



**“Report on Funding Rules and Actuarial Methods”**

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**for the OECD’s Working Party on Private Pensions**

***NOTE***

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## SECTION 1: INTRODUCTION

### *Basic Objectives of this Report*

1. This report outlines the regulatory framework within which defined benefit (DB) pension plans are financed and addresses the challenges facing the funding of such plans. The Appendices include a summary and discussion of the funding regulations in selected OECD countries that have a long history of externally funded DB pension plans. This report attempts to draw on the positive and negative experiences in these countries and then *develop ideas and recommendations for the regulation of pension plan financing in OECD countries and elsewhere*. This paper will address such central issues as:

- What funding and actuarial costing methods may be considered as best practice? In particular, should the *projected unit credit method* be the universal norm? How desirable is consistency with accounting principles?
- What are the pros and cons of imposing minimum and maximum funding requirements? How much flexibility should companies have to adjust their funding levels to meet these requirements?
- Should regulators establish a precise set of actuarial assumptions (economic and demographic) to be used in actuarial valuations? Alternatively, how much flexibility should actuaries have in setting assumptions?

### *We live in difficult times.*

2. The funded positions of defined benefit pension plans have deteriorated rapidly in the period 2000-2002. In the absence of a rapid and dramatic economic recovery, investment performance in 2003 will do little to resolve the problems. Some governmental authorities have reacted by creating yet another layer of regulations to protect the current funding position of DB plans. Other countries have concluded that these are not normal times and that a temporary relaxation of funding rules would better serve the overall economy and the longer term interests of the various stakeholders. Most regulatory authorities do not know how best to handle the situation. This is hardly surprising, as there are no easy solutions. There is no clear best practice that (i) reassures the pension plan beneficiaries and conservative regulatory authorities in sustained periods of severe economic downturn, but (ii) does not aggravate the country's wider economic problems and (iii) still encourages the sustainable development of occupational pension plans in the years ahead. It will be counter-productive to become excessively distracted by the current economic issues, so each issues addressed in this report first will be analyzed in the environment of more normal times. The effectiveness of each conclusion in a sustained economic downturn then will be tested, but without the automatic expectation that it will always satisfy the concerns of all stakeholders.

### *Pension plans that are the focus of this report.*

3. Although various aspects of this paper have wider application, the focus is on occupational defined benefit pension plans financed through autonomous pension funds. Clarification of these terms will be provided throughout this report, and reference also should be made to the OECD's "Taxonomy for pension plans, pension funds and pension entities".

## Funding Rules and Actuarial Methods

### *Lump sum pension benefits.*

4. For the purposes of this paper, it does not matter whether the retirement benefit is paid in periodic instalments (generally for the lifetime of the retired employee and spouse) or whether it is paid in a single lump sum at retirement. The advance funding considerations are virtually identical.

### *Long service or termination indemnities.*

5. Long service indemnities or termination indemnities of the defined benefit type also would fall within the scope of this paper - if they are paid automatically on retirement to anyone fulfilling the eligibility requirements, and if such obligations are or were to be externally funded.

### **Balance of this Report.**

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## SECTION 2: HISTORICAL DEVELOPMENT OF FUNDING REGULATIONS

6. This report will focus almost exclusively on the roles of the regulatory authorities as they relate to the **external funding** of DB pension plans. Pension plan regulators clearly have broader responsibilities, but the OECD is addressing these issues in other research papers and other conference sessions. “Funding” is already a large subject, and a very topical subject, so it will be productive to focus the mind on this single issue.

### *Development of Regulatory Environment.*

7. There are primarily two governmental bodies concerned with the regulation of occupational pension plans and pension funds – the labour, social affairs and social security ministries on the one hand and the economic and financial authorities on the other. Among the latter, the **tax authorities** have played historically the more dominant role. They set the conditions under which employees and employers could make contributions – often tax deductible contributions – to a plan, and they still control this aspect. Their regulations affect both plan design and plan funding. The tax authorities were, and still are, concerned about (a) the payment of excessive benefits to some or all plan members and (b) the deposit of unnecessarily high, tax favoured contributions into the pension fund. These are, of course, legitimate concerns. In the 1990s, they perceived their greater challenge to be the accumulation of large funding excesses (surpluses) within pension funds – not because of deliberately excessive employer contributions, but simply because investment performance far outstripped the actuary’s expectations for a sustained period of time. The knee jerk reaction was additional, and often very counterproductive legislation, although it is unfair to place all the blame on the tax authorities. This point will be covered in more detail in other sections of this report.

8. It was only later (the mid-1960s in Canada, 1974 in USA, etc...) that the **labour and other ministries** became more actively involved in pension plans, and their focus was substantially different. The thrust of legislation from this quarter is the establishment and protection of plan members’ rights. This involves many aspects of plan design, as well as prudent investment of fund assets and sound funding of the pension plan obligations. The last item is of direct relevance to this report. Minimum funding standards were an integral part of the original legislation, but (in retrospect) the initial requirements were not particularly onerous. In simple terms, the general requirements were for payment of:

- the current year’s normal costs (as defined by the actuarial funding method);
- a slow amortization of any initial unfunded liability existing at the time the legislation was introduced or a new pension plan was established;
- slow amortizations of subsequent increases in past service liabilities resulting from retroactive plan improvements;
- sensible amortizations of “experience deficiencies”, i.e. unfavourable deviations from the actuary’s forecasts (high salary increases, low investment returns, etc...).

9. The legislation in some countries did not break down the payments in this manner, but the overall intent was similar. Later, for a variety of both positive and misguided reasons, the legislation in many countries became far stricter. There was, and continues to be, considerable emphasis on “minimum funding standards”, but the rules of the game have changed. These requirements will be discussed in Section 4 of this report and analyzed in detail in the country appendices.

### SECTION 3 : GENERAL ACTUARIAL CONSIDERATIONS

10. This section will address actuarial funding methods and actuarial assumptions from the perspective of the regulator. The fundamental question is the extent to which pension law or the pension regulator should mandate the use of a single actuarial funding method or prescribe the actuarial assumptions? These and other questions will be addressed in general terms in this section and then analyzed in more specific detail in the subsequent sections on minimum funding requirements (Section 4) and maximum funding constraints (Section 5). Appendix “A” summarizes the most important actuarial funding methods and identifies their key characteristics and objectives. Anyone unfamiliar with actuarial methodology should first read the appendix and then return to this section. Country-specific legislation on actuarial methods and assumptions is provided in Appendix “B”.

#### *Should regulators mandate a single actuarial funding method?*

11. It is difficult to justify mandating a single actuarial funding method. Employers in different industries or at different stages of their development (from start-up to mature) will have correspondingly different funding objectives. All the actuarial funding methods described in Appendix A are sound and systematic, and the use of any of these methods should not cause concern to a regulator.

#### *Is “Projected Unit Credit” becoming the norm?*

12. In the absence of any particular legislative constraints or other outside influences, there has been a trend in many countries towards Projected Unit Credit. An easy example is the UK, where the Aggregate method was dominant for a very long time and Projected Unit Credit (PUC) was hardly to be seen. However, long before UK accounting standards pushed PUC for pension expensing purposes, the method took hold. In Canada, PUC has been dominant for decades, again before outside influences. One must then ask whether the popularity of PUC is justified, and the answer is almost certainly “yes”. It is more transparent than most other methods, and it produces a form of *balance sheet* that most people can understand. Its definition of accrued liabilities is clear and readily comparable with the accumulating fund assets. Favourable and unfavourable experience is easy to identify and understand. Finally, and more recently, there is one major defensive reason for using PUC. It is the method selected by the major accounting bodies for the pension expensing requirements that are being imposed on plan sponsors. Perhaps, accountants were also convinced of the transparency and other advantages just described. There is certainly no *necessity* to use the same actuarial method for funding and expensing, but there are obvious advantages.

#### *Should regulators prescribe the actuarial assumptions?*

13. In answering this question, there are a number of separate issues to be addressed. If we start by focusing on the regular funding of the plan, and we temporarily set aside any concerns of minimum funding standards and maximum funding constraints, then the regulators should mandate nothing more than the use of reasonable and appropriate assumptions. In this context, the major assumptions should be independently realistic, with perhaps a margin of conservatism (prudent assumptions). The reasonableness of the minor assumptions can be evaluated in aggregate. This is already the legislative environment in many countries, although a combination of cultural, psychological and legislative factors continue to restrict the use of this approach in the Netherlands and Switzerland (see appendices). As regards minimum and maximum funding constraints, the question is more difficult to answer, simply because assumptions can be used to manipulate the results. For example, a high discount rate and a weak mortality table can make a plan appear to be better funded than is really the case ... and vice versa.

### ***Should regulators prescribe the valuation of assets?***

14. This question should not be answered in isolation. Assuming a realistic and somewhat market-related valuation of the liabilities, most players now agree that fund assets should be brought into the equation on the basis of either their straight market value or some smoothed market value. The disagreement is over the validity of smoothed values. The accounting profession clearly does not like them, and others claim that smoothed values are a distortion of reality and tend to shield the plan sponsor from facing up to such realities. However, the objective of a pension fund is to accumulate assets on a sound and systematic basis. From a long-term funding perspective, is a market valuation on a single date (that is already some months in the past) really so important?

15. Forcing or encouraging plan sponsors to take dramatic corrective actions based on this single market value can be very counterproductive, and it is an issue that is developed in greater detail in Sections 4 and 5. Numerous proposals are provided in these sections, so only one additional point will be made at this time. Even if smoothed market values are rejected, and fair market values must be used at all times, large and unnecessarily volatile swings in contribution rates can still be avoided. This is where the question of asset values cannot be answered in isolation. If the effects of experience gains and deficiencies revealed in an actuarial valuation are allowed to be spread over a reasonable period of time (e.g. at least five years), then there is still smoothing. If the market value of the assets was only a temporary aberration, the amortization can be stopped before it aggravates the real funded position of the plan. Some smoothing is highly desirable – in one form or another – but which form?

### ***Correction of overfunding and underfunding.***

16. With the sole exception of the Aggregate method, the actuarial funding methods described in Appendix A do not prescribe the amortization of any experience gains or deficiencies. [At this point, we are concerned with the overall effect of positive and negative deviations from the actuarial assumptions, not just the investment gains and losses.] These actuarial methods, including the Projected Unit Credit, simply indicate that the plan is overfunded or underfunded. There are then subjective decisions to be made regarding whether to ignore the excess or the shortfall or, alternatively, how to correct it. Unless the funded status of the plan is close to the minimum funding requirement or the maximum funding constraint, the plan sponsor should be allowed a fair degree of flexibility.

