

PENSION FUND PROTECTION SCHEMES

BY
FIONA STEWART

I. Introduction

The issue of pension benefit security is currently in the foreground of both economic and political debate in many OECD countries. After a 'golden age' for pension funds, which enjoyed high investment returns and funding surpluses throughout the 1990s, a more troubled period has emerged since the start of the millennium. With equity market corrections, (and the subsequent questioning of long-term equity return assumptions), a low interest rate environment, asset liability mismatches, severe underfunding (highlighted by accounting changes), ageing populations, financial scandals and loss of pension benefits, the whole defined benefit pension system in many countries is under assault. Once the rise in defined contribution schemes (and the uncertainty they inherently entail) as well as the scaling back of government pensions are also taken into consideration, people of all ages are rightly asking what retirement income they can rely on? Though the subject has been debated on many occasions, recent events have ensured that the topic of pension benefit security has once again become a focus for policy discussion.

Some countries have dealt with benefit protection via strong funding rules (the route taken for example by the Dutch authorities). This paper examines an alternative method of increasing benefit security in retirement – pension benefit protection schemes (the option current being introduced in the UK). The ultimate risk faced by beneficiaries of defined benefit occupational pension schemes, (or defined contribution type schemes where the pension fund itself is responsible for any return, benefit promise or guarantee), is the loss of their retirement income were their corporate plan sponsor to go bankrupt whilst the company pension plan is underfunded. Given rising bankruptcy levels and widespread underfunding, the likelihood of such an event seems to have increased in several countries. Benefit protection schemes, also known as insolvency guarantee schemes, cover lost pension income in such cases. This paper will examine the arguments for and against such schemes at both a theoretical and practical level. Detail studies of the countries where these schemes exist will then follow.

II. Arguments for Benefit Protection Schemes.

i. Market Failure

The main theoretical argument in favour of benefit protection schemes is derived from the concept of market failure. In theoretical terms, pensions can be seen as deferred wages, provided by companies in return for workers sacrificing some current income or other form of compensation. In estimating how much current wages they are prepared to give up in order to receive a pension income in retirement, employees calculate the perceived security of the sponsoring firm honouring these future promises. The lower the sponsoring firm's bankruptcy risk, the more wage concessions a company can extract for a given level of promised pension benefits. In a perfectly competitive market with full information workers in poorly funded plans with a near-bankrupt employer will grant few or no wage concessions as they do not believe that their pension will ever be paid. Consequently, compensation for bankruptcy and loss of pension should already have been considered through this trade off mechanism¹. Some prefer to see pensions are complex savings schemes sponsored by employers (providing a way of smoothing life-time income) rather than deferred wages. Only if the likelihood of default is greater than the income tax benefit gained from pensions savings should the employee decline the pension offer. Individual biometric risks should also come into the calculation.

The problem with this theory (as pointed out by Mitchell (1987), Ippolito (1985/ 1987) and others) is that workers do not necessarily understand the bargains and calculations they are making, and do not always have all the information necessary to make such decisions – given the complicating issue of asymmetric information between workers and employers. They consequently remain more exposed to the bankruptcy of the sponsoring firm than their wage bargaining implies. The recent outcry over the loss of pension benefits by workers of several UK firms would certainly suggest that this is the case². The justification for pension benefit protection schemes is that they provide an extra layer of security for beneficiaries against a sponsor's bankruptcy and therefore compensate for any asymmetric information situation and correct for any market failure.

Cooper and Ross (1994) describe this market failure in terms of 'market fragilities' and contracting problems. Markets are fragile when buyers may lose confidence that sellers will not stay in the market long enough to fulfill their contractual obligations. The problem arises in any buyer-seller setting where the current action of the buyer is taken in anticipation of a future action by the seller. Guarantee funds have been set up in many sectors (pension benefits, deposit insurance, travel packages etc.) in order to support

trade in such potentially fragile markets, by acting as a substitute or backup in case a seller cannot commit to future market participation and cannot honour a contract. Pension benefit protection schemes operate by providing confidence to workers who may otherwise be concerned about the future viability of their firm and its ability to honour its pension promises. If workers become concerned enough, they might leave the firm or demand higher wages today, either of which could hurt the company and make the very bankruptcy event they fear a self fulfilling prophesy. As in the case of deposit insurance, pension guarantees can avoid this type of behavioural run.

ii. Diversification

A further aspect of the market failure discussed above is the issue of diversification. Even if it is accepted that workers do have all the information required to make an efficient trade-off between current wages and future retirement income, a market failure may still occur due to the problem of diversification. Workers in occupation pension schemes receive their current and future income from the same source, and are therefore highly dependent on their employer, suffering a 'double blow' if the company enters bankruptcy. Portfolio theory argues that efficient risk bearing requires sufficient diversification across asset classes and individual issuers. Yet it may be difficult for employees to diversify the risk posed by their current and future income coming from a single source. Most employees are unlikely to have assets or portfolios of sufficient size or the investment expertise necessary to hedge the risk of their pension assets, as for many workers occupational pension benefits constitute a large proportion of total retirement savings. Only the most highly compensated managerial employees may have the financial wealth and knowledge required to diversify away the risks of their defined benefit pension claims, yet even they may face restrictions (e.g. on short-selling the firm's securities). Diversification is especially difficult if membership of the corporate pension scheme is mandatory, or for life time employees who work for a single firm during their careers. The problem with this situation is pointed out by Bodie (1996). Despite the fact that they are unable to diversify their pension risk, when it comes to their pension benefit workers often wish to have as low a risk exposure as possible to their retirement income. Bodie therefore argues that few employees would consciously agree to accept default risk on their pension benefits in order to increase their expected cash wages, even if they have all of the relevant information necessary to assess the default risk of the firm - which in most cases they do not which makes the welfare loss even greater.

The problem of diversification becomes even more key when pensions are funded via a book reserve system. In such cases, pension benefits are not

secured by an external pool of diversified assets, as pension assets form part of the plan sponsor's balance sheet. As a consequence a book reserve system can be likened to a funded system in which all of the pension plan assets are invested in a single security – i.e. the debt of the sponsoring firm. If the plan sponsor were to go bankrupt the accrued pensions of both active and retired workers would clearly be at risk. In theory pension fund trustees could overcome this concentrated exposure, for example by shorting the sponsoring company's stock. However restrictions will usually be in place to prevent this and, where the pension fund is particularly large compared with the market capitalization of the sponsoring firm, such action could have an extremely adverse effect on the share price. Hence benefit protection schemes are often compulsory for firms operating internal forms of funding (as is the case in Germany and Sweden).

III. Challenges for benefit protection schemes.

i. Moral Hazard

The main theoretical argument against pension benefit protection schemes is moral hazard. This is a classic problem with any type of insurance, where the buyer of the insurance product adopts riskier models of behaviour as an undesirable response to the financial protection provided by the insurance carrier. In the case of pension benefit guarantees, if a plan sponsor knows that upon bankruptcy their pension fund liabilities will be covered, even if sufficient assets are not available to back these promise, they may be incentivized to indulge in irresponsible behaviour, leaving others to cover the costs of the pension promises they have made. Such behaviour may include raising benefits to unsupportable levels, cutting their own contribution rates, or pursuing a risky investment strategy. Moral hazard can be avoided to some extent, for example by not covering increases in benefits awarded in a period leading up to bankruptcy (as is the case with in PSVaG in Germany). Other measures can be put in place to reduce incentives to abuse the insurance system, such as limiting the pension benefit covered (as is the case with the Ontario fund) or by imposing strict funding rules to limit the size of the potential claim taken on by the guarantee scheme. Moral hazard can also be limited by charging higher premiums as the pension becomes more underfunded, or if a risky investment strategy is followed. However, if premiums paid to the protection scheme do not fully reflect the risk presented by the insured it is impossible to eliminate moral hazard completely. Such problems should not be over-stated (for example it may be logical for company in difficulty to effectively raise capital via underfunding the pension scheme if the market cost of capital were higher, as they may thereby reduce the risk of

insolvency). However, problems with the PBGC in the USA shows that 'gaming the system' is possible and needs to be protected against.

ii. Adverse Selection

The problem of adverse selection also stems from the mispricing of premiums. If, when setting the premium rate, due consideration is not taken of the contributing firm's bankruptcy risk, pension funding level and investment policy, stronger member firms will inevitably end up subsidising weaker ones. If these cross subsidies are too high the problem of adverse selection kicks in, with financially secure firms finding ways of pulling out of the guarantee system (e.g. by replacing their defined benefit schemes with defined contribution ones). Protection scheme members therefore have the incentive to follow others out of the system in a 'bank run' type fashion to avoid being the last solvent member shouldering the burden of the underfunding of all bankrupt members.

The risk pricing of premiums does, however, seem to be very difficult to achieve in practice. Various studies have shown that premiums charged by existing pension protection schemes are not properly priced as they do not truly adjust premiums to take account of all sources of risk³. Most schemes do adjust for underfunding levels (e.g. PBGF of Ontario or the Japanese guarantee fund), but do not take account for the key risk which is the solvency of the corporate plan sponsor, despite corporate debt markets making such judgments on companies daily. The new PPF in the UK does take such risk into account when setting their levy, whilst the Swedish scheme does so via the ability to take a lien on a firm's assets. Investment risk is not considered by the schemes, but has been calculated to be a more minor issue.

The problem seems to be that fully risk adjusted premiums would be too expensive for many firms to bear, with proper firm specific pricing of premiums pushing the weakest firms into bankruptcy, thereby hurting the very workers the insurance system was trying to help. Another problem may be that to fully reserve for possible future claims and therefore to keep the guarantee system adequately funded would also be prohibitively expensive, given that claims tend to be 'lumpy' and several standard deviation risks would have to be covered⁴. A further conundrum raised by properly risk adjusted premiums is that they could spell the final nail in the coffin for defined benefit schemes by making these too expensive for plan sponsors to operate and therefore finally persuading them to move to DC style plans (which once again places more risk in the hands of the beneficiaries the scheme was initially supposed to protect).⁵

iii. *Systemic Risk Issues*

One reason given as to why pension protection premiums are not priced correctly (and indeed cannot be as they would be prohibitively expensive) is that there is systemic risk involved in guaranteeing pension benefits. This stems from the fact that the bankruptcy and underfunding risks of plan members are correlated, meaning that the insured risk cannot be spread sufficiently. The basic principle underlying any insurance system is the sharing of non-systemic risk. Insurance works when the incidence and severity of events covered by the insurance scheme are relatively independent across the insured population. Pension benefits can be insured for non-systemic events (such as poor corporate management, fraud etc.). They cannot, however, provide cover for systemic ones, such as macroeconomic weakness, which increases the bankruptcy risk of all companies (though not necessarily equally), or sharp equity market and interest rate declines (which are systemic problems given the similar liability structure of occupational pension plans and their tendency to follow the same asset allocation patterns). To make matters worse, bankruptcy risk is highly correlated with underfunding, as plan sponsors tend to stop making contributions to their pension funds when they get into financial difficulty. In addition, protection schemes which actually take over the assets of failed pension plans (such as the PBGC in the US and the PPF in the UK) may face an extra layer of correlation if they invest the assets which they have taken over in the same manner as the pension funds which they are guaranteeing. If their investment returns turn negative at the same time as their clients, their own financial position worsens. As pension funds become a larger part of the corporate capital structure it is possible that this systemic risk will increase even further (and it is not implausible to envisage that in future an insolvent pension fund could even cause the bankruptcy of a company). It may be possible to insure against systemic risk across time, but this would involve building large reserves, which, as discussed, may make these guarantee schemes unaffordable.

Some argue that systemic risk may be the reason why *private sector* pension benefit guarantee insurance is impossible, but actually explains why *government sponsored* schemes are necessary. Pesando (1996) argues that due to systemic risk private markets may not be able to provide plan termination insurance even if demanded or that this insurance could exist only at premium rates that are commensurate with these risks. The subsequent argument is that governments must therefore step in to provide beneficiaries with the necessary coverage. However, given developments in financial markets, financial (risk hedging) products and the increasing sophistication of private sector investment banks, it is really possible to argue that the private sector is still not capable of providing coverage for

pension benefits?⁶ With firms, for example in the UK, beginning to offer such insurance, a new risk may be posed to the protection schemes if the best risks are taken by the private sector, leaving them with lower quality firms to cover with less premium income. However, the major difficulty with government backed schemes is persuading tax payers to accept the burden of pension insurance costs. In practice this means tax payers, (who are, it should be noted, in many countries seeing their state pensions being reduced), subsidizing or indeed bailing out those lucky enough to still be in corporate defined benefit schemes, and who tend to be relatively well paid – a situation which may not be tenable. The fiscal burden of such protection schemes can be lessened to some extent, for example by imposing strict funding rules or asset matching requirements (which prevent pension schemes from becoming severe underfunded), or by placing a ceiling on benefits covered (as is the case with the scheme in Ontario, which provides protection only up to CAD\$12,000). Yet governments are inevitably expected to be the final protectors of retirement income in times of systemic stress and, particularly if these schemes are mandatory or incentivized, surely it is difficult for the government *not* to act as a lender of last resorts should systemic problems arise?

IV. Practical Issues

i. Political vs. Economic

Following on from the observations on possible governmental involvement in these schemes, it should be noted that pension benefit protection schemes have generally been set up in reaction to political events. Maybe the justification for the existence of such schemes can really be found in the realm of politics rather than economic efficiency, as they often have implicit, if not explicit, cross-subsidy and transfer objectives? For example, it has been argued that the PBGC was set up during in the USA during the 1970's to support mature industrial sectors of the economy.⁷ Meanwhile, it is interesting to note that the only Canadian province to offer pension insurance is Ontario, which is often seen as the industrial heartland of the country, and that this guarantee fund was set up in 1980 following a series of threatened plant shutdowns. The decision to introduce a protection scheme in the UK follows intense political pressure to cover pension losses for over 65,000 members of company schemes who have seen their plan sponsors become bankrupt in recent years. Yet it has been forcefully argued that whatever the merits of industry support subsidies, there are good reasons not to use cheap pension guarantees as the way to subsidize firms as these are not highly visible and can lead to serious market distortions in resource allocation.⁸

If these schemes were set up for political reasons in the past, could a similar argument be made to justify their continued existence today? Are the increased bankruptcy levels experienced in several countries in the last few years simply cyclical, a legacy of the 'dot com' bubble and the last vestiges of industrial decline? Or do they represent a structural change, as a more aggressive, competitive form of capitalism takes hold, particularly in countries such as Japan and Germany which previously ran 'corporatist capitalism' models where few firms failed? Has pension underfunding also become more of a structural rather than a cyclical issue, given the lower return but higher volatility environment of the capital markets, combined with pressure from increasingly demanding and public accounting requirements? If the latter is the case, could there be an argument that pension benefit guarantee schemes will be more necessary in future?

ii. Alternatives

Pension benefit protection schemes cannot be discussed entirely in isolation, given they should act as the last barrier in the protection of retirement income, in place in case all other measures fail. Indeed it could be argued that they are unnecessary if the rest of the system is properly structured. For example, if the academic theories discussed at the start of this paper hold true, market failures could be overcome by providing workers with proper information and education in order to make their wage/pension trade off effectively (though it should be stressed that in reality this is highly unlikely). Alternatively, asset allocation rules could be applied so that pension liabilities are fully immunized and matched with appropriate assets. Likewise, pension claims could be given high bankruptcy priority or secured creditor rights, so that liabilities would be covered by the firm's assets, ahead of other creditors, in the case of bankruptcy of the plan sponsor (see Stewart (2007)).

