formed under **trustee models**. In this case, however, they are pledged in favour of the plan beneficiaries or transferred to a trustee and may be used only to discharge pension liabilities. With pension trust models of this kind (which are also known as Contractual Trust Arrangements, CTA) employees' entitlements can be protected under private law against the employer's insolvency.

Trustee solutions are the method of choice for large companies in particular. According to press reports, about half the MDAX companies in Germany and almost all DAX companies have meanwhile outsourced a more or less substantial part of their pension reserves into a CTA. In a CTA the trustees do not personally invest the funds transferred to them; as a rule they assign this task (by agreement with the sponsor) to a professional asset manager, such as an investment company. As a basic principle CTAs are not subject to financial supervision. Consequently no regulatory restrictions on investment of the capital apply to the sponsoring companies or the asset managers they instruct. Sponsoring companies are also at liberty to decide on the extent of cover for the pension liabilities they have outsourced into a CTA. In contrast to Pensionsfonds, there is no obligation to inject fresh capital to fill any funding breach, especially since the sponsoring company is still fully liable for the fulfilment of its commitments.

According to International Accounting Standards (IAS) the assets shifted into a CTA are recognised as plan assets and can therefore



Merits of CTAs*

- Netting pension liabilities against “ring-fenced” outsourced pension assets enables the sponsoring company to reduce its balance sheet, the most important effect of which is to boost its equity ratio.
- In the event of the sponsor’s insolvency the pension plan assets are protected against access by other creditors to the advantage of plan beneficiaries.
- In principle the pension liabilities can be fully funded.
- Considerable freedom of investment means the plan assets can be managed flexibly.
- Investment of the assets can be tailored to accounting and other corporate objectives.
- This includes the possibility of investing plan assets to match the development in pension obligations (e.g. with regard to their maturity).
- Pursuing a professional, yield-oriented investment strategy, advantage can be taken of upswings on the financial markets and, most importantly, of the tendency towards higher returns on the capital markets in the longer term.
- In general, the plan assets can be invested using modern asset liability management (ALM) methods, the aim being to tailor asset investments optimally to a bundle of different goals and objectives.
- The company’s future cash flow can be separated from its pension payments.

* See Küting, Karlheinz and Marco Kessler (2009). Bilanzielle Auslagerung von Pensionsverpflichtungen nach HGB und den IFRS durch ein Contractual Trust Arrangement. In *Der Betrieb*, H. 33, pages 1717-1723.

be netted against the liabilities arising from the pension commitment. This shrinks the company’s balance sheet, reduces its capital gearing and increases its equity ratio, which in principle has positive repercussions on its rating. Under new German standards (the German Accounting Law Modernisation Act – *Bilanzrechtsmodernisierungsgesetz*, BilMoG) it is obligatory to offset and thus to report net liabilities.²⁰

In accordance with international and new German accounting standards, similar rules apply to the valuation of benefit obligations and CTA plan assets as to financing for DB plans by means of Pensionsfonds. The pension liabilities must be valued at their net present value (which is to be calculated according to actuarial principles). For this purpose the discount rate must be derived from the yield on high-quality (AA rated) corporate bonds with a corresponding maturity structure and denominated in the same currency.²¹ The plan assets must be valued at fair value, i.e. their real-time market value.

In principle the valuation rules play a part in causing fluctuations on the financial markets to trigger high volatility in the net liabilities reported in the accounts. In the aftermath of market upheaval in the euro area too, in 2008 the relevant discount rate rose and the net present value of the liabilities decreased. On the other hand, losses were incurred on the plan assets. In 2009 the trend will presumably have been the reverse at many companies. Where funding gaps open up in CTAs, the sponsoring companies must take account of newly arisen differences between pension liabilities and plan assets in any one financial year by setting up provisions in the balance sheet. They have the option of doing this with a time lag, which – while reducing the volatility of the provisions – limits the informative value of the accounts (hidden losses). Ultimately, however, provisions are established at the expense of the equity base.