### ***Frequency of Mandated Valuations?***

17. The choice is usually between one and three years. It is rather strange that nobody has thought of two years, although it is clear that one year is too short in most circumstances and three years is too long. The accountant's pension expensing standards may push plans towards annual valuations. Furthermore, annual valuations make sense when the plan is seriously underfunded or the experience is volatile. From a regulatory standpoint, a *maximum* interval of three years is probably still appropriate, with more frequent valuations of poorly funded plans.

### ***Pension expensing considerations.***

18. Many of the accounting-related issues and influences on funding have already been addressed. One remaining question is then whether a plan sponsor should try to match the pension plan funding with the pension expense, primarily in order to eliminate any pension asset or liability on the company's balance sheet. The answer to this question is "no". Some American employers attempted this in the late-1980s. In practice, it does not work. Now, given the proposed changes in accounting standards, it would generate highly volatile and thus highly undesirable funding requirements.

## SECTION 4: MINIMUM FUNDING STANDARDS

### *Background.*

19. Minimum funding requirements usually are to be found in legislation focused on protecting the plan members' benefits and, in particular, on ensuring the security of the payment of such benefits. The source is normally labour and social affairs legislation, but financial and tax authorities also regulate funding requirements. As already indicated in Section 2, traditional minimum funding requirements focused on payment by the plan sponsor of the normal or current service cost plus maximum amortization periods for various categories of unfunded liabilities and experience deficiencies. These requirements still exist in many jurisdictions, but they have been overtaken in importance by straight asset/liability measures.

### *Asset/liability measures.*

20. In many countries, the minimum funding standards focus on the pension fund assets exceeding the pension plan's accrued liabilities on every measurement date. Almost every country with such a standard has its own way of defining "accrued liabilities", and often there are various requirements for valuing the fund assets (see below). However, the basic philosophy is the same. The authorities are focused on "benefit security" (a laudable objective), and they are equating such benefit security with the crude size of the pension fund assets. In truth, benefit security depends on many other factors, such as the financial strength of the sponsoring employer, its future intentions regarding the pension plan and the funding thereof, the quality of the fund assets relative to the liabilities, verifying whether the assumed rate of return is reasonable, etc... It is easy to accept the weaknesses of the simple asset/liability solvency measures. It is far more difficult to develop a viable and effective alternative.

### *Calculation of Accrued Liabilities.*

21. For the purposes of minimum funding standards, most regulatory authorities define the "accrued benefits" and then specify the discount rate to be used for the calculating the present value of such accrued benefits (i.e. the accrued liabilities). For these purposes, common definitions of accrued benefits include vested benefits payable on termination of employment and benefits payable to the members in the event the plan were immediately terminated. The prescribed discount rate usually takes the form of (i) a specific rate, (ii) the current market yield on an identifiable group of securities or (iii) the rates implicit in the purchase from insurance companies of immediate and deferred annuities. In some countries, it is simply a maximum rate (e.g. 6% pa in Belgium).

### *Basic criticism of annuity purchase assumption.*

22. As already indicated, many solvency tests implicitly or explicitly assume (i) immediate termination of the pension plan, followed by (ii) immediate liquidation of the fund assets and (iii) immediate purchase of insured annuities. If a pension plan cannot successfully discharge all three of these assumed steps, it is deemed to have serious funding problems that requires drastic actions. However, in all except the rarest circumstances, none of these assumptions is logical. Even if the fund were wound up, the solvency test makes an unwarranted assumption as to the future strategy of the pension entity administering the plan. An immediate sale of all assets and transfer of the proceeds to an insurance company is most unlikely, especially for a large fund or if market conditions are unfavourable.

### ***Over-regulation.***

23. Over-regulation of DB pension plans is an unfortunate and growing phenomenon; see Section 5. The Myners' report in the UK, when reviewing the UK's minimum funding requirement and other UK regulations, argued that increased protection under DB plans will deprive employees of having any DB plan at all. Instead, such plans will be replaced by DC plans, and *all* the risks will then be thrown at the employees. In the area of minimum funding, as with other areas of legislation, there is a fine line between (over)protecting the interests of DB plan members and destroying the incentives for employers to sponsor such plans.

### ***Minimum funding v. fraud.***

24. The UK's minimum funding standard was a reaction to the Maxwell scandal, where pension fund assets were fraudulently removed from the Mirror Group pension fund. Minimum funding standards of the asset/liability type described above do not prevent fraud. Indeed, most pension legislation cannot stop a determined criminal. However, minimum standards that pay more attention to the quality of the fund assets and the good intentions of the employer can be an important step in the right direction.

### ***Conclusions.***

- The assumptions used for calculating and comparing assets and liabilities should not necessarily be the same for all pension funds. A single set of assumptions fails to recognize fund-specific factors such as the maturity of the fund, the strength and future intentions of the plan sponsor, and the investment strategy of the pension entity.
- The whole situation becomes even further detached from reality under the plan discontinuance and annuity purchase type of solvency test.
- Solvency tests should not protect against all possible economic scenarios (such as the fourth or fifth consecutive year of an economic downturn). The costs would be too high. Pension funding should not take priority over the very survival of the plan sponsor, and the wider economic impacts could be disastrous. See "Netherlands" in Appendix B.
- Solvency tests would be better focused if they encouraged optimal investment of the fund assets and protected plan members against inappropriate investment strategies. Such assessments should be fund-specific. Asset liability modelling (ALM) studies can play an important role in this regard.

25. Of course, the final question is whether minimum funding tests serve any useful purpose. If not, they should be abandoned in favour of other requirements on the sound management of the plan and fund (governance and other issues). If they are still deemed to be necessary, they should be more plan-specific and they should avoid the imposition of volatile funding or other detriments to the smooth functioning of the plan.

### ***Recommendations.***

- Monitor the discussions taking place among regulators and within the actuarial profession in both Canada and the USA, and in the UK and elsewhere in Europe. Many experts are searching for better alternatives to today's crude asset/liability measures for measuring funding adequacy and protecting the members' security. Their efforts should be encouraged.

## Funding Rules and Actuarial Methods

- If an asset/liability type of minimum funding measure is to be introduced or retained, then legislation should not require the immediate and complete correction of any underfunding that the test purports to reveal. Actuarial calculations are an inexact science. Asset values fluctuate, and funding shortfalls may disappear as quickly as they had appeared. It is counterproductive for a plan sponsor to make high additional contributions and then find, one or two years later, that the markets have recovered and the plan now has an embarrassing funding excess (see next section).
- Devices to avoid excessive knee jerk reactions include ignoring small funding shortfalls (say, 10% of liabilities), smoothing asset values and amortizing shortfalls over five years. Whilst acknowledging the inherent weaknesses of any asset/liability solvency measures, and recognizing the slight differences between the various supervisory authorities in Canada, there is much to recommend the general Canadian approach to minimum funding. The objective is clear and logical. The five-year period for corrective action avoids dramatic knee jerk reactions to deficits in times of temporarily distorted market conditions. The combined smoothing of asset values and discount rates, as allowed by some of the Canadian regulators, also can work well.
- The regulator should allow additional flexibility in a sustained economic downturn.

## SECTION 5 : MAXIMUM FUNDING CONSTRAINTS

### *Background.*

26. Maximum funding constraints are imposed by tax authorities to prevent either the deliberate or accidental build-up of excessive assets within the pension fund. Deliberate build-ups were the result of a plan sponsor consciously contributing far more to the pension fund than was needed to finance the promised benefits. Only pension people with long memories can remember those days! Accidental build-ups of excess funds result primarily from favourable experience under the plan. With the benefit of hindsight, the actuary's assumptions were too conservative. High investment returns or other favourable plan experience caused the assets to grow at a faster pace than the accruing liabilities. This was the focus of attention of the tax authorities during the late-1980s and the 1990s.

### *Sanctions and Corrective Actions.*

27. In most countries, tax legislation does not impose direct *sanctions* on plan sponsors or pension funds in the event of overfunding. There are examples of special excise taxes (USA) or additional taxes on withdrawals of excess assets (UK), but most jurisdictions focus on requiring the plan sponsor to take *corrective actions*. The most common, and most obvious, corrective action is the reduction of future contributions. In extreme situations, the plan sponsor may be required to suspend its contributions for a period of time. Even in the absence of government legislation, these downward corrections of contribution rates are an automatic part of ongoing discussions between the actuary and the plan sponsor. Then, in the 1990s, plan sponsors were happy to go even further than the actuary would normally recommend. They happily agreed to complete contribution holidays, and they explained their actions as being a consequence of government legislation.

28. Another important approach to reducing overfunding is to spend the money, through improvements in the accrued benefits of non-retired members, increases to pensions-in-payment and guarantees of future pension indexing. This approach only becomes contentious when the regulator mandates such actions. The third main approach to reducing overfunding is the refund of excess assets to the plan sponsor. Such withdrawals are explicitly forbidden in some countries, e.g. Belgium and Switzerland. For all practical purposes, Canada can also be categorized as a country where withdrawals of excess assets are impractical.

29. Of course, one has to ask whether any of these corrective actions were really necessary or desirable. We are now facing a pensions funding dilemma, for which blame can be widely apportioned. Without excusing plan sponsors and their advisors, it is clear that government legislation is counterproductive when it encourages or requires rapid and vigorous corrections of either the perceived overfunding of the 1990s or the subsequent (and somewhat consequential) underfunding of the early 2000s.

### *Ownership of Funding Excesses.*

30. In the very large majority of countries and situations, it is the plan sponsor (the employer) that is fully responsible for correcting any underfunding situations. It should therefore not be a great leap of faith to conclude that the employer should be the beneficiary of any temporary overfunding. Indeed, some of the actuarial costing methods involve the conscious creation of such advance funding, to underpin the basic objective of a smooth employer contribution rate. However, overfunding or advance funding is frequently re-categorized into the far more emotive word "surplus". Anyone familiar with the pension environment during the 1990s will remember the highly emotional, and even confrontational, discussions on the

ownership and application of such *surpluses*. Canada has become a clear example of where the equation has become unbalanced. In practical terms, funding shortfalls are the employer's problem and funding excesses belong to the members. In such an environment, no employer is going to move beyond minimum funding. This is very unfortunate. Unless plan sponsors can be convinced of their right to the upside gains as part of their responsibility to accept the downside risks, solid funding of pension obligations will become history. Future generations of plan members and plan sponsors will curse our short-sightedness.

### *Accelerated funding under some actuarial funding methods.*

31. As discussed in Section 3 and Appendix A, some actuarial funding methods require heavier contributions in the early years in order to stabilize future contribution rates. A practical side effect of these accelerated contributions is an additional hedge against unanticipated and unfavourable future experience. If government legislation then requires the funded position of all pension plans to be assessed on an accrued benefit basis, these particular plans will appear to be overfunded even when plan experience has conformed largely to actuarial expectations. If this factor is not taken into account in any governing legislation, then the practical effect is to restrict the choice of actuarial funding methods and reduce funding levels.