One alternative way of guaranteeing pension benefits is to impose strict funding rules, ensuring that pensions are never underfunded - the solution which has been adopted by the Dutch authorities⁹. Pensando (2000) and others have, however, stressed that it is impossible to ensure that pension funds are always 100% funded, for example when investment returns deteriorate sharply, when actuarial assumptions prove incorrect, or when instruments required for full 'immunization' are not available. Full funding is additionally challenged by the fact that corporate plan sponsors tend to stop making pension contributions as their financial situation becomes more difficult. Funding rules may also conflict with other policy objectives (such as surplus funding being taxed). Pension benefit protection schemes may, therefore, have a role to play, even when stringent funding regulations are in place.

What can, however, be stressed is that a pension protection fund works more effectively when combined with adequate funding rules. Overly lax (and loosely applied) funding regulation has been cited as one of the main causes of the financial difficulties of the PBGC in the USA (see country discussion). Likewise in the UK, despite minimum funding rules proving inadequate in the past, concerns are being raised over whether new scheme specific funding rules will provide sufficient protection for the new PPF scheme. Without adequate funding rules claims on pension protection schemes have effectively no upside limit, potentially making premiums extremely (if not prohibitively) expensive. Strict funding and investment rules should be seen as compliments to any pension protection scheme. For example, if funding rules and protection schemes are designed to work together the problem of ‘systematic underfunding’ (where a company deliberately cuts back on pension contributions as it gets into financial difficulty) can be tackled.¹⁰ Insolvency schemes can also be combined with other pension protection measures, such as asset allocation controls or priority bankruptcy rights, to ensure that there is some upside protection to the level of claims.¹¹ This prevents all the responsibility for pension benefit protection falling onto the guarantee scheme, a responsibility which may prove prohibitively expensive, making the scheme unworkable.

iii. Other guarantee schemes

Perhaps practical arguments in favour of pension guarantee schemes can be found through looking at equivalent schemes which have been successfully operated in other sectors – notably insurance?¹² Policyholder protection funds or guarantee schemes within the insurance sector are fairly common across OECD countries, usually for a specific class of insurance (compulsory motor insurance being the most common), but also in some countries for more general insurance contracts. The arguments put forward for these schemes are largely the same as those for pension protection funds, including overcoming an asymmetry of information and injecting confidence into the system to prevent bank deposit style runs. The drawbacks are also very similar, focusing on moral hazard, cross subsidy and structural correlation problems. As with pension guarantees, insurance guarantee systems were often introduced in reaction to political pressure following insurance company failures and their necessity is seen as differing according to the specific situation in countries (e.g. those countries placing insurance policy holders high in the bankruptcy creditor list are seen as having less need for an additional insurance system). Government guarantees stand explicitly or implicitly behind most schemes. Yet despite these insurance guarantee schemes received resounding support from the European Commission in a recent Working Paper,¹³ the Commission is not

recommending such guarantee funds be introduced for pension benefits (perhaps because most European countries either operate DC pension funds, or apply strict funding and asset allocation rules so that protection schemes would only be required in a few countries).

V. Conclusion

Pension benefit protection schemes do not come without their difficulties and the debate surrounding their role is on-going, especially within the framework of strengthening funding and investment regulation. One case where a definitive argument can, however, be made in their favour is when pensions are funded using a book reserve system. In this case, the lack of diversification seems to be an overriding issue and some form of benefit guarantee system is therefore required. Indeed, the OECD's 'Guidelines on funding and benefit security' highlight just such a situation:¹⁴

1.3 Occupational defined benefit plans should in general be funded through the establishment of a pension fund or through an insurance arrangement (or a combination of these mechanisms). Additional protection may be provided through the granting of priority creditor rights to plan members and beneficiaries and through insolvency guaranty schemes that protect pension benefits in the case of insolvency of the plan sponsor.

1.4 Private unfunded plans should generally be prohibited. The establishment of an insolvency guaranty scheme should in general be required for occupational defined benefit plans that are financed through the book reserve system.

1.5 Insolvency guaranty schemes should rely on appropriate pricing of the insurance provided in order to avoid unwarranted incentives for risk-taking (moral hazard).

For autonomous pension funds, the need for a pension benefit protection scheme is less clear cut. Their inherent difficulties (moral hazard, cross subsidies, systemic correlations) imply that other (less political) means for protecting pension benefits should be introduced first. Good funding rules can achieve almost all of what a guarantee scheme is striving for, are arguably easier to design and manage and, especially when combined with other measures, (such as asset liability matching or priority bankruptcy rights), offer a high level of protection. If a protection scheme is successfully combined with funding rules or other protection measures it can effectively perform its task as a 'last resort' measure. Whilst the goal of protection schemes is mainly to manage the consequences of pension fund bankruptcy, efforts to prevent such bankruptcies and underfunding should be prioritized. Indeed the guarantee schemes themselves call for adequate

funding and investment regulations, which reduce the risks they face and enable them to intervene less.

A further conclusion which can be drawn is that if protection schemes are to be introduced they must be carefully designed in order to avoid their inherent weaknesses. The failure of the pension guarantee fund in Finland in the early 1990's,¹⁵ or indeed the Savings and Loan fiasco in the USA in the 1980s, (see US country section), show how important it is to design any insurance system carefully. Given around 75 million people worldwide are protected by these schemes, their successful functioning is certainly important for the social welfare and economy of the countries in which they operate. Positive aspects can be identified in all of the protection schemes currently in operation. For example, the PBGC in the US phases in improvements made to benefits, limits the amount of benefit covered and can impose involuntary terminations on corporations in a difficult financial situation, in order to prevent the size of the potential claim against the guarantee fund escalating out of control. The scheme operating in Ontario corrects for some of the mistakes made on the introduction of the PBGC in the USA, including prohibiting the voluntary termination of underfunded plans (thereby limiting moral hazard and the exercise of the 'pension put' against the guarantee fund by employers that could continue supporting their pension fund) and holding a lien on the assets of the plan sponsor. Meanwhile, benefit improvements granted in the two years before bankruptcy are not covered by the German PSVaG. The great strength of the Swedish insurance system is its strong collateral backing, whilst the Swiss scheme (like those in Germany and Sweden) buys out annuities, rather than taking on the assets of pension plans. The Pension Guarantee fund in Japan can refuse a claim if funding levels are too low.

Drawing on these practical experiences, both good and bad, the following principles for the successful operation of a pension benefit guarantee system can be identified:¹⁶

- *Limited benefit coverage:* in order to limit moral hazard, certain benefits should be excluded from coverage (including improvements granted prior to insolvency). A ceiling on benefit coverage also seems reasonable, to make payments more acceptable if tax payer's money is involved and to keep the system affordable (though the risk of forcing pension fund members to 'pay' for the actions of fund managers, trustees or the plan sponsor needs to be considered).
- *Risk based pricing:* the key to any insurance scheme's success (avoiding moral hazard and adverse selection) is the proper risk pricing of premiums, based on the expected claim levels for the

insured. In the case of pensions, premiums should most importantly reflect the likelihood of the plan sponsor becoming insolvent (could be via proxy measures such as credit rating, swap levels etc.), the likely size of the claim, the extent of the pension plan's underfunding, and potentially the risk inherent in any asset liability mismatch. Market based pricing is essential. Over the long term the aggregate level of premiums (+ investment returns) should reflect aggregate claim levels (and maybe a surplus should also be built), with flexibility needed to adjust premium levels as reality veers from estimates.

- *Accurate and consistent funding rules:* pension benefits should as far as possible be fully funded, and plan sponsors should be required to act swiftly in order to limit losses. Successfully combining a guarantee scheme with funding rules ensures some upside limit to potential claims and makes the guarantee scheme affordable. In order to ensure stable funding, consistent and adequate financial measurement and disclosure are required.
- *Prudent asset liability management:* pension funds should be encouraged to follow prudent asset allocation strategies, which avoid large swings in funding levels, again limiting potential claims and making the guarantee scheme more affordable. Likewise the guarantee fund itself, if it takes over the assets of insolvent pension schemes, should follow an appropriate investment strategy, and one which avoids correlations between its own financial position and the funding level of the pension funds it is insuring. In order to avoid such correlations, guarantee funds may use annuities to buy out pension liabilities taken over.
- *Adequate powers:* a pension guarantee scheme needs to have adequate powers to avoid moral hazard, and prevent plan sponsors using their guarantee as a 'put' for their pension liabilities. For example, extra premiums or collateral must be requested (and paid) as the risk of insolvency at the plan sponsor rises. This again requires transparent and timely disclosure of information by the plan sponsor. Proper powers to claim assets via the bankruptcy process may also help the funding and functioning of the guarantee scheme. Finally, and most importantly, any guarantee scheme needs to operate without undue political influence (including having the power to set a risk-based levy, to smooth over time and to take a long-term view).

In summary, pension benefit guarantee schemes should be run in a truly economically efficient manner, with properly market priced

premiums. However, it is important to remember that these schemes support voluntary arrangements and the structure of the guarantee scheme needs to be mindful of this, with over protection and expensive premiums avoided or the pension plans may be closed down altogether. If a scheme proves prohibitively expensive, the cost of guaranteeing pension benefits can be reduced by combining with other benefit protection measures. However, for the guarantee scheme to work effectively, subsidies should not be provided, either implicitly or explicitly, by governments. As pension systems increasingly move from public to private provisioning, a major challenge for protection schemes is to stop public guarantees creeping back in.

VI. Country Studies

The case studies discussed below consist only of countries which offer explicit insolvency insurance for defined benefit pension plans, triggered when the sponsoring firm becomes bankrupt and the assets do not meet the accrued benefits of the pension plan. Implicit guarantees also exist in some countries, but will not be discussed here (e.g. 20 year minimum benefit in Chile). Elsewhere compensation funds exist, providing cover in the case of fraud and illegal activities for pension income (and sometimes other benefits, e.g. mutual funds), but these are also not discussed.

Although all the schemes in existence have a common objective – to protect benefits for members in private pension funds – each is the product of local circumstances which gave rise to the need to establish a protection regime. Similarities and differences exist between all the schemes in operation, but they demonstrate the multiple balancing acts – between politics and economics, security and costs – which must be performed and determined by each country's own history and context.

I. USA

i. Description

History: A series of corporate failures (such as the Studebaker auto company in the 1960s) provoked the ERISA pension legislation which was eventually adopted in 1974. This included a guarantee program, known as the Pension Benefit Guarantee Corporation (PBGC).

Coverage: The PBGC administers separate programs for single and multiple employer defined benefit pension plans. As of 2006, almost 44 million individuals were covered by the PBGC, the single employer insurance covering 34.2 m workers in 28,800 pension plans and the multi employer program 9.9m workers in 1600 plans. A total of 1.3 million people are currently receiving or owed benefits from the PBGC, whose annual benefit payments now total \$3.686 billion.¹⁷

Operations: The PBGC is liable for the payment of guaranteed benefits with respect only to underfunded, terminated plans. Distress terminations occur when a company voluntarily terminates its pension plan (having filed for bankruptcy, or if the pension costs are proving unreasonably burdensome due to a decline in the number of employees covered). Involuntary terminations occur when the PBGC terminates a pension plan due to a lack of funding, or if the loss to the PBGC is expected to increase unreasonably if the plan is not wound up. In the event of the insolvency of a member corporation, the PBGC becomes the trustee of the plan assets and administers the payment of future plan benefits up to a specified maximum annual pension (c\$47,659 per year for a 65 year old in 2006, with adjustments for other ages). Some other benefits (unvested, early retirement) are not protected. Guaranteed benefits that are created by plan amendments less than 5 years old are phased in at a rate of 20% a year. In the case of multi-employer schemes, the PBGC steps in when a covered plan no longer has assets available to make benefit payments (not when the sponsor is bankrupt). Assistance is usually provided in the form of loans, though companies often cannot fully repay them. The maximum guarantee under the multi-employer scheme is \$12,870 per year. The PBGC has dealt with 3,595 terminated plans during its history, 120 new claims being made as of September 2005.

Premiums: The scheme has three main sources of income: premiums, trustee assets, and investment income. Premiums are charged on flat rate basis (raised from \$19 to \$30 per plan participant as of 2006) and there is also a variable component (\$9 per \$1000 of underfunded vested benefits). Premiums for the multi-employer plan are charged at \$2.60 per head. Premium income from single employer plans in 2006 amounted to \$1.44bn (flat rate premiums \$883m, variable rate \$550m). Although the PBGC is not funded from general tax revenues, it is a government agency, and as a consequence is a contingent liability of the U.S. government and tax payers. Changes to the premium structure require legislation from Congress and have historically been updated several times - including in 1991 when the cap on insurance premiums paid by underfunded plans was removed. The Pensions Act passed by the Bush Administration in 2006 involves changes designed to strengthen retirement security. As well as reforming funding

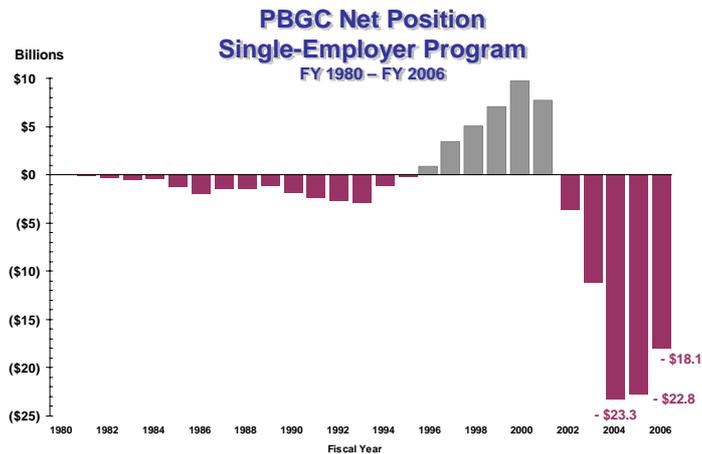
rules (e.g. introducing funding targets related to the financial strength of the plan sponsor, restricting benefit improvements at underfunded plans), which indirectly help the protection scheme, the bill also reforms the PBGC's premium structure. The flat rate premium has been raised from \$19 to \$30 and index linked, whilst the risk-based premium will be based on the level of underfunding, adjusted regularly and will be payable by all underfunded plans¹⁸.

Investment: Policy requires all premium income be invested in fixed income assets (in what are known as Revolving Funds), whilst assets taken over from terminated plans may be invested in equities (via Trust Funds) – which may seem contradictory, given that terminated liabilities are known, and therefore would seem to be better matched with bonds, whilst equity investment would appear to be more appropriate for premium income, which is designed to cover future claims. The PBGC uses external portfolio managers to invest these funds, with their oversight. The overall asset allocation of the organization is set by the Board of Directors (which includes the Secretaries of Labor, the Treasury and Commerce) and in 2006 consisted of 77% bonds (the majority of liabilities are matched on a \$ duration basis), and 23% equities. Revolving fund assets were \$15.2bn whilst Trust Fund assets were \$44bn. \$2.2bn investment income was generated in 2006.

ii. *Issues:*

The PBGC has had a troubled financial history ever since its foundation. After enjoying several years of surplus during the late 1990's (hitting \$9.7bn in 2000), the scheme is now facing a huge and extremely troublesome deficit (see figure 1). The 2006 annual report of the organization, (for the fiscal year ending September 2006), declared assets worth \$61.2bn, and liabilities at \$80bn, creating an \$18.8bn shortfall. The organization was hit hard by the market and consequent economic correction from 2000 onward. Over and above the \$18.8bn shortfall, the PBGC estimates that it has a further \$73bn possible exposure to companies which are likely to become insolvent in the near term (e.g. having extremely low credit ratings). The multiemployer plan may also require further assistance. The latest estimates from the organization for the total underfunding of US pension funds which it insures exceeds \$450bn¹⁹. The PBGC's rapid swing from surplus to deficit is causing concern amongst plan sponsors, lawmakers and the tax-paying public, and its very survival is in question, raising the possibility of a required bail out through government funds²⁰. Indeed the US General Accounting Office has characterised the scheme as 'high risk'.²¹ There has been much debate over how such a huge deficit within the scheme came about. Some of the main causes are outlined below.