Press reports on losses in plan assets at individual companies have aroused criticism of this type of external funding for occupational pensions. This critique is hardly reasonable, because the key merits of CTAs are valid irrespective of the risk of temporary losses in the value of the plan assets (see box). For this reason, the trend towards outsourcing pension liabilities into CTAs and (insurance-oriented) German Pensionsfonds (see above) is likely to persist.

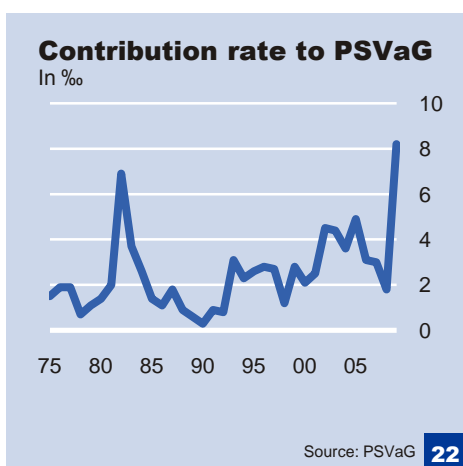
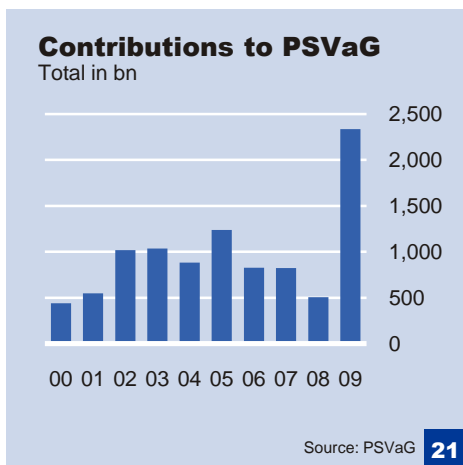
Safety nets under considerable strain

Occupational pension schemes, especially those using Pensionsfonds and even more so internally financed plans, are always exposed to the risk of the sponsor company’s becoming insolvent. In various countries auxiliary institutions therefore exist to bail out pension plans affected by insolvencies of this kind and to service the entitlements that have accrued thus far, with certain reservations. As a rule such institutions are semi-public. Sponsoring companies are obliged to pay contributions to them to protect (DB or hybrid) plans exposed to insolvency risk.

In the past two years these auxiliary institutions have likewise run into stormy waters, as illustrated by the Pension Benefit Guaranty Corporation (PBGC) in the US or Germany’s Pensions-Sicherungs-

²⁰ In accordance with the BilMoG operating assets, i.e. CTA assets invested back into the sponsoring company, are not recognised as offsettable plan assets.

²¹ For the sake of simplification, under the BilMoG calculation may be based on a 15-year term. The technical interest rate is equivalent to the seven-year average of the interest rate observed. In future the Bundesbank will regularly set and publish the binding rate that must be applied.



Verein (PSVaG). Even before that, the PBGC had come under pressure from on-going structural change, primarily in US industry and the aviation sector. Now the burdens have become even more onerous. In fiscal 2009 the PBGC registered the termination of 144 single-employer plans. On average these plans were only 63% funded, resulting in an overall charge of USD 5.8 bn net. All in all, by end-September 2009 the PBGC's funding gap had widened to roughly USD 22 bn, shooting up by USD 10.8 bn within the space of a year. The PBGC is funded not only by contributions from sponsor companies but also takes over the existing assets of the plans transferred to it.