### *Investment reserves and smoothing techniques.*

32. Notwithstanding some of the above concerns, the tax authorities still have a right to be concerned about any plan sponsor that attempts to abuse the generally tax-favoured status of occupational pension plans. However, their concerns should not be aimed at penalizing prudent plan sponsors that simply want to fund their pension obligations on a sound and conservative basis. The other main challenge for the regulator is to avoid demanding drastic corrective actions when overfunding is simply the result of recent, and perhaps temporary, market conditions. As recent events have shown, such overfunding can disappear as quickly in the future as it appeared in the recent past. From a regulator's standpoint, there are three solutions to these challenges that parallel a sensible treatment of underfunding, namely:

- **Smoothed asset values.** For the purposes of determining whether a plan is genuinely overfunded, and the extent to which it is overfunded, the plan sponsor should be allowed to use a smoothed market value for the assets. Alternatively, fair market values can be specified, but a pension fund would be allowed to maintain an additional investment reserve when asset values are high. The end result is the same, but there are important differences in the presentation.
- **Margins.** In the same manner as most authorities do not require any action to be taken for underfunding of less than 10%, a similar (but preferably higher) margin could be allowed for overfunding.
- **Amortizations.** Any "correction" of overfunding should be allowed to take place over a sensible period of time.

33. However, there is one additional consideration that differentiates overfunding from underfunding. While it is clearly undesirable to continuously ignore a funding shortfall, is there any reason to prevent a pension fund continuing to retain a modest funding excess? If pension funds had been allowed to retain contingency reserves, and if the "ownership" issues surrounding such reserves could be more favourable to the plan sponsor, pension funds would have been in a better position to weather the current underfunding problems.

***Conclusions and solutions.***

34. Using the term “pension plan regulator” in the narrower sense, namely the administrators of legislation protecting members’ rights, these regulators would have no problems in allowing or even encouraging overfunding. The legislation surrounding the ownership of excess funds is usually found elsewhere, and often in the Courts. The legislation establishing maximum funding constraints usually emanates from the tax authorities. This is a classic example of the need for effective cooperation between the somewhat competing priorities of various parts of government. Desirable solutions include:

- Resolution of the current no-win situation for plan sponsors in many countries regarding the correction of experience shortfalls (deficits) and the utilization of funding excesses (surpluses);
- Tolerance of a reasonably large amount of overfunding by the tax authorities. There should continue to be measures to prevent *abuse*, which is normally confined to small plans. Ireland is one country where the focus of the regulators is the correction of genuine abuse without the penalization of plan sponsors seeking conservative funding.
- To the extent overfunding is so high as to demand action, the plan sponsor should be permitted to amortize the corrective actions over a reasonable period of time. In Canada, for example, there are no requirements for dramatic action even when the surplus exceeds the established threshold. The plan sponsor can simply take a contribution holiday until the excess funding is used up. If the funding excess was just the result of temporarily distorted market conditions, then the contribution holiday will be short and regular funding can resume.

35. It will not be easy to persuade some legislators to make these changes. However, there will never be a better time than now. People are coming to understand that aggressive and counter-productive treatment of overfunding in the 1990s is one of the primary reasons for the current underfunding.

## SECTION 6 : CHALLENGES FACING REGULATORY AUTHORITIES

### *Introduction.*

36. The challenges identified in this section are particularly relevant to the regulation of pension plan funding, although some are equally applicable to plan design or the investment of fund assets. There can also be complicated areas of overlap, for example when an apparently sound funding regulation has the potential to create adverse consequences on plan design or the investment of fund assets.

37. The primary objective of this section is to set out the difficulties facing any legislator and to learn from the positive and negative experiences in other countries. The challenge for the government and the regulator is to move towards pension funding regulation that:

- has clear and agreed objectives;
- is transparent, avoiding convoluted methodology or artificial assumptions;
- is capable of being understood by non-experts;
- is effective in practice, avoiding unnecessary cost burdens such as administrative overload or inefficient investment practices; and most importantly
- encourages the establishment and continued maintenance of occupational pension plans.

38. In most of those countries with a long history of pension plans, there is a widespread fear that pension plan and pension fund laws and regulations can become excessive and even counterproductive. Regulators have a very important role to fulfil. It is a great challenge for them to satisfy the legitimate concerns of all stakeholders (pension plan sponsors, their shareholders, pension plan members and other beneficiaries, etc...) whilst avoiding unforeseen or undesirable consequences for the plan sponsor or the general economy. From the perspectives of both the regulator and the regulated, some of these challenges now will be identified. For those countries in the development stage of pension plan regulation, there are many useful lessons to be learned.

### *Challenges.*

39. **A stable legislative environment.** An environment of constantly changing legislation and regulations is not conducive to the smooth and efficient operation of pension plans and funds. Countries such as the United Kingdom might be a consultant's dream, but they can be an employer's nightmare. The competing effects of the UK's minimum funding requirement (MFR) and maximum funding constraints caused considerable confusion. More recently, the frequent changes to Dutch funding legislation are also a cause for concern. It was not so long ago that Dutch past service liabilities could be book reserved on a tax effective basis and other unfunded liabilities and experience shortfalls could be amortized through to retirement (the so-called 65-x method). In 2000, the 65-x method was abandoned in favour of full and immediate funding. Additional reserves were then required in connection with equity investments. Notwithstanding the 10 year transition away from 65-x, it was less than three years before the regulator (the PVK) effectively abandoned the 10 year transition and imposed further and very dramatic minimum funding requirements. At the same time, the PVK announced its intention to introduce further significant changes in funding regulations in 2006. Although some of the changes had little practical effect at the time, because of inflated asset values, an environment of constantly shifting sands is discouraging.

## Funding Rules and Actuarial Methods

40. Although plan sponsors may not like some parts of any country's pension legislation, they eventually learn to adapt and comply. Obviously, this is easier when the legislation is not undergoing constant change and where there is a consistency of approach. Switzerland provides a good example of a more stable environment. Swiss pension legislation is scheduled for a thorough review only every ten years, and there is comprehensive input from all quarters. There is only fine-tuning of the legislation in the intervening years, and usually as a consequence of well-reasoned requests from plan sponsors and others. One example has been the acceptance of asset liability modelling studies to support efficient pension fund investment strategies that otherwise contravened the quantitative investment restrictions.

41. **A stable funding environment.** Plan sponsors should be allowed to fund their pension obligations in a controlled manner, without the knee-jerk volatility imposed by funding legislation in some countries and without the pressures imposed by other outside influences. Plan sponsors are very concerned about the extreme volatility of pension *expense* that is expected to be imposed by forthcoming accounting requirements. Translating that level of volatility into pension *funding* could be catastrophic. The next two points expand on this issue.

42. **Smooth correction of underfunding.** This issue has already been developed in detail in Section 4. Even if smoothing is allowed in the calculation of accrued liabilities or the valuation of assets, actuarial calculations are an inexact science and asset values are volatile. Amortization of any funding shortfall should be allowed over a reasonable period of time. If no smoothing is allowed in the underlying calculations, then such amortizations (and the use of "corridors") become even more important. The minimum funding approach developed by the Canadian Institute of Actuaries achieves a fine balance in this regard (the problems in Canada lie elsewhere, in that customary funding could default to this minimum funding standard). The challenge for the regulator is to allow some smoothing, either in the calculations or through amortizations, without completely destroying the credibility or transparency of the results.

43. **Constructive approach to overfunding.** Some of the same considerations apply to overfunding. However, there is an important fundamental difference. Underfunding is a problem, whereas overfunding is an opportunity – an opportunity to set aside reserves to protect against future adverse experience and to introduce further stability into the funding of the plan's obligations. In many countries, the various arms of government need to work in a more coordinated manner to ensure a constructive approach to overfunding.

44. **Additional flexibility in difficult times.** More than 70 years have passed without a sustained economic downturn of the type currently being experienced. As a result, many governments and regulators have explicitly relaxed their funding requirements on a temporary basis (e.g. Ireland, UK and USA). In a number of other countries, the regulators have taken a more flexible attitude to short term funding (e.g. Portugal). Even the Netherlands, which introduced much more stringent funding requirements during the depths of an economic downturn, has found it necessary to counterbalance this effect with additional dialogue and flexibility.

45. **A Pension Fund is not an Insurance Company.** A pension fund does not sell products; indeed, the opposite, as it is a buyer of services and products. It does not deal with the general public. Only in very rare circumstances does a pension fund make guarantees. It is the plan, and thus the plan sponsor, that makes promises (or even guarantees) to the plan members; it is not the fund. Yet, too many countries persist in regulating pension funds as if they were insurance companies or insurance products. Funding standards, and especially minimum funding standards are erroneously geared to insurance company products, guarantees, reserving and overall philosophy. Pension fund legislation that talks about "premiums" rather than contributions, and "mathematical reserves" rather than accrued liabilities, often reflects this approach.

46. The insurance supervisory authority is, in several countries, responsible also for pension fund supervision - this is not always a problem, and it is sometimes necessary in smaller pension markets with limited actuarial expertise, but the regulator (and the legislation itself) must recognize the unique characteristics of pension funds. Portugal is a good example of an insurance supervisory authority that has been charged with pension fund supervision and is able to make the clear distinction. In contrast, the Netherlands has recently published a so-called White Paper on the Solvency Test, “by means of which the capital adequacy of a pension fund or an insurer is assessed” – and which appears to assume that a pension fund and an insurance company are identical twins and should be regulated as such.

### ***Problems (real and perceived).***

47. **Unrealistic expectations.** Some plan members, their representatives and other parties have developed unrealistic expectations about the roles of regulators in curing all the world’s pension problems. One obvious example is the UK’s minimum funding standard (MFR). It was not only supposed to prevent fraud of the Maxwell type, but it gave most people the impression of providing iron-clad guarantees of the funding of their accrued benefits. Iron-clad guarantees are too expensive, and fundamentally inefficient, but that is a separate and even more complex issue. The MFR is nothing more than its name indicates – a minimum funding requirement. However, it created unrealistic expectations, and regulators need to be aware of this type of potential problem.

48. **Over-regulation.** There is strong evidence that this is the second most important reason for employers switching from defined benefit (DB) pension plans to defined contribution (DC) pension plans, with the first reason being the potentially volatile costs of DB plans. Over-regulation is indeed a serious problem, and it should not be underestimated by government authorities in developing pension plan markets. DB pension plans are inherently superior to DC plans in a number of important areas, but they are being legislated to death in some countries. This point is covered below in more detail.