Figure 1

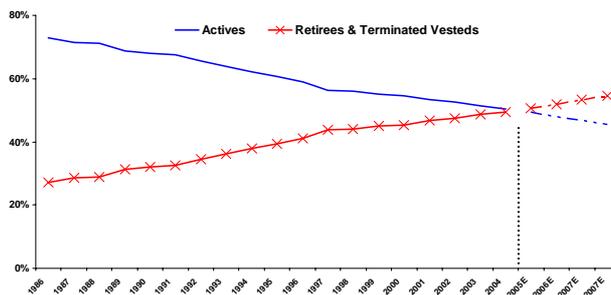


Data does not include restored LTV plans in 1986

Another element of the PBGC's structural funding challenge comes from the number of retirees and terminated vested participants in insured defined benefit plans now surpassing the number of active members. Consequently, how will plans ever make up their underfunding?

Figure 2

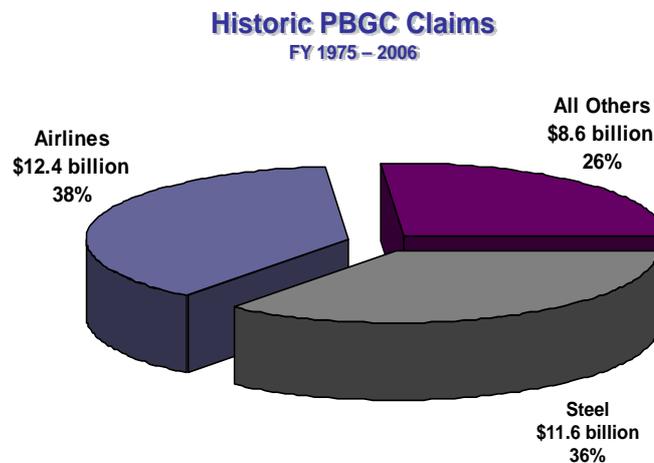
**Participants in Defined Benefit Pension Plans
[1985 - 2007^{est.}]**



Source: PBGC

Concentrated exposure: the PBGC's risk pool is concentrated in industries affected by global competition and the movement from an industrial to a knowledge based economy. In 2001 almost half the insured participants were in plans sponsored by firms in manufacturing industries (steel, autos etc.), many of which are heavily unionized and run flat rate schemes. These have always placed the PBGC particularly at risk as they promise to pay a nominal amount, with contracts being regularly renegotiated retroactively, and often substantially, to offset inflation and provide benefit improvements. As increases in pension promises cannot be funded in advance (due to tax limitations) automatic, and often large, underfunding situations are created at these schemes, which entail similarly large potential exposure for the PBGC. Although the PBGC's "problem" will eventually go away (as flat benefit plans are generally legacy costs of shrinking heavy industries, and many others shift to DC schemes) the funding situation of the organization may get worse before it gets better. The PBGC remains highly exposed to the steel and particularly airline industries, from which it has recently suffered large claims (see Figure 3 + 4).²²

Figure 3



Note: Historically, Steel has represented less than 3% of participants covered by PBGC and Airlines less than 2%.

Source: PBGC

Figure 4

Top 10 Firms Presenting Claims
FY 1975 – FY 2006

Top 10 Firms	Fiscal Year of Plan Termination	Claims (Billions \$)	Covered Participants	Funded Ratio*
United Airlines	2005	\$ 7.5	122,500	48%
Bethlehem Steel	2003	3.7	97,000	49%
US Airways	2003, 2005	2.7	58,800	52%
LTV Steel	2002, 2003, 2004	2.1	81,000	52%
National Steel	2003	1.3	35,400	52%
Pan American Air	1991, 1992	0.8	37,500	31%
Weirton Steel	2004	0.7	9,200	44%
Trans World Airlines	2001	0.7	34,300	60%
Kaiser Aluminum	2004	0.6	17,600	42%
Kemper Insurance	2005	0.6	12,200	48%

* Funded ratio at termination for PBGC benefits; participants lose additional benefits not covered by PBGC

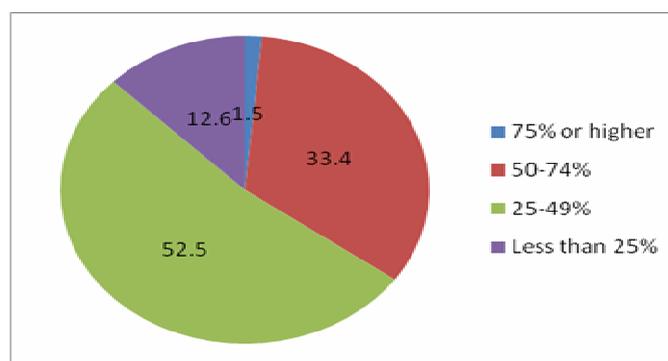
Source: PBGC

Asset liability mismatch: a further cause of the extreme deficits at the PBGC is the asset allocation mix widely adopted by pension funds in recent years, and indeed by the PBGC itself. It can be argued that a typical US pension plan has long duration bond-like liabilities, but asset allocation has typically been as high as 70% in equities, with the fixed income portion in bonds with far shorter durations. What has consequently been described as a severe asset liability mismatch left pension plans, and therefore the PBGC, particularly exposed to the low interest rate, poor equity return environment which occurred from 2000 onwards. The PBGC's own sensitivity to interest rates have been claimed to be a large part of its deficit (around one third of the move from c\$10bn surplus to over \$10bn deficit in 2001 was said to be due to interest rate sensitivity and duration mismatching). The PBGC could offset some of its exposure to poor equity market and macro conditions with a counter cyclical investment policy. Yet it still raised equity weightings itself during the 1990's (though the scheme announced a reversal to this approach during 2004)²³.

Weak funding rules: weak funding rules, allowing pension plan underfunding to reach extreme levels, are a further cause of the PBGC's large deficit. US funding

rules employ extensive smoothing and deferral mechanisms which can insulate companies from having to fund emerging deficits and past service liabilities in a timely fashion, meaning that when accelerated contributions are finally required companies are often not in a position to make them²⁴. Steven Kandarian, former Executive Director PBGC, has identified poor funding rules as one of the main causes of his organization's problems, and has pointed out several key weaknesses in these rules. These include the systematic understating of liabilities, partly as estimated current liabilities rarely bear any relation to the true amount of money a pension fund needs to meet its obligations (as these calculations do not consider lump sums, price annuities properly, factor in early retirement etc.), and partly as only highly probable, near term distress terminations (i.e. companies close to bankruptcy) are recognized as contingent liabilities. He also criticizes contribution holidays and maximum funding rules (with tax disincentives to building up a surplus)²⁵. The PBGC's own proposals for addressing its current problems focus on improving funding requirements, and government suggestions for stricter regulations are also currently being discussed. Yet the challenges of running these schemes in practice is also clear from the US experience, and, as noted earlier, in all countries in which pension plans are *voluntary*. If the protection requirements are too onerous, there is a danger that employers will stop sponsoring plans altogether, leaving workers less well covered and less protected in retirement. The new rules in the US, passed by the Pensions Protection Act of 2006 (PPA), demonstrate this challenge. Though offering better protection for the PBGC, there are fears that they may be a catalyst for better funded schemes to freeze or to annuitize and close down. The new PPA charges to employers who terminate an underfunded plan in bankruptcy (\$3750 per member) have been challenged which shows the difficulty of interacting with bankruptcy law.

Figure 5: PBGC Claims by Funded Ratio 1975-2005



Source: PBGC Pension Insurance Database 2005

Political interference: One of the main challenges for the PBGC has been operating in an environment which offers numerous opportunities for political involvement (e.g. the pensions law, ERISA, is overseen by many bodies – Department of Labor, Treasury etc. -; levies are set by Congress; the PBGC Director is a political appointee; other cabinet Departments become involved when there is a major bankruptcy in their sector – e.g. the Department of Transport with an airline case). Interference from Congress has made, and continues to make, the underfunding situation even worse. Under intense lobbying pressure, politicians have intervened to assist companies in financial difficulty by providing temporary relief, which effectively make the already weak funding rules virtually meaningless. In April 2004 temporary legislation was passed which reduced the required contributions sponsors must pay to their defined benefit plans by an estimated \$80bn by changing the discount rate used to calculate liabilities. Congress also provided an additional \$1.6bn relief to the steel and airline industries - sectors with some of the most underfunded pension plans and which represent the greatest exposure for the PBGC, both historically and potentially. These moves by Congress directly counter the PBGC's own plans for strengthening the funding environment, and, though temporarily helping troubled industries, the measures will likely worsen the agency's financial condition²⁶. Political interference also comes at the level of specific bankruptcy workouts, as priority rankings and compensation levels are subject to negotiations.²⁷ The PBGC's problem is not that it does not have sufficient powers to protect itself. Such powers range from demanding larger premiums as underfunding rises, to potential bankruptcy priority claims, to involuntary termination. The organization also operates an 'early warning system', working with companies which it sees as entering into difficulties to try and ensure continued solvency. The issue is more that political interference stops the PBGC exercising the powers which it has. The fact that any changes to the PBGC premium or operational structure must receive Congressional approval also seems to hamper the PBGC's ability to react in a correct, long-term and timely fashion to its problems. Comments made by Dr. Alicia Mundell as far back as 1982 (quoted in Smalhout (1996)) sum up this position:

“The PBGC's vulnerability stems from its inability to control the action of the plan sponsors. Often it does not have access to detailed information about a pension plan until the company decides to terminate. Hence, the PBGC will always remain financially vulnerable and the federal government may well end up as the insurer of the nation's private pension system.”

However, despite the political involvement, the fiscal relationship between the PBGC and the federal government is not clear. If forced to annuitize all of its liabilities

tomorrow, the PBGC would be insolvent. Indeed, decades down the line the PBGC could run out of funds, but it is not clear who will be left to cover the ultimate liability – an issue which has also not been addressed in regards to the PPF in the UK.

Mispriced premiums: continuing on the theme of political interference, the PBGC's premiums are set by Congress, and have consequently been criticized as being set at politically judicious rather than economically viable levels. Premiums are not market priced, and do not take into consideration all the risks to which the PBGC is exposed (e.g. there is no adjustment for the potential insolvency of the plan sponsor). Over the long term, the premium income of a guarantee scheme should equal its benefit obligations and operating expenses. However, whilst the PBGC's benefit payments have increased through more plan terminations and its liabilities even more dramatically (partly due to interest rate and inflation exposure), its premiums have not, which has inevitably led to a deficit position. On top of the mispricing issue, which means that premiums are too low, Ippolito (2004) also points out that even these premiums are not fully collected, which makes the PBGC's position even more troublesome. The organization is supposed to collect a variable rate premium equal to \$9 for each \$1000 of underfunding. Given the organization's \$400bn underfunding estimate in 2002, premiums of \$3.6bn should have been collected. In reality, \$787m were received, \$586m coming from the fixed assessment of \$19 per member. The PBGC therefore collected only \$200m, or 50cents per \$1000 of underfunding, around 5.5% of the prescribed \$9 charge²⁸. The changes introduced in the Pensions Act of 2006 do attempt to address these issues. Such structural challenges partly stem from a lack of clarity over the PBGC's mission – an issue which other protection schemes also face. Is the PBGC an insurance company? If so, it is hampered from operating on a truly commercial basis the levy restrictions applied by Congress (though the flat rate levy was recently increased to \$30, as noted, it would require a flat rate premium of \$80-90 for the scheme to become commercially viable over the next 10 years). Is the PBGC designed as an instrument of social policy, supporting certain workers and jobs (and if so why are pensions protected but not health packages)?

2. *Canada*

i. *Description*

History: of the 10 jurisdictions that regulate private pensions in Canada only the province of Ontario operates a scheme guaranteeing pension benefits, the Pension Benefit Guarantee Fund (PBGF). This was introduced in 1980, around the time when plant closures at heavy industrial companies were being discussed in this the centre of Canadian industry. As this guarantee system started six years after the PBGC was introduced, some of

the perceived mistakes of this operation were ironed out (including that the event covered being the insolvency of the plan sponsor, that a lien on employer assets equal to the full amount of the insured shortfall of pension assets was set up, voluntary terminations by underfunded plans were not allowed and no provision for funding waivers for employers experiencing financial difficulties is available).

Coverage: the Ontario fund protects the basic pension benefits of over 1 million beneficiaries. As in the US, the scheme in Ontario covers many flat rate pension plans in heavily unionized, industrial sectors.

Operations: when a company with an underfunded pension plan covered by the PBGF fails a plan administrator is appointed and makes a 'PBGF declaration', valuing the guarantee promised by the organization. The PBGF then makes an allocation to the pension fund, and this cash is used by the fund to cover its liabilities (e.g. by buying annuities). Benefits are guaranteed up to a maximum of CAD\$12,000 per year, far lower than the US, PBGC scheme coverage. This amount is not inflation linked and has not been altered since the guarantee scheme was introduced. Neither liabilities of a plan less than three years old are not covered, nor any benefit improvements made within three years of termination. Multi-employer schemes are also excluded.

Premiums: initially premiums were set at 0.2% of any unfunded liability, but soon an annual charge of C\$1 per member was added. Following a huge claim in the early 1990s from Massey-Combines (the farm equipment producer) which caused the fund to borrow from the provincial government, (the subsequent interest costs absorbing all premium income), a new premium structure was introduced with a sliding scale for the risk adjusted component. For plans unfunded on a termination basis the risk adjusted charge increased to 0.5% of those unfunded liabilities representing up to 10% of total liabilities. For additional unfunded liabilities representing up to 20% of total liabilities the annual charge rose to 1% and for unfunded liabilities above that the charge is 1.5%. The PBGF is currently in deficit again (largely due to a large claim made in 2001 on the reorganization of the Algoma Steel company). The financial statements for the organization²⁹ from the end of March 2005 show assets of CAD\$291m and liabilities of CAD\$529m, giving a deficit of CAD\$238m. In addition, in 2004 accounts the PBGF notified of three companies in bankruptcy proceedings - i.e. operating under a stay under the Companies' Creditors Arrangement Act - whose pension plans could represent very significant claims on the fund (one estimated at CAD\$50m, another at CAD\$65.4m). The 2005 accounts note that the PBGF is still closely involved in the bankruptcy and insolvency proceedings of 2 funds. The financial statements also show that the Province of Ontario has made an interest free loan of CAD\$330m to the organization

to assist with its current financial difficulties (payable at CAD\$33m a year over 11 years), and it is expected that premium charges will also have to be increased.