In Germany, for 2009 the PSVaG recently reported the highest-ever losses since its establishment in 1974/75. Altogether, funding must be found for expenditure of EUR 4.05 bn. In the past, liabilities were funded exclusively by a pay-as-you-go system (*Rentenbarwertumlageverfahren* – terminal funding).²² At the end of 2006 the system began switching over to full funding, a process that is to be completed in 15 years. In the short and medium term this tends to push up contributions. The assessment basis for contributions by the currently 76,000 member companies is the pension provisions reported on their balance sheets, which total EUR 285 bn. For 2009 the (full) contribution rate is 14.2‰. In view of this exceptionally high level, employers are allowed to contribute part of the levies for 2009 in the following years up to 2013. Nonetheless, for 2009 contributions of altogether EUR 2.34 must be raised. This represents an 8.2‰ drain on liquidity. In 2008 the contribution rate was only 1.8‰, and on average for the 34 years since establishment of the PSVaG 2.3‰.

The auxiliary institutions help keep occupational pension provision reliable even in difficult times. This is important in terms of maintaining beneficiaries' confidence, which is such a vital factor with pension provisioning. Even so, heavy recourse to these relief organisations is causing difficulties of its own. Soaring contributions are weighing heavily on the companies concerned. The situation is all the more problematic in Germany inasmuch as the differences in contribution liability and the level of the contribution rates for the various types of occupational pension schemes are by all means contentious.²³ This is particularly true of the full contribution liability for book reserve schemes funded externally by means of CTAs. In general an element of moral hazard exists inasmuch as the insolvency of a company with an externally financed defined contribution scheme weighs less on the PSVaG and the entire community of companies than in the case of internally financed plans – a state of affairs that is not reflected in the contribution rate. In America, another issue being debated alongside the heavy burden of contributions for companies is whether, in the long run, the PBGC might not need support from the public purse.

²² In each case contributions funded only the entitlements of current company retirees. Consequently contributions were geared essentially to the net present value of the pensions already being paid that were taken over by the PSVaG as a result of the insolvency. No provision was made for future entitlements resulting from still-employed people's (inalienable) vested rights.

²³ See BDA (Ed.) (2006). Dokumentation der BDA-Fachtagung: Weiterentwicklung der Beitragsgestaltung des PSVaG. Berlin.

Conclusion

- The global financial and economic crisis has subjected pension systems to a historic stress test. In many places fully-funded retirement schemes have withstood this better than a lot of doom-mongers were still prophesying at the beginning of 2009. Admittedly, this is due chiefly to the robust recovery staged mainly by the stock markets since their March 2009 lows.
- Recent experience does not therefore argue against building up retirement assets. With individual pension contracts the temporary asset losses that some plans have suffered should broadly be ironed out again in the coming years. However, the crisis has revealed as illusory some expectations of permanently high yields like those that could be obtained in the 1990s or the middle of the 2000s.
- Private retirement provision is vital to secure an appropriate standard of living in old age, especially in ageing societies. In principle, though, as life expectancy rises sharply people still face the prospect of working more, or longer, across their life cycle.
- This is also a very important way to address the problem of looming old-age poverty, to which attention is increasingly turning. It is up to people who are only paying, or only able to pay, fairly low pension contributions at present to try and step these up going forward, when the situation on the labour market is expected to improve.
- Acceptance of the need to make more private provision will presumably increase as progress is achieved on fostering people's financial literacy.
- Modern retirement provision requires a range of varied products catering for provident savers' different needs. Depending on the product type, individuals bear different kinds of risk, of which they should be aware. This is another argument pro greater financial literacy.
- Even if temporary losses in the assets of some yield-oriented, dynamic-investment products have occurred as a result of the financial market turmoil, the crisis has by no means discredited these products or, indeed, rendered them obsolete. On the contrary, with governments under persistent pressure to cut back on state pension spending, younger provident savers in ageing countries are all the more dependent on the prospect of profitable private pension plans.
- In occupational pension provision the international trend away from comprehensive defined-benefit pension plans and towards pure-play defined contribution schemes or hybrid plans is likely to be accentuated as a result of the crisis. Amid relentlessly tough competition, for many companies the alternative to slimmed-down plans exposing them to less risk and expense could be to cease offering company pensions at all.

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Printed by: HST Offsetdruck Schadt & Tetzlaff GbR, Dieburg

ISSN Print: 1612-314X / ISSN Internet and e-mail: 1612-3158