49. **Counter-productive legislation.** There is a lot of discussion on this point at the present time. In the same way as a doctor treats a sick patient, the regulator must be careful to cure a problem without creating numerous and more serious problems elsewhere. One example will serve to illustrate the point (see next paragraph).

50. **Distortion of investment decisions.** Much very valuable work has been done in recent years to improve the effectiveness of pension fund investments. Asset liability modelling (ALM) studies have played a major role in this regard. For various degrees of risk tolerance and with the specific demographic and other characteristics of an individual plan, it is now relatively simple to develop a range of efficient portfolios for the fund. The results have been revealing, sometimes surprising and always useful. As already indicated, Switzerland has agreed to relax its complicated asset mix restrictions, if it can be shown that they are “inefficient” for a particular fund. The new EU pension fund directive almost completely abandons quantitative investment restrictions, in exchange for a prudent person rule and the encouragement to use ALM. However, the progress achieved through the front door is in danger of being lost through the back door. For example, minimum funding standards in many countries are designed around insurance company annuity rates or current market yields on long-term bonds. In order to avoid problems, especially in jurisdictions that require immediate correction of the (perceived) underfunding, a plan sponsor is tempted to over-invest in such long-term bonds. Some legislation on the indexation of pension benefits can have the same effect. Although outside the realm of the pension regulator, proposed amendments to international, UK and perhaps US pension expensing standards may again push plan sponsors away from equities and into more bonds. However, pension plans in the long term, especially those providing benefits based on final-average salaries, need substantial investments in equities. Otherwise, the investments may be inefficient, and the cost of the pension plan to the plan sponsor will therefore increase.

*Undesirable Consequences.*

51. **A funding strategy based on avoidance of overfunding.** This issue has already been mentioned, but it bears repeating. Unless issues surrounding ownership and control of funding excesses can be resolved, plan sponsors will simply aim for minimum funding, perhaps with the smallest of contingency margins. This type of approach is in nobody's long term interests. The negative impacts have been painfully illustrated during the current economic downturn.

52. **Increases in costs.** One point is the direct administrative and consulting costs incurred in complying with a growing body of pension legislation. Plan sponsors repeatedly complain about these costs, especially in regard to defined benefit plans. Filling out government forms, and hiring advisors to provide numerous certifications, is a reality of life - an easy source of frustration, but a necessary part of doing business. As regards pension plans, the real concerns are elsewhere. As already described, the most serious *indirect* cost impacts stem from the legislative requirement or encouragement to invest the fund assets in an inefficient manner. There are other examples.

53. **Switching to DC plans for the wrong reasons.** For a while, many employers believed they were switching from defined benefit to defined contribution plans because they thought it was a good idea for everyone concerned. However, DC plans are not inherently superior. They are different, and they have many weaknesses that are only starting to be understood by the majority of the population. Employers now readily acknowledge that the switch to DC was really because of their concerns about the uncertainty and potential volatility of DB plan costs. Their concerns are only partly justified, because a well-designed DB plan that is funded in a systematic manner can be quite stable. Much of the fuel for their concerns was supplied by legislation that removed the basic flexibility to fund "in a systematic manner", and perhaps by accounting standards.

54. **Abandoning pension plans altogether.** This is simply an extreme extension of the concerns expressed in the previous paragraph.

*In Summary.*

55. In an era of reducing (first pillar) social security benefits, there must be proactive encouragement to employers to establish and maintain occupational pension programs. Tax legislation can provide important incentives. In a minority of countries (e.g. Ireland), the pension regulator also is charged with encouraging the growth of occupational pension plans. In all countries, pension regulators have the challenge of discharging their supervisory responsibilities without discouraging the continuation of the very plans they are attempting to protect. Not an easy task.

## APPENDIX “A”

### ACTUARIAL FUNDING METHODS

56. In the widest possible description of actuarial funding methods, there are up to six very broad categories of financing approaches. However, we can quickly dismiss the two approaches at each extreme. At the minimalist end, there is “pay-as-you-go” and “terminal funding”. Pay-as-you-go is a financing method, but not a funding method, as no assets are set aside. Benefits are paid simply when they become due. Under terminal funding, the liability is discharged in full when the employee retires, and usually by the purchase of an annuity from an insurance company. No assets are set aside while the employee is working. At the other extreme, there are two classes of financing that involve heavy pre-funding of future benefits. These approaches also can be ignored. We will now focus on the two important categories of actuarial funding methods, namely:

- **Accrued benefit funding methods.** These methods focus on maintaining a certain level of funding. They are *security driven*, in that they attempt to establish and maintain a sound relationship between the fund assets and the accruing liabilities. The funding requirement is then the contributions required to achieve the funding objective. The two most important methods within this category are Current Unit Credit and Projected Unit Credit. Variations included Partially Projected Unit Credit (used in Canada and UK for various purposes) and methods that focus on the assumed termination of the plan.
- **Prospective benefit funding methods.** In contrast, these methods define a certain level of contributions. They are *contribution driven*, and the primary objective is stability of such contributions. These contributions then define the targeted level of the fund at any point in time. The three most important methods within this category are Entry Age, Attained Age and Aggregate.

*The funding method does not affect the true overall cost.*

57. It is important to remember that the ultimate cost of any pension plan to the plan sponsor is:

Total benefits paid to plan beneficiaries

- Member contributions to the plan

- Investment income earned by the pension fund

+ Expenses incurred in the operation of the plan and the fund.

## Funding Rules and Actuarial Methods

58. It can readily be seen that there are no actuarial calculations or actuarial estimates in this formula. Nevertheless, because certain actuarial funding methods require higher employer contributions in the early years, which will hopefully result in greater investment income, the eventual employer cost is indirectly affected by the funding method. This is a timing issue, and indeed actuarial funding valuations are all about “timing” – setting aside assets in an organized fashion to discharge the eventual benefit obligations. Brief descriptions of each of the main actuarial funding methods will be described, after two brief, but important definitions.

### ***Accrued and Prospective Benefits.***

59. “Accrued benefits” are generally understood to mean pensions-in-payment, deferred pensions of ex-members, and benefits earned by active plan members in respect of accrued pensionable service (service already performed, or years of contribution already made, up to the date of the actuarial valuation). By extension, “prospective benefits” for the third group (the active members) include the effect of projected future service. The treatment of these active members differentiates various funding methods.

### ***Current Unit Credit.***

60. The objective is to maintain a fund equal to the “accrued liabilities”, defined as the present value of accrued benefits. Under the Current Unit Credit method, the accrued liabilities for active employees exclude any allowance for the effect of future salary increases. For example, the accrued benefits under a final-average earnings plan generally would be calculated by reference to each employee’s current salary. In many cases, the accrued liabilities would approximate the value of the benefits the employee would receive on immediate termination of service or on plan termination. This is a simplistic comparison, but it helps focus the mind on the approximate level of assets the Current Unit Credit method is trying to achieve. The basic contribution for the next year is then (a) the present value of the increase in accrued benefits, primarily the effect of one year’s salary increase, plus (b) the present value of the benefits to be earned by the active members because of an additional year of service. The rules of the plan would govern the allocation of this contribution between the employees and the employer.

### ***Projected Unit Credit.***

61. This method is similar to the Current Unit Credit, except that the calculation of the accrued liabilities includes an allowance for the effect of future salary increases on accrued pensionable service and accrued benefits. The normal cost, the so-called “current service cost” or simply “service cost”, is then the present value of benefits to be earned by active members because of an additional year of service – as with the accrued liabilities, this service cost includes the predicted effect of future salary increases. There is no second element in the current service cost under the *Projected Unit Credit* method (cf. the “updating” of accrued liabilities under the *Current Unit Credit* method), as this is already incorporated into the calculation of the accrued liabilities.

62. This is arguably the most important actuarial funding method, so it is important to understand its fundamental objectives. The goal is to maintain the pension fund assets at such a level that, with future investment income but without any future contributions, the fund will be able to pay all accrued benefits until the last plan beneficiary dies. In this regard, we can think of the plan being *suspended*, rather than *terminated* - there are no further contributions and no further accruals of pensionable service, but the plan continues, future salary increases are recognized, and benefits become payable in the normal manner on retirement or prior death, disability or termination of service.

## Funding Rules and Actuarial Methods

63. The contribution to the fund is then the current service cost plus an adjustment to correct (over an agreed period of time) any imbalance between the accumulated assets and the accrued liabilities. In the event of overfunding, this adjustment is negative. In the event of heavy overfunding, the adjustment matches the current service cost, and a contribution holiday is initiated.

64. It is important to understand that this type of actuarial funding method does not prescribe the amortization of any underfunding or overfunding. It just calculates the accrued liabilities, compares the result with the assets (however valued) and identifies the difference. Any action to correct underfunding or take credit for overfunding is then to be discussed. The final decision normally rests with the plan sponsor, after consultation with the trustees, board of foundation or equivalent pension entity. It is at this point that the regulator frequently places constraints on the choices available (see Sections 5 and 6).

### ***Attained Age.***

65. For most plans that provide salary related pension benefits, the future normal funding rate under the Attained Age method is calculated by dividing (a) the present value of all benefits accruing after the valuation date by (b) the present value of future salaries. The normal cost is then obtained by applying this *funding rate* to the current payroll of the plan members. As these calculations ignore accrued benefits, another calculation is required to compare the accrued liabilities with the accumulated fund assets. The accrued liabilities are calculated in *exactly* the same manner as under Unit Credit methods, and adjustments to correct any overfunding or underfunding are handled in the same manner. Although the Attained Age method shares some similarities with accrued benefit funding methods, its focus on stability of future normal costs places it in the family of prospective benefit funding methods.

### ***Entry Age.***

66. The normal cost under Entry Age method is the level amount (or the level percentage of pay) that would exactly fund each member's prospective benefits if contributed from the member's date of eligibility until normal retirement date. Unfunded accrued liabilities can exist on the plan's inception date, if the member's pensionable service date precedes the plan's effective date. Otherwise, accrued liabilities at any point in time are simply the present value of prospective benefits over the present value of future normal costs. "Prospective benefits" recognize both accrued pensionable service and projected future service. Note that this definition of accrued liabilities does not correspond in any manner to the present value of accrued benefits described under the accrued benefit funding methods. Future funding contributions are then the Entry Age normal cost plus an adjustment for the difference between accumulated assets and these accrued liabilities.