Investment: As of March 2005, the PBGF's CAD\$223m investments were held in short term deposits (35%), government and corporate bonds (65%).

ii. *Issues*

Currently, the only jurisdiction in Canada to implement a pension benefit guarantee fund has been Ontario. While the federal government has indicated that it is open to considering ways to strengthen existing protections in federal pension legislation, pension experts have indicated that a federal pension guarantee fund is not a practical option, particularly as federally registered DB plans account for only 5% of all pension plans in Canada (420 federal DB and combination plans as of March 2004, versus over 3000 plans registered in Ontario). In addition, a few of the federally registered pension plans are relatively quite large, with 10 accounting for roughly 70 per cent of the assets of all federally registered DB plans. Consequently, the ability of pension plans in a fund to distribute risk of loss is seen as difficult, particularly should a large plan terminate with a significant deficit.

3. *UK*

i. *Description*

History: under the UK's existing pension system, implicit insurance for pensions was offered for the contracted out portion of the earnings related portion of the state pension (SERPS). These commitments were absorbed back into the public system if a sponsoring company went bankrupt. A compensation scheme to cover pension beneficiaries who lost out due to fraud at the sponsoring company was also introduced during the 1980s (following the scandal at the Maxwell pension fund)³⁰. The UK has introduced an explicit pension benefit compensation scheme, the Pension Protection Fund (PPF), which began operating from 6th April 2005. This Fund has been introduced on account of intense political pressure, following over 65,000 workers in various companies losing large amounts of their pension benefits in recent years on the bankruptcy of their sponsoring companies (including ASW the UK's second largest steel manufacturer). This pressure came in the wake of other pensions scandals in the UK (such as Equitable Life, and misselling issues) and, as well as providing GBP 400m compensation for workers who had already lost out, the government

felt it necessary to put a new compensation structure and new funding rules in place³¹ in order to try and restore faith in the defined benefit pension system in general. Lawrence Churchill, formerly head of UK insurance at Zurich Financial Services, is the new organisation's first Chairperson.

Coverage: the PPF operates to provide compensation to members of eligible defined benefit occupational schemes with around 10 to 15 million pension fund members being covered.

Operations: the PPF will meet payments from a central fund. The scheme will pay 100% level of compensation to those above the normal pension age and to those of any age who are already in receipt of an ill health or survivors pension at the start of PPF involvement with a scheme (subject to the removal of any rule changes in the past 3 years the aggregate effect of which was to increase the scheme's overall liabilities). Furthermore, subsequent increases will be paid in accordance with PPF rules (as opposed to the scheme's which could result in increases which are less than the scheme may have provided). A 90% level of compensation will be paid to those below retirement age subject to inflation adjustments³² and an annual cap set at £29,928.56 in 2006/7 for an individual retiring at 65. Again this is all subject to a review of the rules of the scheme and subsequent increases will be paid in accordance with PPF rules. Indexation will only be paid on rights accrued after 6th April 1997 in line with Retail Price Index (capped at 2.5%). The PPF will also pay survivors' benefits for eligible spouses, civil partners and unmarried partners at half the rate of members' periodic compensation. The costs of the PPF will depend on claims that it experiences in future. The Pensions Act 2004 also introduces a new, much more active Pensions Regulator with powers to investigate and impose action. New codes of practice requiring compliance, and threatening a range of punishments from the freezing of assets to the removal of trustees have been introduced.

Premiums: From 2006/2007 the Pension Protection levy is made up of a scheme-based element and a risk-based element. The principle for setting the premium is that it must be fair, proportional and transparent. The scheme-based levy will relate to the level of a pension fund's unfunded liabilities and may consider the number of members, and the amount of pensionable earnings in respect of active members. The risk-based levy will take account of the level of the scheme underfunding and the likelihood of sponsoring employer insolvency. The PPF also considered taking a fund's asset allocation into account, but decided against as this was seen as representing only around 3% of their outstanding risk. At least 80% of the estimated amount must be collected via the risk based element of the pension protection levies. The risk based levy has been introduced over a transitional period to control costs – schemes will be required to provide a

Pension Protection Fund valuation at the same time as their triennial valuation is undertaken. After the first year of the PPF's existence, when an initial levy was set by the Secretary of State (to get the PPF up and running as quickly as possible), the Board of the PPF will have the power to alter the charge in order to regulate the total amount collected and therefore keep the PPF solvent, though within legislative limits (a 25% maximum annual increase and an overall levy ceiling). The PPF must consult with the government and appropriate stakeholders when it wishes to change the rate of the levies, and at least every 3 years if no changes are made. If the finances of the PPF are in trouble once the levy ceiling rate has been reached, the Act provides for the Board to borrow and to reduce indexation and revaluation to zero. Once it has reduced revaluation and indexation to zero it can recommend that the Secretary of State to vary the 90% and 100% levels (if Secretary of State agrees this will then require further regulation). The government is keen to stress that it is at arm's length to the fund. It is self-financing, and the Act gives the Board significant freedom to determine the levy structure, within set parameters as contained within legislation. The government hopes this will prevent the PPF from becoming run for political objectives and experiencing the financial difficulties currently troubling the PBGC.³³ The PPF stress that they are self-funding, and as only around 6% of assets are reclaimed during a bankruptcy proceedings (the PPF does not have priority creditor rights), the scheme has to rely on the levies it collects for its income (at least until such time as its assets become material, which is estimated to be around 2010). The relationship between the PPF and the new Pensions Regulator will be important, as the latter will act almost as a watch dog for the PPF, with powers to stop schemes becoming severely underfunded. The regulator will also take on some outsourced tasks for the PPF, including the collection of the levies. The Pensions Act also outlines new scheme specific funding requirements. A fraud compensation levy is also paid by both defined benefit and defined contribution schemes if and when the (separate) fraud compensation fund needs to pay out substantial sums after a case of fraud occurs.

Investment: like the PBGC, the PPF will take on the assets and liabilities of insolvent schemes, rather than buying annuities. External fund managers have been appointed to invest the guarantee funds assets, with fixed income mandates initially designed to match liabilities. The strategic asset allocation of the funds will be reviewed at least annually, and will change according to adjustments in liabilities³⁴.

ii. *Issues:* Being a new scheme, the PPF have been keen to learn from the experiences of the other protection funds in operation internationally, particularly from the PBGC. Careful consideration of the risk based levy has therefore been made, and the PPF stress their arm's length relationship with government. As mentioned, the role of

the UK's Pension Regulator is also important in protecting the PPF from moral hazard. However, issues and debate still surround the PPF.

Figure 6

PPF : Lessons from international experience

- A Pension Insurance fund needs as much financial freedom as possible.
- Flexible process for setting the levy
 - need for risk-related levy
 - need ability to take a long term view
- Financial importance of a few large claims.
- Do not guarantee full scheme benefits.
- Ensure the members of pension schemes are not affected by delays in rescuing their scheme.
- Moral hazard must be addressed both in relation to the rules of the pension scheme and corporate operations.
- Operate like a pension scheme to enable annual claims to be smoothed over time and avoid large changes between years in the levies on employers.
- Strong scheme funding required to protect the Insurance arrangement.



Costs: one of the major concerns over the new UK pension compensation scheme is that it will increase costs for defined benefit schemes, thereby encouraging even more of these to shift to a defined contribution basis³⁵. The Association of British Insurers, the Association of Consulting Actuaries and the Pensions Management Institute have all expressed such concerns. The government, however, insists that companies will actually enjoy savings under the new pension regulations of around GBP130 million, rising to 210million when taxes are simplified, (e.g. from reduced administration costs, and from indexation requirements being relaxed). However a survey by the National Association of Pension Funds (NAPF) taken during 2003 found that 50% of pension fund respondents believed that the PPF would make it less attractive to run DB schemes. Meanwhile the Government is still claiming that the levy represents only a very small percentage of the flow of contributions into DB schemes, and that the scheme will greatly increase the value of DB pensions to firms, as they will be useful for recruiting and retaining the best staff. There is also the suggestion that, with the new European Pension Directive, defined benefit funds could locate in another European state which does not operate such a compensation scheme (such as Ireland) in order to avoid paying the levies – raising the possibility of ‘adverse selection’ with only the weaker funds which may need such insurance remaining³⁶.

Asset liability mismatch: concerns have been raised that the new funding rules may actually encourage, rather than alleviate pension funds' asset liability mismatching. The Pensions Act 2004 specifies that risk premiums for the PPF will consider, amongst other risk factors, the "risks associated with the nature of the scheme's investments when compared with the nature of its liabilities."³⁷ However, this should not necessarily be taken to imply that funds will be directed to fixed income assets for immunization purposes, given government comments that: "Our proposals (regarding scheme specific funding requirements) will allow schemes greater flexibility to match their investment strategy to the profile of their members – for example, schemes with younger members may be freed to invest more heavily in assets expected to give a higher return over the long term."³⁸ Even if fixed income holdings are to receive a lower premium, what mechanisms are in place to ensure that funds do not simply switch their asset allocation at the end of year to ensure lower charges and then to switch them into higher return assets for the rest of the period? As of 2007, the PPF decided not to include asset allocation issues in the risk-based premium as they are only estimated represent around 3% of the outstanding risk to the scheme. There are also concerns over how the PPF will invest its money. Despite warnings from the actuarial profession, the plan seems to be intending to invest premiums in the same way as its pension fund client, holding both equities and bonds (though initial investments are to be made only in fixed income assets). The asset allocation will be determined by the Board of the PPF, who are aware of these potential problems, and stress that their own allocation will be set according to the liabilities they take over (e.g. equity investments may be used to cover the liabilities of younger schemes³⁹). Currently the assets are invested 70% in fixed income and 30% in equities (which is lower than the average UK pension scheme's equity exposure).

Lack of funding: though the PPF initially estimated it would raise around GBP 300m a year, though this was raised to GBP 575m at the end of 2005 and set at GBP 675m for 2007/8.⁴⁰ The ceiling currently set by the government is GBP 770m. Some observers remain concerned regarding the organisation's funding over the long-term. Studies have shown that bankruptcies are 'lumpy' and therefore the protection scheme risks being overwhelmed at any one time, but particularly early on when built up premium reserves are low. Indeed if claims may be so skewed that it would be practically impossible to build up the multiyear reserves required, leaving the scheme almost inevitably exposed at some point in future (see McCarthy/ Neuberger model⁴¹). Some actuarial studies estimate that the fund needs closer to GBP 600m a year to remain fully solvent, and could therefore be facing a deficit of GBP 3bn in 10 years time⁴². The issue of a government guarantee should the fund get into financial difficulties has also been discussed. The government is ruling out the use of taxpayers' money, but retains reserve powers to reduce the level of

compensation if there are large claims (though this can only be operated following a request from the Board). Some argue that aggrieved pensioners will not believe that the PPF is not an arm of the government if the system were to get into trouble, whilst others believe the government should take an even more explicit role, possibly committing tax payers' funds up front.⁴³

The PPF itself uses a stochastic Long Term Risk Model to estimate the nature of the risks it is facing (a difficult task given the PPF is modelling over a 50-60 year period and therefore multiple economic cycles, and is dealing with skewed distributions). The PPF has found that its exposure is concentrated, with the top 40 pension plans making up 1/3 of the PPF's potential liability. Given that none of these plans is in the high probability range, the short term exposure of the protection scheme appears limited (which is consistent with the PPF and international experience), but it is the potential catastrophic risk of these funds which drives the premium level. The UK Pensions Regulator therefore needs to focus on these top 40 plans to ensure they are well funded. The volatility of funding levels is also a major driver of premium levels, given this has swung from a 160bn GBP aggregate deficit as of January 2003 to a surplus 78bn GBP in May 2007. It is this inherent volatility in the system which the PPF is trying to cover. The PPF is exposed to extreme tail risk for a concentrated number of schemes. To cover the 99 percentile of risk, funds of 4 billion GBP would be required, whereas the GBP 770m set by government covers only up to the 75th percentile. This 'tail risk' again raises the philosophical questions of what these protection schemes are designed for - social protection, full insurance, catastrophic risk cover? How safe should the safety net be, and who decides, is an important question which drives the balance between the efficiency of these protection schemes and their affordability.

Figure 7

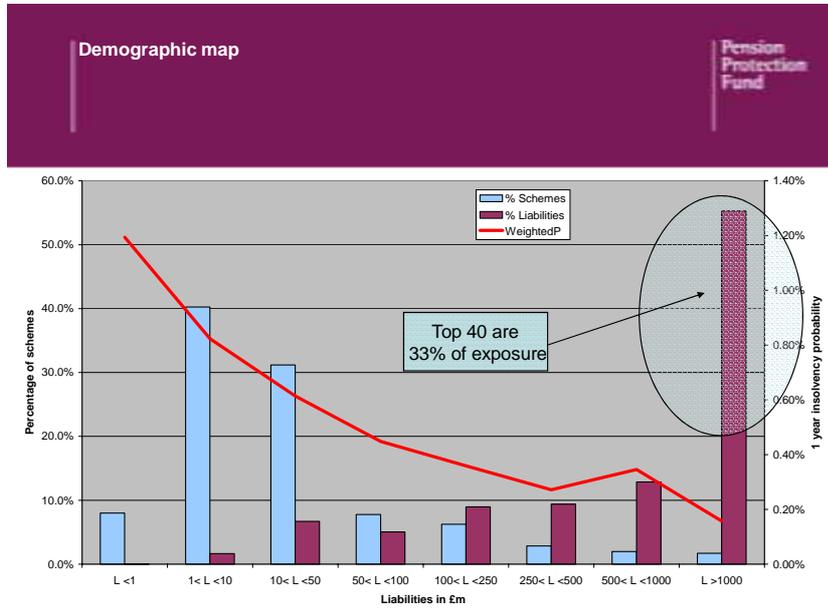
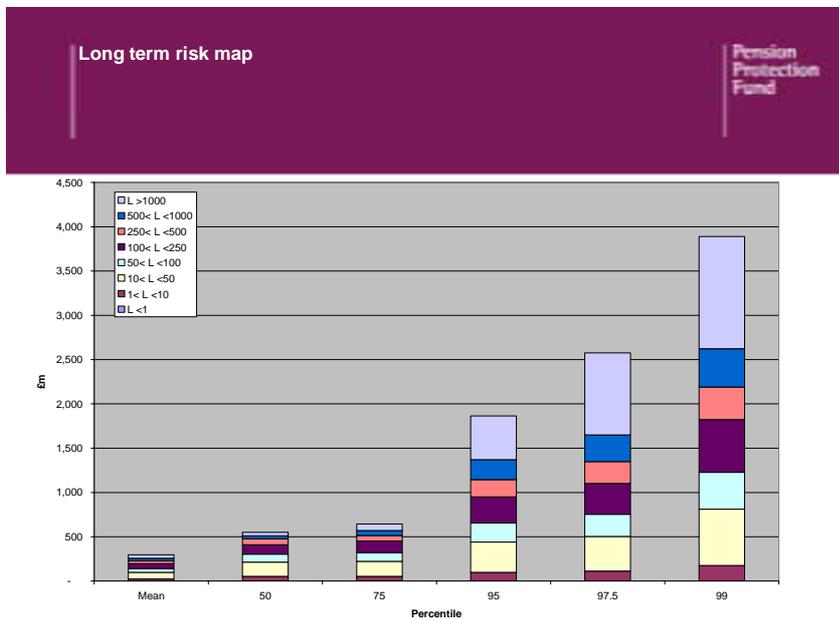


Figure 8



Source: PPF

Mispriced premiums: despite the PPF attempting to take more risk factors into account than any other existing guarantee fund when pricing premiums, concerns still remain that these will still not be set at proper market rates (though practically a balance has to be struck between setting market rates and keeping premiums affordable to avoid the further closure of DB schemes). Concerns have also been raised over the new funding rules. In a study conducted for Watson Wyatt, Anthony Neuberger (of London Business School) and David McCarthy (from Imperial College, London) concluded that a minimum funding standard is an inevitable component of a successful pension protection system. Replacing MFR with scheme-specific regime seems attractive and flexible, but the problems of moral hazard and adverse selection remain⁴⁴. It is not yet clear how the new scheme specific funding rules will operate in relation to the PPF (though some suspect that these will simply migrate towards the PPF's own required standards). There is also concern over how quickly the PPF will be able to adjust premiums in the face of a deteriorating position at a firm. The new Pensions Regulator should operate as an 'early warning' system, alerting the scheme to severely underfunded plans etc. Yet if premiums are only set once a year, severe damage could be done (via non contributions etc.) before actions are taken.