### ***Aggregate.***

67. For most plans that provide salary related pension benefits, the normal funding rate under the Aggregate Funding method is obtained by subtracting the accumulated fund assets from the present value of all prospective benefits and then dividing the result by the present value of future salaries. The resulting *funding rate* is then applied to the current payroll of the plan members. "Prospective benefits" recognize both accrued pensionable service and projected future service. There is no unfunded liability under this approach, as all experience gains and losses are absorbed into the single calculation. In effect, they are amortized through to retirement age. There is a common misconception that the Aggregate method generates conservative funding. This is generally true if the plan experience conforms with the actuary's assumptions. It is certainly true if the plan experience is favourable, because the process of taking credit for the funding excesses is extremely slow (right through to retirement age). However, if a plan is underfunded in a conventional sense, then it will stay underfunded for a long time – again, because of the slow amortization implicit in the method.

**SAMPLE CALCULATIONS**

Simple illustrations of the fundamental differences between the calculations of the funding rates under four of the above actuarial funding methods will now be provided. The same asset value is used in all cases. This common starting point helps to highlight the effects of moving forward with each of the different funding methods. In reality, if each funding method had been followed in the past, the contributions to the pension fund - and the resultant accumulation of the assets - would have been different.

**Abbreviations:**

CUC: Current Unit Credit actuarial funding method.

PUC: Projected Unit Credit actuarial funding method.

AttAge: Attained Age actuarial funding method.

AGG: Aggregate actuarial funding method.

(PV = present value)	Value	CUC	PUC	AttAge	AGG
Assets in the pension fund	120	Yes	Yes	Yes	Yes
PV of accrued benefits (current salaries)	80	Yes			
PV of benefits accrued one year from now	88	Yes			
PV of one year's benefits (projected salaries), i.e. (current) service cost under PUC method	11		Yes		
PV of accrued benefits (projected salaries)	150		Yes	Yes	Yes
PV of future benefits (projected salaries)	130			Yes	Yes
PV of total projected benefits (150 + 130)	280				Yes
PV of future salaries	1,000			Yes	Yes
Current payroll	110		Yes	Yes	Yes

**Current Unit Credit:**

- Basic contribution =  $88 - 80 = 8$ .
- But, there is a funding excess of 40 (120 assets – 80 liabilities) that can be applied to reduce contributions.

**Projected Unit Credit:**

- Basic contribution = Service Cost = **11 = 10.0%** of payroll.
- But, there also is a funding shortfall of 30 (150 liabilities – 120 assets) that will need to be addressed. For example, by being amortized over the next five years.

**Attained Age:**

- Future funding rate = 130 divided by 1,000 = **13.0%** of payroll, so contribution = **14.3**.
- But, there also is a funding shortfall of 30 (150 liabilities – 120 assets) that will need to be addressed. For example, by being amortized over the next five years.

**Aggregate:**

- Funding rate =  $(280 \text{ total liabilities} - 120 \text{ assets}) \div 1,000 = 16.0\%$  of payroll = **17.6**.

**APPENDIX “B”**

**PENSION PLAN FUNDING REGULATIONS**

68. Occupational defined benefit pension plans financed through autonomous pension funds are to be found in all of the countries analyzed in this Appendix. Indeed, such plans are a dominant part of the pension environment in these countries.

69. Thus, the answers to the first two questions and to the first part of the third question in the OECD’s Information Request on the “Regulation of Pension Plan Liabilities” are always in the positive. In summary:

1. Employers or group of employers can establish occupational plans where they bear the risk for a certain benefit formula or lump-sum benefit (generally based on salary and service), or the higher of a defined benefit and a defined contribution pension;
2. Plan sponsors are permitted or required to establish autonomous pension funds as a means of financing the obligations created under such a pension plan; and
3. Plan sponsors are permitted or required to establish pension entities (e.g. trust, foundation, corporate entities) that own and may control the autonomous pension fund on behalf of plan members

70. Although these countries also permit other financing arrangements, such as insurance contracts, the individual country summaries in this Appendix focus on the different regulatory approaches taken by the tax and supervisory authorities to the funding of defined benefit pension plans using autonomous pension funds.

71. The numbering system follows the format of the OECD questionnaire. The first three questions in the questionnaire have already been answered for all the countries analyzed in this Appendix (see above), and the fourth question is fundamentally an introduction to Questions 5 and 7. Thus, each country profile will start with a brief comment on supervisory control and then move directly to Question No.5 and subsequent questions.

## BELGIUM

### Supervisory Control.

72. There are specific minimum funding requirements in Belgium. These requirements are established by government regulation, in particular a Royal Decree of 7 May 2000, and administered by the insurance supervisory authorities (*l'Office de Contrôle des Assurances* in French, and *Controledienst voor Verzekeringen* in Dutch). Customary funding practices are established by the actuarial profession. There are no direct maximum funding requirements.

### 5. Minimum Funding Requirements.

73. Under the minimum funding requirements, fund assets must equal or exceed the sum of the following:

- accrued liabilities; plus
- if the fund self-insures disability and death-in-service benefits, an additional solvency margin.

For these purposes:

- Accrued benefits equal the highest of (i) the vested rights as defined in the plan rules, (ii) the past service benefits based on current salaries, and (iii) the employee's own contributions accumulated with interest.
- The accrued liabilities are valued using the current unit credit method.
- The maximum discount rate is 6%pa.
- The mortality tables are specified by the authorities, namely the MR 88-90 table for males and the FR 88-90 table for females.
- No assumptions are permitted regarding employee turnover,
- Pensions are assumed to commence at normal retirement age, although an adjustment must be made for plans that provide subsidized early retirement benefits.
- Special rules apply to a pension funds that supplement group insurance contracts (a common arrangement in Belgium, generally with employee contributions going to the insurance contract).
- The additional solvency margin for death and disability benefits is a complicated function of total sums at risk, the five largest sums at risk, etc...
- Assets are taken at fair market value.

## Funding Rules and Actuarial Methods

In the event of a shortfall (assets less than accrued liabilities):

- A plan to liquidate the shortfall must be submitted to, and approved by, the regulator.
- The effect of an increase in liabilities caused by the Royal Decree of 7 May 2000 or by any subsequent modifications of the minimum standard can be amortized over as long as 20 years.
- There are severe penalties for plan sponsors that fail to comply with the agreed financing plan.

### **6. Customary funding practices.**

74. There are no government constraints in this area. The following observations can be made:

- The most common actuarial valuation methods are Projected Unit Credit and Aggregate.
- It would be normal to use the same MR and FR mortality tables as are specified for the minimum funding test.
- Otherwise, the economic and demographic assumptions are established by the actuary in accordance with standard actuarial practices.
- Disability and death-in-service benefits may be insured, in which case the annual insurance premium will be added to the current service cost for the retirement benefits. Even if these benefits are not (re)insured, the actuary may still cost them on an annual “risk premium” basis.
- The minimum funding requirement is a funding constraint, rather than a funding objective.
- Fund assets are usually taken at market value.
- These valuations serve as the basis for claiming employer tax deductions.

### **7. Maximum funding limits.**

75. There are no direct limits on the maximum amount of assets that can be held in a pension fund. However, there are two indirect constraints:

- The maximum pension that can be provided under a tax-effective Belgian pension plan is 80% of final salary - after a full career, and inclusive of social security benefits.
- The “financing plan” prepared by the actuary and submitted to the insurance control authorities must take account of the 80% limit.

76. The financing plan must take into account any overfunding when developing its future funding costs. There are no requirements to suspend contributions until the funding excess is exhausted, but the financing plan must address the overfunding in a systematic manner; the regulator takes a dim view of dramatic changes in financing plans. The plan sponsor is not allowed to withdraw excess assets from the fund, so that is not an option.

### **8. Frequency of actuarial valuations.**

77. Valuations are required to be performed annually.

**9. Bankruptcy of plan sponsor.**

78. Whether the plan is overfunded or underfunded, the entire assets of the fund are allocated between the plan members. There is no government insurance program to cover shortfalls.

**10. Termination of an overfunded plan.**

79. The entire assets are allocated between the plan members. In other words, each plan member receives an appropriate share of the funding excess. As already indicated, there are no circumstances under which excess assets can revert to the plan sponsor.

**11. Who appoints the actuary?**

80. The actuary is appointed by the pension fund. He or she must hold a European degree in actuarial sciences and must have relevant experience over a period exceeding five years.

**12. Role of the actuary.**

81. The appointed actuary has to advise on the financing of the plan, the reinsurance arrangements and the calculation of the technical provisions.

**BRAZIL (DRAFT)**

**Supervisory Control.**

82. Funding requirements are described in detail in Complementary Law 109/01 of 30 May 2001 and associated regulations. Complementary Law 108/01 describes additional requirements for pension plans sponsored by public companies. Different supervisory regimes apply to closed funds (covering a single employer or group of companies, an association or a union) and open funds (insurance company and similar products available to both individuals and employers). The legislation covering closed funds is of more direct relevance to this report. Closed pension funds are supervised by the *Secretaria de Previdencia Complementar* (SPC), reporting to the Ministry of Social Security and Assistance. Open pension funds are supervised by the *Superintendencia de Seguros Privados* (SUSEP), reporting to the Ministry of Finance.

**5. Minimum Funding Requirements.**

83. Minimum funding requirements must be determined using the current unit credit method applied to the closed group of existing plan members, but with the following exceptions:

- Disability and survivor *pensions* can be financed on a terminal funding basis, whereby the entire liability is funded at the time of the death or disability.
- Death and disability *lump sums* can be financed on a pay-as-you-go basis.

For these purposes:

- Accrued benefits are to be calculated using historical salaries, i.e. without future projections.
- Liabilities must be split between past service liabilities and future service liabilities. The former relate to pensionable service prior to the date of implementation of the pension plan.
- The *real* discount rate cannot exceed 6% pa.
- The mortality tables are not specified, but life expectancy under the chosen mortality table must be at least 22 years at age 55, 18 years at age 60 and 15 years at age 65. Sex distinct mortality tables can be used, as long as the overall male/female averages conform with these requirements.
- The average assumption concerning employee turnover should not exceed 5% per year, unless higher rates can be justified by prior experience.

The minimum funding requirement is then:

- Payment of the normal cost;

## Funding Rules and Actuarial Methods

- Amortization of unfunded liabilities related to retirees over a maximum period equal to the lesser of 10 years and the average life expectancy of the pensioners.
- Amortization of all other liabilities not covered by the normal cost over a maximum period equal to the lesser of 20 years and the average expected working lifetime of the active employees.

### **6. Customary funding practices.**

84. Any actuarial funding method is permitted, as long as it generates contribution requirements that equal or exceed the minimum funding requirements described above. Current Unit Credit is widely used, although Projected Unit Credit and Aggregate are also to be found.