Anti- avoidance: rather than being swamped with initial claims from insolvent companies on its inauguration, initial controversy around the PPF has instead focused around a restructuring deal made with a firm still in operation - insurance broker Heath Lambert. The Pension Regulator, utilizing his clearance powers, approved a deal whereby the PPF guarantees the pensions of the firm in return for up to a 30% stake in the company. The Regulator insists that the company would have become insolvent without this deal, which therefore offers more upside to the PPF. However, concerns have been raised on several levels, including whether this will set a precedent, raising the moral hazard problem with other firms facing financial difficulties attempting to remove their pension liabilities to the PPF⁴⁵. As of mid 2007, 7,000 members of 10 schemes had transferred to the PPF.

4. Germany

i. Description

History: the Pensions-Sicherungs-Verein Versicherungsverein auf Gegenseitigkeit (PSVaG⁴⁶) is an independent body by law, operating as a mutual insurance association, and designated by parliament as the sole carrier of mandatory pension termination insurance since its foundation in 1974. It was founded by the Bundesvereinigung der Deutschen Arbeitgeberverbände e.V., the Bundesverband der Deutschen Industrie e.V., and the Verband der Lebensversicherungs-Unternehmen e.V. The PSVaG is

subject to supervision from the Federal Financial Supervisory Authority (BaFin). If it were to withdraw the PSVaG's authorization, or its functioning become impossible for other reasons, the organization's liabilities would be transferred to the KfW-Mittelstandsbank. Prior to the introduction of the protection system, pensions in Germany were treated as wage claims in bankruptcy, with the book reserve system consequently forcing workers to take on significant risk. The insolvency insurance system was conceived as a way of retaining necessary public support for book reserve funding.

Coverage: book reserve, pension funds, support funds (Unterstützungskassen) and under certain circumstances direct insurance have statutory insolvency coverage from the PSVaG, which protects current and future beneficiaries in the event of employer insolvency. As of the end of 2005 59,636 companies were covered, comprising of around 8.7 million beneficiaries (3.8m retirees, 4.9m with vested entitlements), with a PV of insured benefits of €251bn, with around 440,000 individuals currently receiving €55.2m in monthly payments. The employers covered by the PSVaG hold around two-thirds of all German occupational pension plan liabilities. From 2002 some companies in Luxembourg have also been covered. The PSVaG does not insure retirement annuities purchased directly from life insurance companies and Pensionskassen⁴⁷.

Figure 9

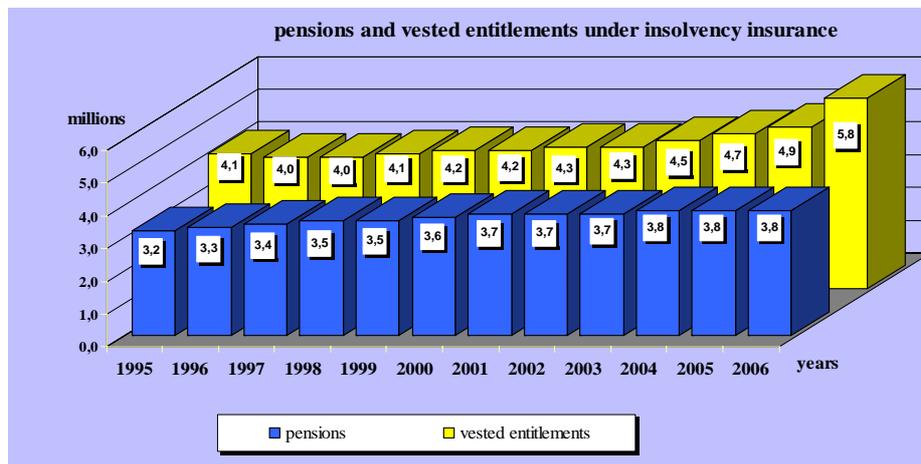
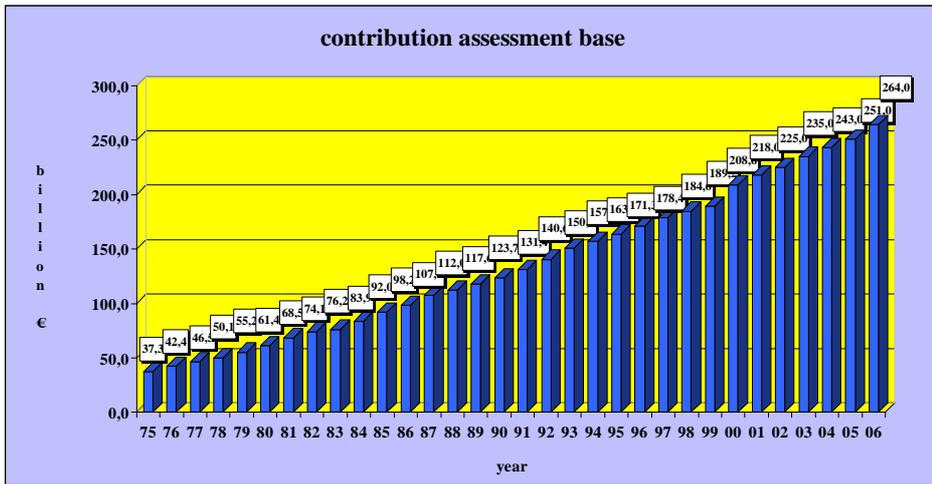


Figure 10



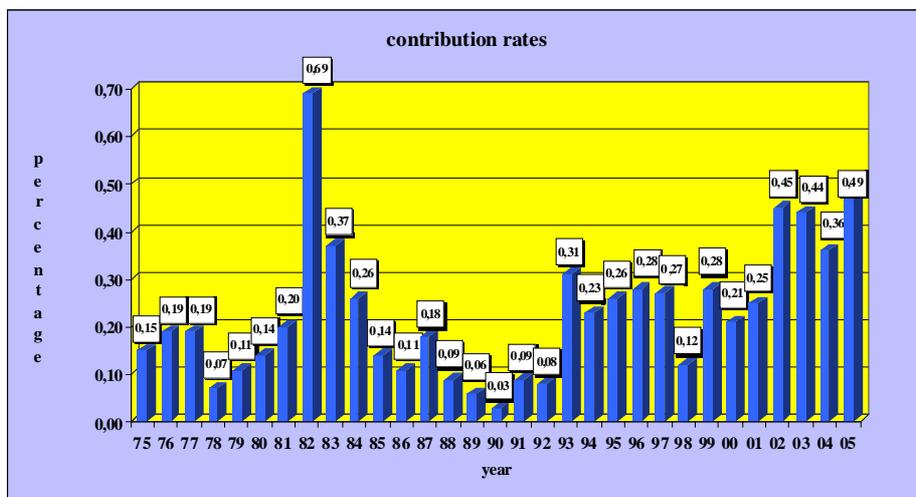
Source:PSVaG

Operations: a key difference between the PBGC in the USA and the PSVaG in Germany is that on the insolvency of a member the latter purchases annuities from a consortium of life insurance companies (this was made up of 58 companies in 2005 – Allianz being the largest). The PSVaG does not take over the assets of the pension fund, and consequently operates more like an intermediary, buying out benefits through private insurance companies. Benefits are secured up to a limit of 3x a reference monthly salary (€7,245 in 2004), with some being excluded, such as increases granted in the two years before insolvency and non-vested benefits. German law also apparently gives the PSVaG the authority to withdraw insurance cover if benefit commitments are changed by troubled firms to exceed levels prevailing elsewhere. Insured benefits are paid in full even if the bankruptcy involves criminal behaviour or if a firm's contribution payments are not up to date. With the exception of the some steel companies, most claims involve small firms. The system therefore involves extensive cross subsidy, but large companies seem to accept that this is a small price to pay for continued access to internal financing via the book reserve system.

Premiums: the PSVaG is financed via contributions in the form of an annual insurance premium, taking a PAYG approach to financing. Each year's premium is based on estimated losses during the previous 12 months, with this estimate divided by the contribution basis (the insured pension liabilities) to give a contribution rate. Premiums paid therefore reflect the experience of the year, with a little smoothing of premiums over

time, and this has led to volatility in contribution rates (highest on AEG bankruptcy in 1982 at 0.69% of plan liabilities, 0.49% 2005, 31 year average 0.26%). Apart from the fact that the premium paid to the PSVaG in respect of pension funds is 80% lower than that for the book reserve or support funds (reflecting the fact that they are funded), no risk adjustment occurs to the premium charged. The number of insolvency claims in 2005 for the PSVaG amounted to 580, resulting in total claims of €574m.

Figure 11: Total Contribution and Rates



Source: PSVaG

Investments: As of 2005, the PSVaG's investments amounted to €62.6m, with 16% held in shares, 42% in fixed income and 42% in deposits.

ii. *Issues*

A major reform of the PSVaG has been proposed, with a bill passing through the Germany parliament during 2006⁴⁸. The government plans to change financing of the PSVaG from the current PAYG system to a fully funded status. Reform is being driven by two factors. First, changes in German pension law in recent years have caused a shift away from book reserves and other pension scheme financing arrangements that require little or no PSVaG coverage (e.g. due to the recently simplified option of transferring pension obligations to pension funds) – which results in a thinning of the contribution base. ‘Old obligations’ will therefore have to be spread across a smaller number of contributing firms, causing contribution

rates to rise. The reform is also being driven by increasing bankruptcies in recent years, which has also put upward pressure on contributions (e.g. total contributions amounted to €1.2bn in 2005, an increase of 36% from the €882m collected in 2004). The proposal is for a new fund to be created, into which employers will pay for a period of 15 years (the period over which most of the outstanding obligations mature) covering the cash value of the current payable and vested benefits – amounting to €2.5bn of entitlements or ‘old obligations’. The PSVaG estimate that building up this funding will not have a large impact on premiums. A one off charge for covering old obligations will be levied according to 2005 contributions – which will result in a charge of around 0.9% of pension liabilities, payable over 15 years, i.e. a 0.06% annual charge. Entitlements to future pension payments will be financed through contributions to be levied by the PSVaG in the year in which the employer becomes insolvent – as is currently the case with payable pension benefits. Future entitlements are estimated to require a contribution rate of 0.04-0.05% - giving total contribution of c0.10% - 0.11% of liabilities. In order to prevent volatility, the PSVaG will be able to smooth premiums (any increase in charges may be smoothed over 4 years, provided that the liquidity of the PSVaG is not impacted). Other proposed change includes the interest rate which the PSVaG must use when assigning pension benefits to the consortium of life assurance companies⁴⁹. The PSVaG also plans to move to risk-based levies, provided they can obtain external ratings for all the companies they cover. Employers are said to support the proposed changes, hoping that investment returns generated on the accumulated funds in future (which should reach around €1tn) will allow for lower employer contributions. As of mid 2007, the PSVaG has collected payments more quickly than anticipated, with €690m of the €2.2bn collected, giving a capitalization ratio of around 30%.

5. *Sweden*

i. Description

History: aside from schemes covering public sector workers, there are two main occupational pension schemes in Sweden. The first, known as the ITP, is for private-sector, white-collar workers. Funds which are run through the establishment of a pension foundation or book reserves (not those directly insured with insurance company Alecta) must insure the risk of insufficient assets in the case of insolvency with a protection fund managed by the Pension Guarantee Mutual Insurance Company (FPG). Founded in 1961, this is a mutual non-life insurance company which transacts insurance only for the safeguarding of pension rights. Its board of

directors consists of representatives of policyholders (i.e. around 1560 sponsoring employers) and trade unions (one from each of Sif and Ledarna) and the organization is non-governmental. A third entity, the PRI (Pension Registration Institute), records the pension promises made by each employer, calculates the value of these obligations on a standard basis and serves as an intermediary that receives the employer contributions and eventually makes the payments to retirees. The second main occupational scheme is for blue-collar workers. Previously known as the STP, insurance was provided by the AMFK when employers borrowed against their pension funds. From 1999 the STP was replaced by the SAF-LO. This is safeguarded through member directed life insurance and the AMFK is now in run-off.

Coverage: Swedish pensions are provided on a contractual basis, with the majority of employees (90% of the workforce) being covered by collective agreements between unions and employer confederations. It is Sweden's trade unions rather than the government which requires pension schemes to subscribe to the guarantee system. The FPG covers around 200,000 employees in around 1500 firms. In the case of both the FPG and the AMFK only creditworthy companies are allowed to participate in the guarantee scheme, or those who are able to provide adequate collateral.

Operations: in the case of a company insolvency, the FPG buys out benefits with the insurance company Alecta – meeting the full cost for securing the benefits in the case that liabilities were book reserved, and the shortfall in cases where liabilities were partially funded. Since inception the scheme has tried to assess the risk of a corporation to insolvency and to cover its exposure accordingly. It does so by effectively running an in house rating agency, analysing corporate accounts, historical performance, profitability, industry factors, leverage and where applicable external ratings. The insurers can respond in 4 ways to firms applying for coverage: 1. insurance is provided to financial strong companies; 2. insurance is offered to slightly riskier companies contingent on the assignment of capital; 3. insurance can be offered to subsidiaries with a security bond from the parent company; 4. insurance is offered only if the company provides a backup credit guarantee from a bank (which is tantamount to a rejection). Contracts can last up to 3 years and a key time for stepping in and demanding more collateral if the situation looks to be deteriorating is when the renewal is due. In the direst circumstances, the FPG can require the entire amount outstanding to be wound up over 5 years through the purchase of annuities from an insurance company. Demand for immediate termination arises in special situations such as when operations cease or a change in ownership takes place which could undermine the company. On average a far higher percentage of bankruptcy claims are recovered than by other protection programs (around 2/3rds vs. only 6% by the PPF and similar levels for the

PBGC), largely due to the surety bonds provided by parent companies. Uniquely amongst guarantee schemes the full benefits are covered with no restrictions. FPG and AMFK reinsure their liabilities to protect themselves against extraordinarily high claims in any single year.

Premiums: in the case of employers using the book reserve method, the yearly contribution (as of 2006) was 0.3% applied to total book reserved pension liabilities. Premiums for pension obligations funded via a foundation are reduced (to 0.1% in 2006) for the part which is covered by assets in the fund. The company pays the same premium to the FPG regardless of whether collateral has been pledged or not, or whatever its credit rating, except where the entire pension commitment is covered by a bank guarantee (when a lower premium applies), but this is unusual. Policyholders have an obligation to help the FPG to meet claims should reserves be totally exhausted. In this case additional charges may be made, capped at 2% of pension liability of a company. Members who have been policy holders for 10+ years qualify for a policy holder's bonus if board of FPG decides to grant one and this is based on the sum of premiums paid during the last ten years. Claims were high in the early 1990's (during the Swedish financial crisis), but have since been limited to around 10 per year. In 2005 premiums of SEK248m (\$34m) were collected and a bonus of SEK 147m (\$20m) was granted. Insurance exposure amounted to SEK120bn (\$16.6bn), with 6 claims being made.