### **7. Maximum funding limits.**

85. Plan sponsors are allowed to establish a *contingency reserve* of up to 25% of the accrued liabilities. For these purposes, the accrued liabilities are calculated under the funding method used for customary funding. The implication is that plan sponsors desiring faster or conservative funding of their obligations should use the projected unit credit or aggregate funding method. Any fund assets beyond the 25% limit constitute a *special reserve*. If the plan sponsor does not use this special reserve within three years, it must be spent on benefit improvements or used to reduce both employee and employer contributions.

### **8. Frequency of actuarial valuations.**

86. Valuations are required to be performed annually.

### **9. Bankruptcy of plan sponsor.**

87. Whether the plan is overfunded or underfunded, the entire assets of the fund are allocated between the plan members. There is no government insurance program to cover shortfalls.

### **10. Termination of an overfunded plan.**

88. The entire assets are allocated between the plan members. In other words, each plan member receives an appropriate share of the funding excess. [Reviewer in Brazil: please verify the accuracy of this statement).

### **11. Who appoints the actuary?**

89. The actuary is appointed by the pension fund.

### **12. Role of the actuary.**

90. The actuary provides advice on the sound funding of the plan, including the minimum funding requirements, and provides most of the input for the actuarial report that must be submitted each year by the pension fund to the regulator (the SPC).

### CANADA

#### **Supervisory Control.**

91. The division of responsibilities between the federal government and the various provincial governments complicates the pension supervisory structure in Canada. Except for a relatively small group of workers who are governed by federal employment legislation, it is the role of the provinces to regulate pension plans and set standards in all the traditional areas such as minimum vesting, disclosure, minimum funding, etc... Federal and provincial pension law in Canada is harmonized through the Canadian Association of Pension Supervisory Authorities (CAPSA). In general, CAPSA may propose changes to existing pension legislation and regulations, though it must receive Ministerial approval. Of necessity, this paper will make generalizations concerning the various minimum funding standards, but this should not distract from the basic conclusions. Through CAPSA and through its close liaison with the Canadian Institute of Actuaries (CIA), there is a consistency of approach.

92. The federal government controls the maximum amount of funding in defined benefit pension plans through limits, set out in the federal income tax rules, on the type and level of benefits that such plans may provide, and on the amount of surplus that a pension plan may hold.

93. Customary funding practices are established by the actuarial profession.

#### **5. Minimum Funding Requirements (solvency basis).**

94. Each supervisor requires minimum funding sufficient to provide the accrued vested benefits to which the members would be entitled in the event of plan termination. For these purposes:

- Solvency valuation, as is defined in the regulations, means a valuation of the assets and liabilities of a plan using actuarial assumptions and methods that are in accordance with accepted actuarial practice for the valuation of a plan, determined on the basis that the plan is terminated at the valuation date.
- Assets are taken at market value, although some supervisors will allow a smoothing method over up to five years, if a smoothing method over the same time period also is used for the initial interest assumption in the valuation of the liabilities.
- This smoothing alternative generally is allowed when the plan is experiencing problems because of poor investment performance or when there has been a rapid drop in interest rates.
- The accrued liabilities are valued using the accrued liability (current unit credit) method.
- Most supervisors require the actuary to make assumptions concerning the proportion of members who would elect a commuted value (and transfer from the plan) and the remainder who would leave their deferred or immediate pension benefits in the plan. In turn, the commuted value normally must assume the most advantageous early retirement date provided by the plan for

## Funding Rules and Actuarial Methods

terminated members. For older or long service employees (age + service = 55 years), some supervisors require the commuted value to be determined assuming the active member will remain active and will retire at the most advantageous early retirement date for active members. Note – early retirement is an important issue under most union and many other Canadian pension plans.

- When calculating commuted values, the actuary must follow a Standard of Practice prescribed by the CIA. This standard currently prescribes the GAM 1983 mortality table, no pre-retirement mortality or other decrement, and an interest rate of x% for 15 years and 6% thereafter for non-indexed benefits, or y% for 15 years and 3.25% thereafter for indexed benefits. The interest rates x and y are determined using current market assumptions; “x” was 6.25% as at 31 December 2002.
- Proxy assumptions for annuity purchases from an insurance company would be used for the members who are assumed to retain their benefits within the plan. As at 31 December 2002, this would have been GAM 1983 mortality and an interest rate of 5.75% (forever).
- Some regulators require unisex mortality; others require sex-distinct mortality.

Any shortfall (assets less than accrued liabilities) must be eliminated within five years.

### **6. Customary funding practices (and minimum funding on a going concern basis).**

95. Regulations typically require actuarial valuations to follow the professional requirements of the Canadian Institute of Actuaries. The regulations also include minimum funding requirements calling for payment of unfunded liabilities and solvency deficiencies over specified periods.

- Going concern valuation, as is defined in the regulations, means a valuation of the assets and liabilities of a plan using actuarial assumptions and methods that are in accordance with accepted actuarial practice for the valuation of a plan, assuming that the plan will continue to operate indefinitely. The assumptions and methods are selected by the actuary and normally include margins for adverse deviations.
- The most common actuarial valuation method for final average salary plans is, and always has been, the Projected Unit Credit. The Current Unit Credit method generally is used for flat benefit and career average earnings plans.
- None of the actuarial assumptions is prescribed, although a supervisor will question the actuary about the appropriateness of high interest rates or old mortality tables (previous to GAM 1983).
- Assets can be taken at current market value or smoothed over a period not exceeding five years. The smoothing method is losing favor, perhaps because of concern about pension expensing (accounting) standards.
- Most supervisors will allow the funding of any experience deficiency or other unfunded liability (e.g. retroactive plan improvements) over a period not exceeding 15 years.

## Funding Rules and Actuarial Methods

96. In accordance with the proposed minimum funding target highlighted in the January 2003 “Final Report of the CIA Task Force on Pension Plan Funding”, the minimum funding target should be achieved within five years of solvency funding (item 5 above) plus a margin; guidelines are provided to help the actuary establish the appropriate margin. It is important to note that the proposed minimum funding target has not yet been approved. In effect, the Partially Projected Unit Credit method is used, in that salaries, etc... are projected for the five-year period, but not beyond.

### **7. Maximum funding limits.**

97. Under the federal income tax rules, which are administered by the Canada Customs and Revenue Agency (CCRA), “full funding” is permitted on either the customary funding basis, with methods and assumptions determined by the actuary (item 6 above), or on the solvency basis, with assumptions and methods prescribed by the supervisors (item 5 above). There are then specific limits on the amount of any “funding excess” or surplus. An actuarial surplus can be retained or otherwise ignored to the extent it does not exceed the lesser of:

- 20% of the actuarial liabilities; and
- the greater of 10% of the accrued liabilities and twice the combined employee/employer current service costs for the first year following the valuation.

98. Effectively, for a mature plan with many pensioners and few active employees, the surplus cannot exceed 10% of accrued liabilities. For a relatively immature plan, the limit is the lesser of 20% of liabilities and two years’ current service costs. An important aspect is that the government does not prescribe the actuarial method or assumptions, so the actuary can introduce stability into the funding exercise by smoothing the asset values, etc... In effect, this establishes investment reserves when the market is temporarily bullish and smoothes the effects of downturns.

99. In the event of surplus in excess of the above limits, the employer must stop its contributions to the pension fund. Employee contributions are permitted to continue. In lieu of an employer contribution holiday, the plan sponsor could amend the plan to provide enhanced benefits such as ad hoc indexing for pensioners, formalized future indexing, or enhanced early retirement provisions. However, enhancing benefits based on what may be a temporary surplus would have to be assessed against the long-term funding implications. Furthermore, retroactive increases in the basic benefit or basic accrual rate can be complicated by the immediate tax impacts on plan members.

100. The Government of Canada has recently proposed a change for plans where funding shortfalls and excesses are shared equally between the employer and the employees (fixed cost-shared plans). In a fixed cost-shared plan, an employer contribution holiday automatically triggers a corresponding employee contribution holiday. The proposed change will allow employee and employer contributions under such plans to continue to be made when there is a funding excess of between 10 per cent and 25 per cent of accrued liabilities. The contributions would be calculated as a declining percentage of the normal annual pension costs. The change will put these plans on a more equal footing with traditional defined benefit plans for which employee contributions may continue regardless of the amount of surplus.

101. Under most pension regimes, it is difficult for an employer to recover surplus assets from the fund in an ongoing situation without the approval of virtually all the members – even when the plan provisions state that the employer owns the surplus!

102. Irrespective of the limits on funding excesses contained in the tax rules, it is important to remember that there is little incentive for overfunding of medium and large scale Canadian pension plans because of the uncertainties regarding surplus ownership. If the employer is fully responsible for deficits, and if the employees are the full or primary beneficiaries of overfunding, then the result is inevitable. Some employers will simply take all possible measures to avoid any overfunding in the first place. Nonetheless, the surplus limits are required to prevent overfunding that could arise from other considerations. In particular, for smaller defined benefit plans where the interests of the plan members and the employer may be one and the same, the limits on excess surplus are key to preventing excessive deferrals of tax that could otherwise be achieved through deliberate overfunding.

### ***8. Frequency of actuarial valuations.***

103. Valuations are required to be performed every three years. However, the federal regulator (the Office of the Superintendent of Financial Institutions) and one provincial regulator (Ontario) require annual valuations if the solvency ratio (see item 5) is less than 100% and 80% respectively.

### ***9. Bankruptcy of plan sponsor.***

104. Creditor rights of plan members fall behind numerous other secured lenders. Only Ontario provides a guarantee fund in the event of plan sponsor insolvency, and then only for single employer plans. These single employer plans must pay an annual assessment fee to the guarantee fund, based on the number of plan members and any (solvency basis) unfunded liability.

### ***10. Termination of an overfunded plan.***

105. Surplus funds usually are applied to provide extra plan benefits to members (same considerations as in item 7 above). Any surplus paid to members in cash usually would be allocated in proportion to each member's accrued liabilities. In some jurisdictions an employer may access surplus on plan wind-up, subject to obtaining the consent of at least two-thirds of members, former members and other persons within prescribed categories, and if the prescribed funding margins have been satisfied. If fewer than two-thirds but more than one-half of each category consent, some legislations allow the employer to go to binding arbitration. All funds dispersed are treated as income to the members or to the employer in the year received, and they are taxed accordingly. No special, additional taxes apply.

### ***11. Who appoints the actuary?***

106. Each pension plan must have an "administrator" which bears ultimate responsibility for the plan. This administrator is either the plan sponsor or a board of trustees. The administrator then appoints the actuary and other professionals who are required for the smooth operation of the plan.