Investments: as of 2005, assets of SEK15.2bn (\$2.1bn), were invested 67% in fixed income, 32% in equity. Strong returns on assets in recent years have allowed bonuses to be paid.

Figure 12

Claims disbursements 1991 - 2006

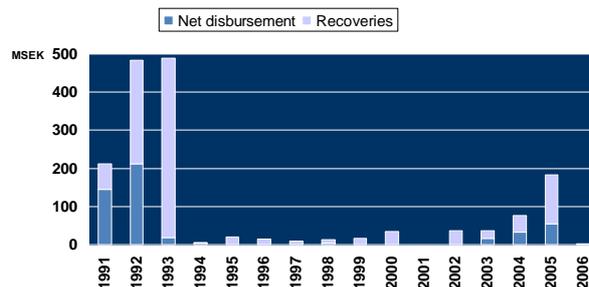
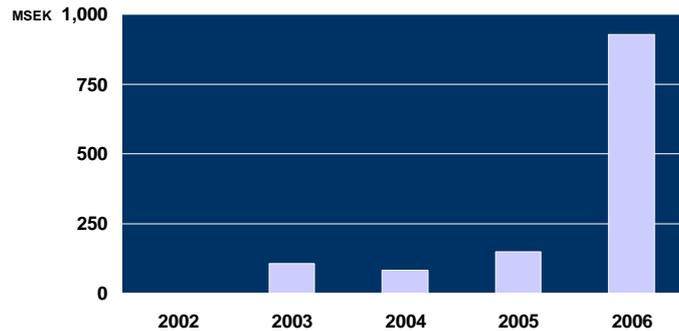


Figure 13

Policyholders' bonus 2002 – 2006



OECD July 1, 2007
Peter Lindblad

Source: FPG

ii. *Issues*

The Swedish model is probably the most successful currently in existence. The issue is therefore whether it could be transferred to other countries wishing to introduce a pension benefit guarantee scheme. One of the major obstacles would be implementing such a rigorous screening procedure on a large scale, mainly due to cost. Could an external credit rating of some form therefore be used? As the major rating agencies have become somewhat discredited in recent years (e.g. failing to pick up on the Asian crisis or scandals at US companies such as Enron), another proxy, such as credit default spreads (CDFs) or other credit swap derivatives could be used (though research suggests that these are also not always accurate predictors of insolvency). The system may also be difficult to introduce as bankruptcy laws may have to be changed, and the collateral demands made could push up the cost of debt. The system is therefore interesting in theory, but would need an independent rating agency with significant powers to make it work. The FPG stress that the purpose of the system is not to provide 'soft credit' to companies via the pension system, but a way for financially sound firms to create efficient pension arrangements.

6. *Others*

i. *Switzerland*

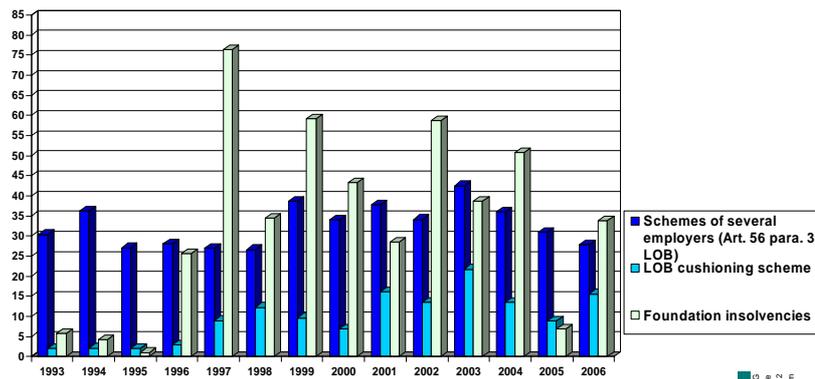
History: the Sicherheitsfonds⁵⁰ was established in 1986 by the federal government as an independent, public foundation.⁵¹ The supreme body is the Foundation Board, on which the top-level organizations of the social partners, the public administration and a neutral member have seats. The guarantee fund insures pension obligations up to a maximum specified in the country's Law of Old-age, Survivors and Disability Pension Plans (BVG / LPP 1985) and was designed to cover a considerable variety of plan designs (Swiss funds largely being DC in nature with guaranteed minimum returns). The guarantee fund supports all mandatory benefits promised by second tier, occupational plans, (including old age, survivor, disability benefits etc.). An interesting feature of the Swiss scheme is that protection is provided on the bankruptcy of the fund rather than the sponsoring firm (reflecting the strict legal separation of pension funds and their sponsoring corporations in Switzerland). In theory the guarantee fund could take on the responsibilities for a solvent company, but in practice this has not happened (as companies feel an unwritten moral obligation to make sure their funds are covered themselves).

Coverage: employer and employee organizations must establish and manage a safety fund (sicherheitsfond) at the federal level. The scheme is mandatory for defined benefit and DC occupational schemes, including both those schemes providing government specified minimum benefits and those providing above the minimum. Around c3,800⁵² funds, or 3.2m insured persons are covered. Even though some public funds have an underlying guarantee from the state, canton or city and therefore do not require further insurance, they still are legally obliged to pay contributions to the foundation.

Figure 14

Overview LOB Guarantee Fund Switzerland

Benefits paid out in CHF million based on type of benefit scheme



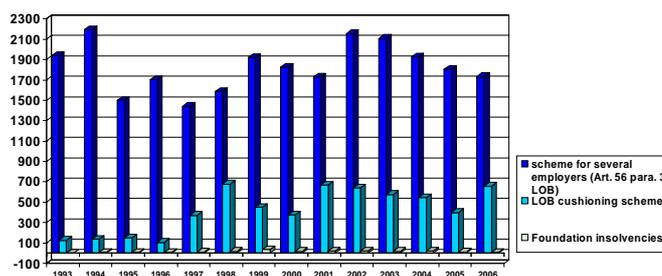
Source: LOB

Operations: a pension fund is deemed insolvent in Switzerland if it cannot pay statutory or regulatory benefits which are due and if restructuring is no longer possible (i.e. if liquidation, bankruptcy or similar proceedings have been initiated against it). The guarantee scheme then attempts to secure pension benefits with suitable institutions (e.g. insurance companies), operating like the PSVaG in Germany by buying annuities, rather than taking on the assets of insolvent schemes. Benefits are maintained in their entirety, with an insured salary cap of 1.5x the Social Security Upper Earnings limit. Insurance is provided for fixed monetary amounts that are uniform across all plan types. As well as the usual main function (i.e. secure the payment of benefits if pension institutions are insolvent), the Swiss fund also has additional and unique roles, such as to pay subsidies to pension institutions with financial difficulties due to an unfavourable age structure, and payments to meet extraordinary costs of Auffangeinrichtung (collective scheme set up to administer vested benefits not transferred to a new employer and to provide a legal minimum benefits where an employer has not setup a plan). Furthermore the scheme may sue trustees or fund managers when insolvency occurs due to fraud.

Figure 15

Overview LOB Guarantee Fund Switzerland

Number of insolvency files settled (distribution by type of benefit scheme)



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Paris, 2nd of July 2007

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Stellenwerke BVO
Gartenstrasse 10/12
3000 Bern

Source:

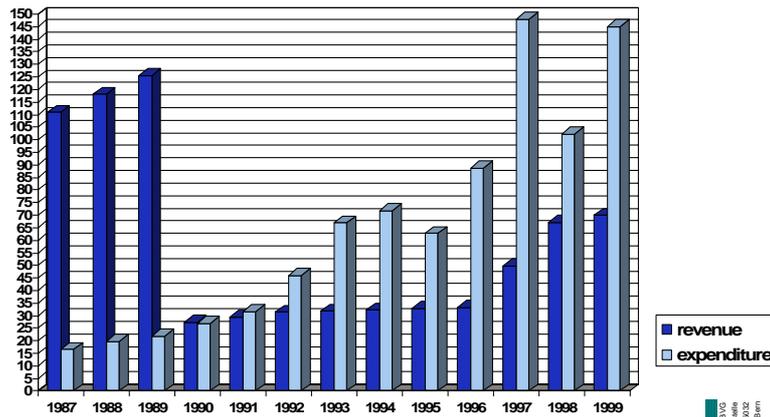
LOB

Premiums: the fund is financed through levies which are determined by the scheme's board and approved by the Federal Social Insurance Office. In 2005 contributions for insolvency insurance were 0.03 %, applied to the sum of all vested rights and 10x the sum of pensions in payment. Extra contributions (covering the subsidy for funds disadvantaged by an older work force) of 0.07 % on the basis of the payroll totals coordinated on a pro rata basis pursuant to BVG are required for registered funds providing benefits. These contribution rates will remain the same for 2006 . No direct link exists between the exposure of the guarantee fund and premiums charged. 2212 claims were made in 2005 (vs. a peak of 2821 in 2002), involving insolvency payments of CHF 46.7m. The situation for occupational benefit schemes has improved and stabilised in the past three years. Subsidies paid to funds with an older work force increased somewhat to CHF 72m. Although the scheme does not take over the assets of insolvent pension funds, but buys out their obligations with annuities, excess contribution income has allowed the guarantee scheme to build up a reserve fund of CHF 192.3m. The LOB provides a good example of the importance of flexibility and adjusting operations to deal with developments over time. The scheme proved over cautious in the 1980's, with premiums set to high. A balance was found in the early 1990s but later in the decade expenditure rose beyond expectations. The scheme has changed its premium mechanism again and is now back in surplus. However, LOB still does not feel that it has satisfactorily answered the question of how much capital a protection scheme should hold (1 year reserves, 10 years?).

Figure 17

Country report LOB Guarantee Fund Switzerland

Revenue/expenditure in CHF million until end 1999 (old contribution system)



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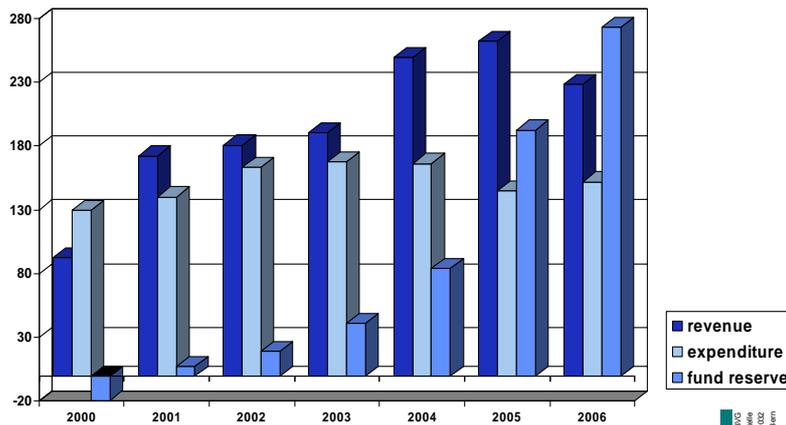
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Stärken und Schwächen
des Schweizer
Pensions-
systems
2001 Bern

Figure 18

Overview LOB Guarantee Fund Switzerland

Revenue / expenditure in CHF million from 2000 (new contribution system)



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10

Stärken und Schwächen
des Schweizer
Pensions-
systems
2001 Bern

Source: LOB

- *Investment:* the scheme can invest assets with the same restrictions as apply to pension funds. As of 2005, 58.6 % of funds were invested in CHF bonds, 4.3 % in cash, 10.4 % in domestic equity, 16.8 % in foreign equity and 9.8 % in foreign bonds. This is one potential source of moral hazard which is not found in the Swiss system, as the investment policy of Swiss pension funds has been very conservative. This is partly due to culture, and also as fixed and legally required interest must be paid on mandatory pension credits combined with the contribution levels. There is also no doubt who owns the pension surplus in Switzerland – the workers – and consequently there is little incentive for plan sponsors to follow high risk, high return strategies (though this may change as returns are viewed and compared more in an international context).

ii. *Japan*

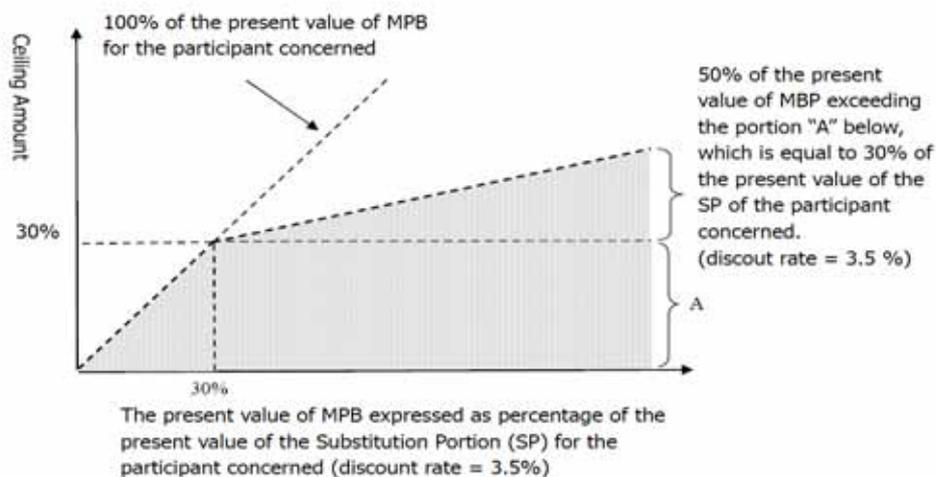
- *History:* although defined contribution schemes are now allowed in Japan, many occupational schemes remain defined benefit in nature, including traditional lump sum severance pay plans funded by book reserves. Many Employee Pension Funds (EPFs) were established in the 1960s and 1980s. These are pension plans with over 500 members for single-employer schemes or over 3000 for multi-employer schemes (for EPFs newly introduced after April 2005, over 1000 members are required for single-employer schemes and over 5000 members for multi-employers schemes). As well as providing private pension benefits, EPFs also manage a portion of the public pension scheme - the Employee Pension Insurance or EPI, which is the employment related social security pension for private sector employees. This public pension portion of the EPF is known as the 'Substitution Component'. The Pension Guarantee Program was set up in 1989 by the Pension Fund Association (PFA) to provide termination insurance for EPF plans (other occupational pensions, know as Tax Qualified Pension Plans or TQPPs are not covered as they do not have any funding rules and are not covered by the PFA annuity programme). The Employees Pension Insurance Act (EPIA) states that the PFA is able to carry out the Pension Benefit Guarantee Program with the approval of the Ministry of Health Labour and Welfare. The EPIA does not describe the Program in detail – implying that it should be designed and operated appropriately based on the consensus of member EPFs. The essential characteristics of the Program are that it is a

mutual aid system of EPFs, which aims at securing Minimum Preserved Benefits, within certain limits, in the case of 'inevitable' dissolution, due to bankruptcy or business deterioration of sponsoring companies. It is based on the understanding that every EPF makes its best efforts to secure rights of its own plan participants. Before setting up the fund in 1989, suggestions were sought by the PFA from the PBGC in the US. The following three suggestions were given: to make the program as simple as possible; not to extend the guarantee range beyond financial capabilities; to make efforts to prevent the dissolution of underfunded plans. These pieces of advice determined the basic structure of the Program which was then implemented.