### ***12. Role of the actuary.***

107. The current and future role of the pension actuary is a topic of ongoing discussion within the profession. Basically, the actuary acts as a pension consultant to the administrator. The actuary is expected to prepare a valuation report using assumptions and methods which provide some contribution flexibility for the employer, but which ensures that the pension fund eventually will protect the future interests of the plan members. However, the actuary is not (and does not want to be) a plan fiduciary. The actuary can recommend certain actions to the administrator but cannot compel the administrator to act. An actuary sometimes may feel compelled to resign, and the supervisor may require an explanation from the administrator concerning any change of actuary.

**IRELAND (DRAFT)**

**Supervisory Control.**

108. Minimum funding requirements are established under the Pensions Act, and the supervision of pension plans and pension funds is carried out by the Irish Pensions Board. Customary funding practices are established by the actuarial profession. There are no direct quantitative maximum funding requirements, but there are mechanisms to prevent abuse in this regard.

**5. Minimum Funding Requirements.**

109. The basic objective of the minimum funding requirements (the so-called Funding Standard) is for the assets to exceed the accrued liabilities. The Pensions Act prescribes the use of a plan discontinuance basis, but it does not prescribe the detailed assumptions to be used. In practice, the actuary must conduct such valuations in accordance with professional guidance issued by the Society of Actuaries in Ireland. New guidance notes (GN3 and GN3A) were published in draft form on 14 April 2003. Highlights include:

- Fund assets are to be taken at realisable value, i.e. fair market value less selling costs.
- In respect of pensions in payment, the actuarial basis should replicate the cost of buying matching annuities in the marketplace.
- In respect of non-retired members, the value shall be no less than the sum of the individual transfer values to which each member would be entitled under the standard transfer value basis contained in Guidance Note 11 issued by the Society.
- Allowance must be made for the estimated expenses of winding up the plan.

In the event of the fund assets being less than the discontinuance liabilities, the shortfall normally must be liquidated within 3½ years (but see next paragraph).

110. The Social Welfare (Miscellaneous Provisions) Bill, 2003 amended the Pensions Act to give additional flexibility to the Pensions Board in its administration of the Funding Standard. The Pensions Board can extend the 3½ year period for correcting a shortfall to as much as ten years if all of the following conditions are met:

- the shortfall was due to an exceptional fall in the value of markets;
- the actuary's reasonable expectations as to the return on the fund assets, as well as other elements of the plan's experience, would show that the plan could reasonably be expected to fully satisfy the funding standard within the agreed period;
- the proposed funding contributions are weighted to ensure a funding level of at least 85% of the discontinuance liabilities within three years of the effective date of the funding proposal; and

- the trustees inform the plan members of the new funding proposal.

### **6. Customary funding practices.**

111. The actuary conducts regular funding valuations and produces actuarial valuation reports in compliance with a number of Guidance Notes issued by the Society of Actuaries in Ireland; these include GN3, GN3A, GN9 and GN11. The most common actuarial funding method is the Projected Unit Credit, although Attained Age and Aggregate methods are still to be found. The actuary has wide discretion in setting the assumptions used to calculate the liabilities. Assets are usually taken at fair market value or smoothed market value.

### **7. Maximum funding limits.**

112. There are no direct quantitative limits concerning the maximum amount of assets that can be held in a pension fund. There are procedures to prevent abuse, although they rarely are applied.

### **8. Frequency of actuarial valuations.**

113. Full actuarial valuations are required to be performed at least every 3½ years. Actuarial reviews now must be carried out between full valuations in order to establish whether the plan continues to satisfy the Funding Standard. If a positive statement cannot be made in this regard, then an actuarial funding certificate must be prepared.

### **9. Bankruptcy of plan sponsor.**

114. In the event of the bankruptcy of the plan sponsor and the subsequent termination of an underfunded pension plan, there is a clear order of priorities for allocating the assets: (a) employees' additional voluntary contributions; (b) pensions-in-payment, excluding all future indexing; (c) deferred pensions within 10 years of retirement; (d) guaranteed indexing on 'b' and 'c'; (e) deferred pensions within 10-20 years of retirement; and finally (f) all other deferred pensions.

### **10. Termination of an overfunded plan.**

115. A proposal for allocating the assets would need to be submitted to, and approved by, the Pensions Board. The proposal could include a refund of excess assets to the plan sponsor.

### **11. Who appoints the actuary?**

116. The Irish equivalent of the "pension entity" in OECD parlance is the board of trustees. The trustees appoint the plan actuary. The actuary must be a Fellow of the Society of Actuaries in Ireland who has been granted and holds a valid pension plan actuary practising certificate under the rules of the society.

### **12. Roles of the actuary.**

117. The appointed actuary is required to conduct regular actuarial valuations, prepare Actuarial Funding Certificates, assist in the development of Funding Proposals for addressing any underfunding, and prepare such other reports as are required by the Pensions Board.

## NETHERLANDS

### Supervisory Control.

118. The Pensions and Savings Fund Act (PSW) provides the main body of pension plan legislation. The primary supervisory body is the Pensioen- & Verzekeringskamer (PVK), the pension and insurance supervisory authority.

### 5. Minimum Funding Requirements.

119. Until 1999, the Dutch funding standards focused on the so-called “65-x” method, with 65 being the assumed normal retirement age and “x” being the plan member’s current age. The objective was to ensure full funding by age 65, and the effect was to amortize the remaining costs over the period until age 65. The accrued and projected liabilities were, and indeed still are, calculated using a discount rate of 4%pa, with no allowance for future salary increases, employee turnover, etc... The 4% discount rate has been in effect for a very long time, including periods when interest rates were much higher (but adjustments were then possible). Except where otherwise indicated, all subsequent references to accrued liabilities will imply the use of this 4%, no salary increase, no employee turnover basis.

120. New legislation then outlawed the 65-x method and introduced a new minimum funding standard. It requires the market value of the assets to equal or exceed the accrued liabilities. A ten-year transition period was established, but “full funding” would thereafter be required *at all times*. On the liabilities side, this means full and immediate funding of the effects of salary increases, pension indexing and retroactive plan improvements. On the assets side, it means full and immediate correction of poor investment results. Notwithstanding the ten-year transition, the PVK has already been paying close attention to plans that are less than 100% funded on the above basis. The principle of full funding has been enshrined in the PSW, which reads: “A pension fund must at all times be able at any time and under all circumstances to reinsure its obligations with an insurance company”.

121. The PVK then went one step further, by requiring the establishment of investment reserves in respect of equity holdings. On 30 September 2002, the PVK proposed a new and detailed set of very demanding funding requirements. The proposals, that were scheduled for implementation on 1 January 2003, will now be summarized. The objective is for the market value of assets to equal or exceed the sum of the following;

- the accrued liabilities calculated using the current unit credit method (otherwise referred to as the “provision for pension liabilities” or PPL);
- a general risks reserve equal to 5% of the PPL;
- an “investment risks reserve” or “asset buffer”; and
- a “future pension adjustment reserve” or “indexing buffer”.

## Funding Rules and Actuarial Methods

122. The basic funding requirement has thus moved up to 105%. In addition, there would be an indexing buffer and an asset buffer. Highlights include:

- Assets must cover the 5% general risks reserve at all times. The PVK must be informed immediately of any shortfall. A strategy must be developed within three months, and actions must be taken within twelve months to enable the asset value to be brought back up to the 105% level.
- The investment risks reserve must be sufficient fully to protect the fund in the event of equities falling 40% below the *highest* level of the applicable benchmark within the last 48 months or 10% below the *lowest* level of the benchmark within the last 12 months.
- The investment risks reserve must also include a 10% buffer on fixed income investments when market interest rates are 4%, and a 5% buffer when market interest rates are 5%. No buffer is required if market interest rates are at or above 6%.
- If the investment risks reserve requirements are not satisfied, the PVK must be informed without delay and a strategy developed within three months. Actions must be taken to enable the asset value to be brought up to the specified level within 2-8 years.
- If pension indexing is unconditional, the accrued liabilities (the PPL) must include an allowance for future indexing on accrued benefits. Although pension indexing under most Dutch pension plans is conditional on favourable fund performance, the PPL for these plans also must include an allowance for future indexing – if pensions have been systematically increased under such plans during recent years.
- “Depending upon the specific situation and financial structure of the fund, other special-purpose reserves may also be required. Thus for instance, funds that used the (65-x) system up to 1 January 2000 ... will have to form a reserve for this funding” (PVK, 30 September 2002).

### **6. Customary funding practices.**

123. The majority of Dutch pension funds continue to focus on the 4%, no salary increase, no employee turnover method described above. However, some funds perform actuarial funding valuations using independently explicit assumptions, i.e. a market-related discount rate and explicit allowances for future salary increases, employee turnover, early and disability retirements, etc... The Projected Unit Credit method is widely used in this context. In the next few years, compliance with Dutch and EU accounting requirements will increase the necessity for such valuations. The actuarial profession in the Netherlands is well organized and able to ensure high standards in this regard.

### **7. Maximum funding limits.**

124. The main constraint is that contributions can only be tax-deductible if the discount rate used to calculate liabilities is *not less* than 4%. As the PSW and PVK require the discount rate to be *not greater* than 4%, the end result is inevitable – the 4% calculations described above. During the 1990s, the fund assets of many plans comfortably exceeded these accrued liabilities. Many employers took contribution holidays or withdrew excess assets, and the legislation is fairly flexible in this regard.

### **8. Frequency of actuarial valuations.**

125. Valuations are required to be performed every year.

**9. Bankruptcy of plan sponsor.**

126. Whether the plan is overfunded or underfunded, the entire assets of the fund are allocated between the plan members. There is no government insurance program to cover shortfalls, although regulation of ongoing plans is focused on constant avoidance of underfunding.

**10. Termination of an overfunded plan.**

127. The entire assets are allocated between the plan members. In other words, each plan member receives an appropriate share of the funding excess.

**11. Who appoints the actuary?**

128. The board of foundation that administers the plan and the fund appoints the actuary. This board generally is comprised of an equal number of employee and employer representation.

**12. Role of the actuary.**

129. The roles of the actuary can vary from one plan and fund to another, but the primary role is to check whether assets are sufficient to cover the obligations, all in accordance with the law and the requirements of the regulator. There is an unresolved difference of opinion between the supervisor (PVK) and the government advisory board (SER) over whether the plan sponsor or the board of foundation has the final say on critical issues such as funding. This has the potential to create problems for the actuary, who is employed by the board of foundation and works in the interests of ensuring security for the plan members.

## PORTUGAL

### Supervisory Control.

130. Book reserve plans are still allowed in Portugal, but they are not tax effective. The rest of this section will focus on funded plans, the assets of which must be held and managed by a pension fund manager (either an insurance company or a pension fund management company). There are specific minimum funding requirements in Portugal, established by the *Instituto de Seguros de Portugal* (ISP). Customary funding practices are established by other legislation, by the actuarial profession and by the ISP. There are no direct maximum funding requirements.