- *Coverage:* all EPF funds (around 1/3 of all DB plans in Japan) must make contributions to this scheme. Around 5 million workers are covered. The PFA Articles state that all member EPFs should participate in the Program (in 1989 the MHLW gave approval of the implementation of the Program on the condition that the PFA Article made participation obligatory, and in 2001 the PFA General Assembly unanimously adopted a resolution reconfirming the obligatory requirement). There has been discussion of the introduction of a Statutory Pension Benefit Guarantee Scheme to cover all DB plans (and possibly also DC schemes in cases of fraud). Indeed the Welfare Committee of both Houses of the Diet adopted resolutions requiring the government to give further consideration to the issue of the introduction of such scheme when the Defined Benefit Corporate Pension Bill was passed in June, 2001. However such a move is strongly resisted by employers (who are unwilling to give support to other companies for the sake of preserving severance allowances and who consider that defined benefit plans are derived from severance allowances). With such situation in mind, the next statutory revision of the pension system is expected in 2006 or 2007. Yet pressure for the introduction of such a fund may grow as the social security pension is scaled down and sooner or later corporate pensions have to assume a greater role in the retirement income.
- *Operations:* if an EPF is wound up, the PFA takes over the Substitution Component in exchange for collecting the amount equal to the minimum funding required for this component (known as the 'Minimum Technical Provision of the Substitution Portion' or MTPSP). Any remaining assets are distributed to all plan participants, who can choose to take the portion of these residual assets due to them either as a lump sum or an annuity (which is

paid by and known as the PFA Annuity). The guarantee scheme covers only those participants who choose the annuity option. The maximum guaranteed benefit is 0.3x the Substitution Component and half of the benefits exceeding this amount. The present value of the maximum guaranteed benefit is called as the Ceiling Amount⁵³. In principle the benefits which the program pays out should be equal to the unfunded liability (i.e. the sum total of the Ceiling Amounts of all participants minus the amount of residual assets). However, a ceiling of Y7bn (cUS\$70m) is imposed on the amount of the unfunded liability⁵⁴, which was introduced in 2000 to keep the Program solvent with affordable amounts of contribution.

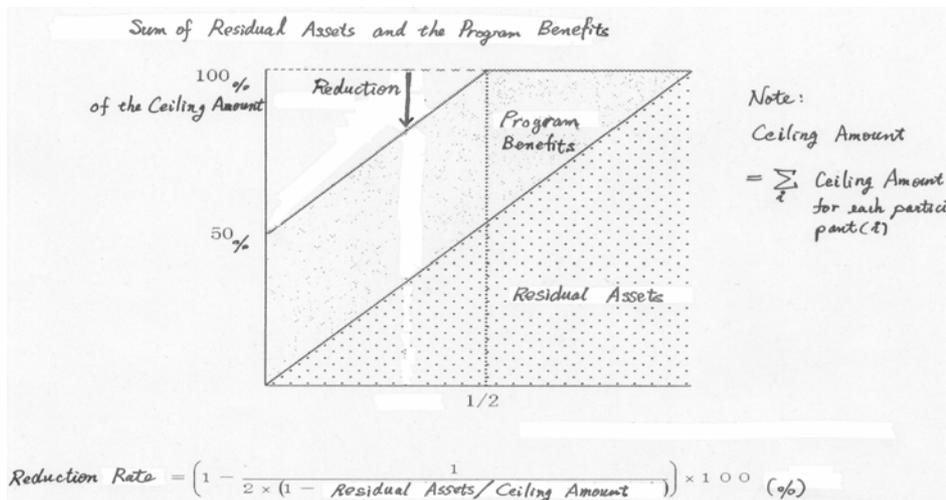
Figure 19: Ceiling of the Applicable range of Guarantee for Individual Participants (i.e. Ceiling Amount)⁵⁵



Insurable events cannot be described shortly in fine detail, because they include various fund dissolutions due to financial difficulties of sponsoring companies. However, with the accumulation of precedence, the criteria of invoking the guarantee have been clarified gradually. The basic principle of invoking the guarantee is that the fund dissolution was caused by bankruptcy or similar financial difficulties of sponsoring companies. Insurable events include 'inevitable' dissolutions due to: bankruptcy of sponsor companies; business deterioration of sponsoring companies or industries as a whole to which the sponsoring company belongs; or other circumstances under which the sponsoring companies are considered having

been unable to sustain the EPF. There are criteria for applying the latter two conditions for the case of single-employer EPFs including: the sponsoring company having had a balance sheet in the red consecutively for several years before dissolution and the balance sheet having been in a situation where debts exceeded assets or cumulative deficits, excluding the retirement benefits provisions; also that the number of active participants at the EPF had been decreasing substantially, the plan is very mature and contribution rates were considerably high in comparison with those of other EPFs with similar levels of benefits, and further contribution hikes were considered to be unavoidable. In addition to these insurable events, benefits covered can be reduced based on the funded status of the EPF. If the funded ratio is below 50% a reduction formula is imposed. Program benefits may also be reduced due to inappropriate management of the EPF when: directors of the EPF are considered to have neglected their duties (reduction of the Program Benefits by up to 20% of the Unfunded Liability); when the administration or operation of the EPF are considered having been inappropriate (reduction of the Program Benefits by up to 20% of the Unfunded Liability); when appropriate measures have not been taken to secure assets after resolution to dissolve the EPF was adopted, and substantial amounts of assets were consequently lost (reduction of the Program Benefits by up to 30% of the Unfunded Liability). In terms of governance, the Program is operated under the control of the Steering Committee, which is composed of 2 representatives of the Pension Fund Association and 12 member EPFs. The PFA operates the Program in compliance with the recommendations of this committee, including whether to invoke the guarantee (the Program Benefits) to individual cases, whether to reduce the Program Benefits and to what extent. The committee also investigates key issues such as benefit structure, ceiling on guarantees, contributions of member EPFs to the Program etc. In other words the Program is self-governed by EPFs and is not directed by the government. The decisions of the Steering Committee are completely disclosed to all EPFs. As experience is gained, fewer claims with a scare chance of being approved by the Steering Committee are being received.

Figure 20: Program Benefit Reduction Formula



The government also allows another *de facto* type of protection for the Substitution Component via a system known as ‘*daiko henjo*’. Since April 2002, EPF schemes have been allowed to hand back this Substitution Portion to the government (the EPI)⁵⁶, a measure recognized as part of the de-regulation of the operation of corporate defined benefit pension plans. This move was partly due to the stagnation of Japanese financial markets and poor investment return for over a decade, but also due to changes in the Japanese accounting standard on retirement benefits introduced in 2000, which requires that companies evaluate the liability of the Substitution Portion in the same way as the rest of the occupation pension scheme (i.e. the purely private part of retirement benefits), irrelevant of the legal liability of the Substitution Portion - the MTPSP⁵⁷. Any EPF scheme which carries out a *daiko henjo* operation will be converted to a ‘New Defined Benefit Pension Plan’ (as of September 2004 a total of 784 new DB funds had been set up, 546 via *daikyō henjō* operations).

- **Premiums:** premiums are determined by three components: per capita premiums according to the number of participants; premiums in proportion to the total benefit amount guaranteed; and premiums in proportion to the amount of unfunded liabilities (the sum total of the Ceiling Amounts of all participants plus the MTPSP minus the amount of assets). The maximum of the sum of first two components is set at Y8.82m. The maximum of the third component is set at Y0.861m. The ceiling placed on premiums means that larger companies pay lower guarantee premiums. The premium ceiling was really imposed to

persuade larger companies to accept the introduction of the guarantee fund. Currently, premiums are further reduced by 35% from the sum of these components, as the Program currently holds funds in excess of its targeted contingency reserve (i.e. by which the solvency of the Program is expected to be kept for 5 years without further contribution, with 90% probability). The excess amount is Y8.05 billion, and by assuming that the excess amount is withdrawn during 20 years, it is possible to reduce the total premiums by Y450 million, which corresponds to 35% of the total contribution.

Table 1: Contributions to the Program (applied from 2005)

Contribution proportionate to the number of participants		Contribution proportionate to sum total of ceiling amount		Contribution proportionate to the amount of unfunded liability
Average weight:45		Average weight: 45		Average weight:10
Y114 per participant	+	0.0083%	+	0.0123%
	Upper limit (1+2) Y8.82m per fund			Upper limit Y0.861m per fund

- *Investment:* reserves at the Pension Guarantee Fund have been increasing since 1998, with the amount invested by the PFA now at Y30bn. The financing of the institution has remained on an even keel, partly as, despite the continued underfunding of occupational pension schemes in Japan⁵⁸, rising bankruptcy levels, and therefore rising claims against the Pension Guarantee Fund, the criteria for invoking the guarantee only include fund dissolution due to bankruptcy or similar financial difficulties of sponsoring companies, the criteria have been strictly applied, and the automatic benefit reduction formula based on the funded status of dissolved funds is also incorporated. Since the Program started its operation in 1989, there have been 40 claims (as of mid 2007), with 24 cases being accepted (with reductions between 10-90%). However, it should be noted that there have been far more funds wound-up during the same period, many underfunded in comparison to the MFSA, which means that the rights of participants have not been properly protected by the funding rules alone.

Table 2: Major Pension Insurance Programs

Country (programme)	Who is covered	Coverage amount	Premium/ Cost Structure	Claim process	System status
US (Pension Benefit Guarantee Corporation)	44 million participants in private DB plans.	Vested benefits up to a \$47659 maximum (2007).	Charge based on number of participants and underfunded amount.	Assets and liabilities taken over in case of corporate bankruptcy.	Surplus of \$7.7bn in 2001 eroded to a deficit of \$18.1bn 2006.
Canada – Ontario (Pension Benefit Guarantee Fund)	1 million participants in private DB plans.	Vested benefits up to CAD 12,000 (US \$10,000) annual maximum.	Charge based on number of participants and underfunded amount.	Cash allocation made to plan administrator to cover guaranteed benefits.	CAD \$274m deficit (US \$259M) 2006.
UK (Pension Protection Fund)	Participants in eligible DB plans (this will include some public sector schemes that do not have a full crown guarantee). 10-15 million workers.	Pensioners, survivor and ill health pension at 100% (subject to a review of the rules of the scheme), with increases in accordance with PPF rules. Under pensionable age, 90% capped (GBP 29,928.56 2006 US \$60,355 2007) – again increases subject to PPF rules.	Scheme based and a risk based levy (which must collect at least 80% of the total).	Assets and liabilities taken over in case of corporate bankruptcy.	Mid 2007 GBP 750m assets raised (US\$1.5bn). Target of GBP6bn (US\$12bn) by 2008-9.
Germany (Pensions-Sicherungs-Verein)	9 million participants in book reserve, support fund or pensionsfonds financed plans.	Statutory vested benefits up to €6,700 (US \$112,000) annual maximum.	Moving from PAYG to full funding.	Insolvency of a member company triggers annuity purchase.	Mid 2007 €690m assets raised (US\$950) to give a funding level of around 30%.
Sweden (Forsakrings)	Contractual coverage of	Full benefits.	Charge is % of liabilities;	Insolvency of a member	SEK 15.2bn assets

Country (programme)	Who is covered	Coverage amount	Premium/ Cost Structure	Claim process	System status
bolaget Pensionsgaranti)	white collar employees (200,000).		collateral required if insolvency risk deemed high.	company triggers annuity purchase.	(US\$2.3bn) 2005.
Switzerland (sicherheitsfonds BVG)	3.2 million participants in DB and Swiss-style DC schemes.	100% of government-mandated minimum benefits; Additional benefits are subject to salary cap.	Charged based on liabilities.	When pension plan declared insolvent, annuities are purchased.	Reserves of CHF c275m (\$137m) 2006.
Japan (Pension Guarantee Programme)	5 million members of EPF pension plans.	0.3x substitutional component and half of any benefits in excess of this amount.	Premiums related to size of company, size of benefit and risk adjusted for level of underfunding.	Unclear what events trigger a claim.	Reserves of Y30bn (US \$285m).

-
- ¹. As expressed by Pesando (1996): “Compensating wage differentials will, in a competitive labour market, internalize risks associated with underfunded pension promises.” See also Lindeman (2004).
 - ². See www.pensionstheft.org, the website of a pressure group claiming compensation for lost occupational pensions on the bankruptcy of their plan sponsors. Members claim they were never made aware of this risk to their pension, and that they were led to believe that their pension was ‘guaranteed’, quoting publications from the Financial Services Authority and the Department of Work and Pensions. They also argue that the government should bear responsibility as they were incentivized to join their corporate pension scheme.
 - ³. Most of these studies focus on the PBGC of the United States. It is well known from financial literature that the guarantee provided by the PBGC is analogous to a put option. The value of this put, and therefore the correct level of premiums, can be derived from options pricing theory. Hsieh, Chen and Ferris (1994), for example, found that the PBGC approximately correctly charges overfunded pension plans but significantly under-charges underfunded ones. Summary of studies of the PBGC premium levels in McCarthy (2003).
 - ⁴. See David McCarthy and Anthony Neuberger’s claims model in: “*Will the PPF go the way of the US fund?*”, *Pensions Management*, April, 2004, available on <http://www.pensions-management.co.uk>
 - ⁵. It is interesting that one of the few defined benefit schemes to be set up in recent years in the US was by a charity (the United Methodist Church) and therefore outside the PBGC’s jurisdiction. See *Financial Times 3 September 2004: ‘Benefits or bailouts? Fund deficits may topple US pension policy into crisis.’*
 - ⁶. Ippolito (2004) puts forward the radical suggestion that private insurance should be compulsory, with market pricing taking into account funding levels and investment policy restrictions, doing away with need for complex funding rules and encouraging asset matching and full funding. See also Lindeman (2004).
 - ⁷. For example, Michael Gordon, one of the key architects of ERISA, has written that the actuarial soundness of the PBGC was deliberately sacrificed at its inception point in order to gain political support for the passage of ERISA- “The supposition that Congress was prepared to accept loss of jobs and further industrial decline in return for sound insurance principles is preposterous and is why, even today, there will be stiff resistance to redesigning pension insurance...” From dissenting comments on Ippolito’s *‘The Economics of Pension Insurance’* (1989). Quoted in Ippolito (2004).
 - ⁸. Pension Academic Zvi Bodie for one has argued that if politicians wish to subsidize weak firms they should do so directly, not through changing accounting rules and through the pension back door, see *The Economist*, 13th February 2003, ‘*Discount them at your peril.*’
 - ⁹. Dutch funding rules require pensions to be fully funded at all times. On the liabilities side this includes the immediate coverage of all salary increases, pension indexing or retroactive plan improvements, and on the asset side the immediate correction of negative investment returns. Various reserves must be held by funds, including a general risk reserve of 5%, an investment reserve (sufficient to address such events as an immediate 25% in share values – 30% for emerging markets – a 15% decline in real estate values and including equivalent buffers for interest rate and inflation risk, foreign exchange risk etc.) a future pension adjustment reserve, and any additional reserves demanded by the regulator (PVK). As a result, required funding levels are generally around 120-135% of accrued liabilities. If the 105% funding requirement cannot be met the PVK must be informed immediately, a plan for returning to full funding developed within 3 months, and action taken within 12 months.
 - ¹⁰. The problem of systematic underfunding arises from the issues of ‘tax arbitrage’ and the ‘insurance effect’. The former states that financially secure firms have an incentive to make their pension contributions as large as possible in order to gain the maximum tax advantage. Meanwhile, companies in financial trouble, paying no tax, have the opposite incentive, to reduce pension contributions, underfund their pensions, and follow a risky asset allocation policy. These tendencies are made even worse by providing insurance for pension benefits – i.e. the insurance effect. Funding requirements should therefore be carefully coordinated with any guarantee scheme

to ensure that companies maintain funding levels, even when in financial difficulty. See Smalhout (1996).

11. Though in the case of funding rules care needs to be taken not to make defined benefit pensions prohibitively expensive to run, and with priority bankruptcy rights the implications for credit availability and the broader economy must be considered.
12. The following is based on arguments taken from OECD publication: *'Insurance and Private Pensions Compendium for Emerging Economies: Book 1 Part 1: 2) b Policyholder Protection Funds: Rationale and Structure'*, author Takahiro Yasui 2001.
13. European Commission Working Paper on Insurance Guarantee Schemes: MARKT/2525/03. Arguments in favour of insurance guarantee schemes, and ones refuting arguments against, which could also apply to pensions include:
 - flexible and faster at providing compensation than wind up process and guarantee a minimum
 - consumer confidence has been hit by the crisis within the insurance industry and will be even more destroyed if claims are not met in the case of a winding-up
 - as social security shifts towards private products reliable protection and safety nets are needed
 - political pressure to introduce schemes rise following corporate wind-ups without full compensation
 - Member States which have already set up insurance guarantee schemes seem to have positive experience in this regard – same with banking and securities sector
 - *Moral hazard*: no evidence has been presented that this exists, providing coverage is limited
 - *Other safety measures*: (technical provisions/ special treatment in wind up hierarchy/ effective supervision etc.) might not be sufficient if the event of a winding-up due to a lack of assets
 - *Costs*: no increase in premiums observed in those Member States which already have insurance guarantees.
14. *OECD Guidelines on Funding and Benefit Security in Occupational Pension Plans*. <http://www.oecd.org/dataoecd/3/22/38547978.pdf>
15. The Central Pension Security Institute (CSPI) provided specialized credit insurance to Finnish employers who obtained loans from their pension funds. Losses began to accumulate in 1989 as the Russian communist economy collapsed, causing many Finnish firms (de facto part of the Russian state model) to lose their guaranteed order flow. The CSPI's eventual collapse in 1993 was due to operational and well as systematic factors, including political influence (e.g. the Finnish Parliament set the rate which companies could borrow against their pension funds), weak credit analysis and a lack of intervention powers. The Finnish experience shows that pension insurance used to promote other goals (supporting industries etc.) can lead to a misallocation of resources, and that an inherently unstable system can survive for years before suddenly collapsing due to unanticipated losses. For details see Smalhout (1996): p214-223. It should be noted, however, that the collapse of the Finnish system did not cause any losses for members and beneficiaries, as the guarantee insurance was only a part of the guarantee scheme in statutory private pension scheme in Finland. The main guarantee scheme is the joint-liability of financing the pension benefits. This means in practice that if a pension institution became insolvent, the insurance portfolio would be transferred to another pension institution and the potential deficit in funding would be covered by the contribution.
16. See also *'Insuring the Uninsurable?'* published in Morgan Stanley's March 2004 Global Pensions Quarterly, authors Nigel Cresswell and Aurelie Rabou. Extract available in Investment & Pensions Europe July/August edition, also available online at www.ipe.com
17. Current numbers and annual report available on www.pbgc.gov
18. <http://www.dol.gov/opa/media/press/opa/retirementsecurityfactsheet.htm>
19. The PBGC also uses a complex model to estimate future claims, incorporating stochastic movement in stocks, interest rates, employment levels, bankruptcies and other factors. The PBGC's 2003 Annual Report shows the possible projected outcomes in 2013. The expected net position (i.e. the average of all possible positions in 10 years time) is a deficit of \$18.7bn – yet the

position reported for 2004 is already worse than this projected average. The model estimates a 1 in 5 chance that the organization will enjoy favourable enough conditions to return to surplus, but also 10% chance that the deficit will be \$49bn, a 5% chance that it will be \$60.3bn and a 1% chance that it will reach \$82.5bn (see Ippolito 2004).

- ²⁰. *Financial Times 18th November, 2004: 'Pension safety net's \$78bn hole'*: the amount required has been estimated at \$78bn, \$100bn if all potential claims from the airlines are included.
- ²¹. *Financial Times 31st August, 2004: 'Retirement worries move up US agenda'*: the article reports that the US Treasury is said to have created a task force to examine how to save the PBGC in the event of a default by United Airlines, with the White House is considering legislative solutions. Bradley Belt, then executive director of the PBGC is quoted as saying: "This is not an immediate liquidity crisis, but unless something is done now, that hole will get bigger and bigger and raise the inevitability of a taxpayer bailout of significant magnitude." Meanwhile Elaine Chao, Secretary of Labor, has been quoted as saying: "While the PBGC is not in crisis...it is clear that the financial integrity of the federal pension insurance scheme is at risk."
- ²². In September 2005 Delta and Northwest airlines filed for bankruptcy protection, leaving the PBGC to face potential pension insurance claims of \$8.4bn and \$2.8bn respectively. This follows the settlement reached between the PBGC and United Airlines in April 2005 which saw the guarantee scheme taking on a \$6.6bn claim from the airline's 4 pension plans, as well as a \$2.3bn claim from US Airways in February of the same year. For background details on United's claim see: *Financial Times 28th July, 2004: 'Financial safety nets under threat', 20th December 2004: 'United stirs up a hornets' nest on pensions.'*
- ²³. This ALM problem has led to comparisons between the PGBC and the FSLIC, the insurer of the Savings and Loan Institutes which collapsed, at huge expense to US tax payers, during the 1980s. These institutions got into trouble when interest rate levels and volatility rose in the 1970's, exposing their asset liability mismatch between short term, variable deposits and fixed, long-term mortgage liabilities. They received a fatal, double hit with the collapse of the real estate market in the 1980s. Due to fierce lobbying and delayed action by politicians, hundreds of weak S+Ls were allowed to stay open, capital requirements were reduced and they were encouraged to expand into new risky deals. The cost of \$150-200bn which it took to eventually solve the problem would have been much smaller if it had dealt with sooner. Commentators have warned that the political climate surrounding the current PBGC's situation is alarmingly parallel to the S+L fiasco, though it should be noted that the obligations of the PBGC are due to be paid over a far longer time horizon than the S+Ls, so that insolvency is not a pressing issue. See John Ralfe, writing in *'The Times Online' 4/12/04 'Britain must learn from US pension pain'*. *Financial Times 13th September, 2004: 'A slow motion re-run of the S&L disaster: Stand by for a pension bail-out.'*
- ²⁴. The \$9 charge for every \$1000 of underfunding is measured on a current liability, rather than a termination basis. This charge for underfunding can be avoided if a company shows it is generally 90%+ funded on this current liability basis. Hence US Airways made no risk adjusted contributions for underfunding in the 4 years prior to its pension plan being taken over by the PBGC. The funding level was estimated to be 104% in 2000 on the current liability basis but only 50% using termination calculations 2 years later. Similarly Bethlehem Steel, (which made no payment for the 3 years prior to termination), was 45% funded when taken as a claim in 2003, vs. the previous estimate used in the calculation for contributions of 84%.
- ²⁵. Steven Kandarian's comments taken from his testimony before the Governmental Affairs Committee, Subcommittee on Financial Management, the budget, and international security of the United States Senate, September 15 2003 and from his evidence given before the Senate's Special Committee on Aging, October 14 2003.
- ²⁶. Indeed the PBGC itself has warned that the rules to accelerate funding relief which Congress has waived will cause its shortfall to grow by \$4bn over the next 4 years.
- ²⁷. Smalhout (1996) discusses the example of TWA and the influence of the company's owner, Carl Icahn.

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- ²⁸. PBGC's strategic plan (available via www.pbgc.gov) states that average premium paid to the PBGC per participant is \$23. This compares with average homeowner insurance of \$487, auto insurance \$786 or, Federal + State unemployment insurance \$250. Though the PBGC claims this demonstrates their cost effectiveness, the premium level does seem too low given the organization's current deficit position.
- ²⁹. See www.fsco.gov.on.ca <http://www.fsco.gov.on.ca/english/pensions/pbgf-20050331.pdf>
- The accounts for 2006/2007 have yet to be published, however the 2006 public accounts for Ontario show the PBGF assets as CAD143m, with liabilities of CAD417million, giving an underfunding level of CAD274m. See <http://www.fin.gov.on.ca/english/budget/>
- ³⁰. Some problems ironically arose out of the 1985 Pension Act which introduced additional protection for pensioners. Priority bankruptcy rights were given not only to existing pensions, but also to pension increases. Consequently, although retirees were largely protected when companies such as ASW went bankrupt in recent years an employee, due to retire in 1 week, lost up to 80-90% of his or her promised pension. This has been changed in the 2004 Pension Bill, with pensions promised to active members ranking above future pension increases for current retirees.
- ³¹. *Economist September 26th 2002 'How safe is your pension?'*: when steel company ASW went bankrupt in July 2002 its pension fund, though compliant with UK minimum funding regulations, was only sufficient to pay around two thirds of pensioners' accrued benefits.
- ³². I.e. 90% of the pension an individual had accrued at the start of PPF involvement with the scheme, revalued in line with the RPI (maximum 5%) between that date and the date the compensation comes into payment in line.
- ³³. See *DAFFE/CMF(2004)12: "Developments related to corporate pension fund liabilities and funding gaps."* Comments taken from UK government response.
- ³⁴. For details of the asset allocation strategic and governance of the PPF see: 'Statement of investment principles', available on <http://www.pensionsprotectionfund.org.uk/sip.pdf#search='pension%20protection%20fund%20governance%20of%20the%20pension%20protection%20fund%20strategic%20management%20of%20the%20fund%27s%20assets'>
- ³⁵. *Investment & Pensions in Europe 1 August 2003, 'Piling on the agony'*, available on www.ipe.com
- ³⁶. *Financial Times, June 13 2005, 'Great British Pensions Evacuation'*
- ³⁷. Pensions Bill (Bill 57) Par 137 (3) (b)
- ³⁸. See Department of Work and Pensions paper June 2003: 'Action on Occupational Pensions'
- ³⁹. *Investment & Pensions in Europe 3 March 2005, 'UK protection fund aims to set risk levy quickly'*, and 23 June 2005, 'UK's PPF names asset managers, custodian', available on www.ipe.com
- ⁴⁰. It should be noted that after its first months of operation only 3 initial applications were made to the PPF, from MG Rover, Bristol Community Sport Ltd and Pearce Signs Group – See: 'PPF, in good shape', 1 June 2005, available on www.ipe.com
- ⁴¹. Description of David McCarthy and Anthony Neuberger's claims model in: "Will the PPF go the way of the US fund?", Pensions Management, April, 2004, available on <http://www.pensions-management.co.uk>
- ⁴². *Economist 15th April 2004 "Pensions: On the Cheap"*. In addition, John Ralfe, an independent pension consultant and formerly Head of Corporate Finance at the Boots company, has estimated that, taking into account credit risk, underfunding and asset allocation, the FTSE100 companies alone should be charged a PPF fee of £600m. See RBC Capital Market, Open Forum Notes Vol. 6, available on www.JohnRalfe.com Standard and Poor's simulations see the annual claim on the

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- PPF at GBP 1.5bn, in their worst case scenario – see *Investment & Pensions in Europe 18 April 2005*, ‘S&P see up to €2bn annual claim on UK’s PPF’, available on www.ipe.com
43. *Financial Times 21/7/2004 ‘Companies UK: A bad idea’* Martin Dickson. Idea put forward in the FT by Sir Tim Chessels, chairman of trustees at BT’s pension fund (which NB is in deficit and still has a high equity weighting), that the government should put tax payers’ money into the PPF.
44. *Accountancy Age 17 December 2003: ‘Pension safety net worries financial directors’* available on www.accountancyage.com : article reports that a survey by the UK insurance group Prudential of financial directors found that 42% had reservations about new PPF, mostly on the basis that strong companies will end up bailing out weaker ones.
45. *Financial Times* coverage of the case includes, ‘Pensions watchdog primed to protect benefits not jobs’, 8 July 2005
46. Numbers quoted from the English summary of PSVaG annual report 2005. 2004 summary available on line at <http://www.psvag.de/pdf/gb04e.pdf#search='psvag%20summary%20of%20annual%20report%2005'> <http://www.psvag.de/pdf/gb01e.pdf#search='PSVaG%20summary%20of%20annual%20report%202003'>
47. The insurance industry recently launched a voluntary projected €500m insolvency protection fund which ‘de-regulated’ Pensionskassen (which serve a range of companies and account for around one-fifth of occupational pension assets) may join. *Investment & Pensions in Europe, 24 May 2006*, ‘Pensionskassen get insolvency protection’ – available of www.ipe.com
48. *Investment & Pensions in Europe 2 May 2006 ‘Germany plans huge pension insolvency fund’* – available on www.ipe.com
49. The current legal obligation of 2.75% being applied for payable pension benefits with a less conservative 3.67% applying to entitlements (including ‘old obligations’).
50. Also known as the LOB (Law on Occupational Benefits) Guarantee Fund. See: www.sfbvg.ch/en/bvg/bvg_home.htm
51. It is unclear if there is implicit government support behind the scheme and if public funds would be used to support the organization if it were in difficulty. Certainly increased premiums, reserves and even bank loans may be used to cover heavy losses before this were the case.
52. This number includes the 2600 registered pension funds and 1200 non-registered pension funds. Registered pension funds are authorized to provide the mandatory part of the second pillar. Note that pension funds often also insure (voluntarily) additional parts of workers salaries.
53. The discount rate for calculating the present value is fixed at 3.5% at present, therefore is greater than the discount rate for calculating the ‘Minimum Funding Standard Amount’ or MFSA of the pure private benefits.
54. This corresponds to the ceiling on the contribution to the Program (annually 65% of Y9.681m per fund).
55. Following charts taken from Nobuhiro Shimizu’s presentation on ‘Protection of Participants and the Pension Benefit Guarantee Program of Japan’, made at the OECD/ IOPS Conference on Private Pensions in Asia, Bangkok, Thailand, 27-28 April 2005
<http://www.oecd.org/dataoecd/56/39/34723067.pdf>
56. Goldman Sachs ‘Portfolio Strategy’, October 2002, author Japan strategist Kathy Matsui
57. The MTPSP is evaluated, in actuarial terminology, by the retrospective method - i.e. the MTPSP is the termination value of cash inflows and outflows (premiums corresponding to the Substitution Portion and benefits paid out) with actual interest rates performed by the investment of social security fund (EPI). In other words, EPFs do not have any responsibility of paying additional contributions as long as the investment return is not less than that of the EPI.
58. In the fiscal year ending March 2004, assets at 283 of Japan’s biggest corporate pension funds covered 77 per cent of their payment obligations, up from 62 per cent the previous year, according

to Greenwich Associates, the US consultancy. See *Financial Times*, 26 July 2004, "Mood of crisis lifts in Japanese pension funds". A survey of all listed companies (3,414) by Nomura Securities found a lower funding ratio of 56% as of March 2004, 'Corporate Pension Obligations' *Nomura Daily Report*, 7th September, 2004.

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