### 5. Minimum Funding Requirements.

131. The basic objective of the minimum funding requirements is for the assets to exceed the accrued liabilities. For these purposes:

- Assets are taken at fair market value.
- Accrued liabilities are equal to the sum of (a) the present value of pensions-in-payment and (b) the present value of accrued liabilities calculated using the current unit credit method.
- Pensions of non-retired members are assumed to commence at normal retirement age, although an adjustment must be made for plans that provide subsidized early retirement benefits.
- The TV 73/77 mortality table must be used.
- The discount rate is 4½% pa.
- No assumptions are permitted regarding disability or employee turnover,
- If indexing of pensions is contractually guaranteed, then an allowance for the effect of future indexing must be included in the calculation of the accrued liabilities.

In the event of a shortfall, the plan sponsor is required to pay the contributions necessary to meet the minimum sums required by the rules in force. If this does not happen, the pension fund manager shall propose the correction of this situation to the plan sponsor. If no suitable funding plan has been drawn up within one year, the pension fund manager should wind up the fund in accordance with procedures laid down by the ISP. Within 15 days of verifying that there are insufficient funds to cover the present value of *pensions-in-payment*, the pension fund manager shall notify the plan sponsor to make the necessary contributions within the 180 days following the notice. If the contributions are not made, the fund shall be wound up. Furthermore, the pension fund manager may only pay *new* pensions under the plan if the fund assets are equal to or exceed the present value of both the pensions currently in payment and the new pensions due – calculated according to assumptions set out in the minimum funding regulations; this constraint does not apply when a funding program already has been approved by the ISP.

### **6. Customary funding practices.**

132. It is established practice that the interest rate used in the calculations should be chosen in a prudent way, taking into account any adverse fluctuations. Additional constraints apply to pension plans in the banking sector, where the law specifies maximum permissible spreads between the discount rate and the salary and indexing assumptions. Otherwise, the following observations can be made:

- The most common actuarial funding methods are Projected Unit Credit and Attained Age.
- It is normal to use the same mortality table for females and males.
- The appointed actuary establishes the economic and demographic assumptions, taken into account the general ISP rules.
- The minimum funding requirement is a funding constraint, rather than a funding objective.
- Fund assets are taken at market value.
- Amortization periods for unfunded liabilities and experience deficiencies are to be agreed with the ISP. Regulations only establish a maximum amortization period of 20 years for unfunded liabilities at plan inception, but most amortization periods do not exceed 10-15 years. The funding requirements for the banking sector are strict and more prescriptive.
- In the event of a shortfall due to plan improvements or experience losses, the appointed actuary proposes the amortization period. This will be analyzed by the ISP on a case-by-case basis and usually varies between 3 and 10 years.
- Disability and death-in-service benefits may be insured, in which case the annual insurance premium will be added to the current service cost for the retirement benefits. Even if these benefits are not (re)insured, the actuary may still cost them on an annual “risk premium” basis.

### **7. Maximum funding limits.**

133. There are no *direct* limits on the maximum amount of assets that can be held in a pension fund, but there are limits on employer contributions for tax purposes. Employer contributions to fund non-vested benefit accruals are tax deductible up to a limit of 15% of annual payroll (25% if the employees are not covered by social security). Employer contributions to fund vested benefit accruals are fully tax deductible. In an overfunding situation, the plan sponsor can reduce or suspend contributions. A plan sponsor can request prior approval for a return of surplus, which will only be possible if the surplus exists for structural reasons over five consecutive years and annually exceeds a set percentage of the accrued liabilities, whilst maintaining a minimum funding percentage in accordance with ISP regulations.

### **8. Frequency of actuarial valuations.**

134. Valuations are required to be performed at least every three years, but in practice are performed annually.

**9. Bankruptcy of plan sponsor.**

135. In the event of the bankruptcy of the plan sponsor and the subsequent termination of an underfunded plan, the fund assets are allocated between the plan members in accordance with a set of priorities defined in law. They are:

- Members' individual accounts (under contributory plans);
- Pensions-in-payment;
- Pensions for members of an age equal to or greater than normal retirement age;
- Vested rights of members existing at the time of the plan wind-up;
- Accrued pensions not covered by the previous paragraphs;
- Contractual indexing of pensions-in-payment.

**10. Termination of an overfunded plan.**

136. Once all vested and non-vested accrued benefits have been guaranteed, the allocation of any excess assets is decided jointly between the pension fund manager and the plan sponsor and requires prior approval from the ISP. Whenever the excess assets result from a drastic reduction in the number of non-vested plan members, such assets first shall be used to guarantee accrued pensions for such ex-members. If it is decided that surplus assets are to revert to the plan sponsor, a special tax will be applied unless the plan sponsors proves that the surplus is due to a cessation of labor contracts, previously accepted by the Directorate General of Taxation.

**11. Who appoints the actuary?**

137. The pension fund manager shall appoint an appointed actuary for each defined benefit or hybrid pension plan when submitting an application to incorporate a closed pension fund or add a new group of members to an open pension fund. The appointed actuary shall be chosen from a list of approved actuaries who comply with the conditions laid down by the ISP.

**12. Role of the actuary.**

138. In addition to preparing the annual actuarial report, the appointed actuary is required to verify:

- the actuarial calculations;
- the pension plan's funding level;
- the suitability of the technical and actuarial funding plan;
- the present value of the *total* liabilities (for the purposes of determining whether there is any funding excess); and
- the suitability of the nature of the fund assets in relation to the pension plan liabilities (an assessment required periodically by the ISP and in accordance with its regulations).

## SWITZERLAND

### **Supervisory Control.**

139. In common with most other countries, Switzerland has extensive legislation concerning the design and operation of pension plans. However, it has relatively few constraints on the funding of such plans.

### **5. Minimum Funding Requirements.**

140. It is not uncommon in Switzerland to compare the accumulated fund assets with the accrued liabilities, and then to develop a program to fund any shortfall over a period not exceeding ten years. For these purposes, the accrued liabilities will be calculated in a similar manner to the Netherlands – using the current unit credit method, a discount rate between 3.5% and 4.5% (currently 4%) and no assumptions as to future salary increases, employee turnover, etc... However, this is not the dominant calculation.

141. The regulator is primarily concerned that the employer contribution rate will be sufficient, together with future employee contributions and existing fund assets, to fund all the prospective obligations. In some defined benefit plans, the employer's contribution rate is set in the plan rules or is constrained in some other fashion. Overfunding is then defined as the excess of the fund assets and the present value of future contributions over the projected liabilities. Thus, two different plans with identical fund assets and accrued liabilities can be deemed overfunded or underfunded depending solely on the prescribed (or otherwise established) levels of their future contributions.

142. It should also be noted that the plan sponsor cannot contribute less than the employees. This is a cumulative test. If the plan maintains an "employer contribution reserve" that is credited with employer contributions in excess of employee contributions, then any credit in the reserve can be used in subsequent years to reduce employer contributions below the level of employee contributions.

### **6. Customary funding practices.**

143. The actuary works with the plan sponsor to develop a sound funding program. Calculations can be performed on the 3.5%-4.5% basis already described or using explicit assumptions concerning future salary increases, employee turnover, early retirement and disability pensions, etc... There are various approaches to the valuation of the fund assets.

### **7. Maximum funding limits.**

144. There are no direct limits on maximum funding. However, there are upper limit on the benefits that can be provided under pension plans. The Swiss tax authorities can withdraw tax exemption from contributions to overfunded plans, but there is a certain margin before considering a plan as overfunded. Furthermore, as it is impossible to return any funding excess to the plan sponsor, overfunding is not a sound philosophy for most plan sponsors.

**8. Frequency of actuarial valuations.**

145. Valuations are usually performed every three years, although larger plans may conduct annual valuations. Pension expensing requirements are also pushing plan sponsors towards annual valuations.

**9. Bankruptcy of plan sponsor.**

146. Whether the plan is overfunded or underfunded, the entire assets of the fund are allocated between the plan members. There is a guarantee fund which covers any shortfalls in case of sponsor or pension fund bankruptcy, but not more than SFr 113,940 of pension benefits per year and per insured person.

**10. Termination of an overfunded plan.**

147. The entire assets are allocated between the plan members. In other words, each plan member receives an appropriate share of the funding excess. As already indicated, there are no circumstances under which excess assets can revert to the plan sponsor.

**11. Who appoints the actuary?**

148. The board of foundation appoints the actuary. However, unless constrained by the plan rules, funding decisions are within the control of the plan sponsor. In this important regard, one can say that the actuary works for the plan sponsor.

**12. Role of the actuary.**

149. The primary roles of actuary are (a) to advise the plan sponsor on future funding requirements and (b) to certify to the regulator that plan's funding is sufficient to meet its obligations.

## UNITED KINGDOM

The UK Government published on 11 June 2003 a document entitled “Simplicity, Security and Choice: working and saving for retirement. Action on Occupational Pensions” (available on the internet at [www.dwp.gov.uk/publications](http://www.dwp.gov.uk/publications)). The document set out the steps the Government will be taking to reform occupational pensions. The measures set out include:

- introducing a Pensions Protection Fund to guarantee members a specified minimum level of pension when the sponsoring employer becomes insolvent;
- requiring solvent employers who choose to wind up their pension schemes to meet their pension promise in full;
- revising the priority order which applies on wind-up to ensure the fairest possible sharing of assets;
- introducing a new system of private pension regulation with a new Pensions Regulator; and
- replacing the Minimum Funding Requirement with scheme specific funding arrangements the key elements of which include that scheme trustees will be required to draw up a Statement of Funding principles, obtain a full actuarial valuation of their scheme at least every three years, and, after the valuation, put in place a schedule of contributions, setting out how much the employer and employee will pay into the scheme.

The text below sets out the current arrangements in the UK, but should be read in the light of the proposed changes set out above.

### **Supervisory Control.**

150. There are currently prescribed minimum and maximum funding requirements in the UK. The minimum funding requirements are established by the Pensions Act 1995 and associated regulations. Maximum funding requirements are established under tax legislation. Customary funding methods between the minimum and maximum are established by the actuarial profession.

### **5. Minimum Funding Requirements.**

151. The basic objective of the existing "Minimum Funding Requirement" (MFR) is that fund assets should be sufficient to cover, in the event of plan termination:

- (a) for pensioners, the purchase of insurance company annuities; and
- (b) for those who have not retired, the payment of an amount which, on transfer to another pension arrangement, would give individuals a reasonable expectation of receiving their plan retirement pension.

## Funding Rules and Actuarial Methods

The actuarial assumptions to be used are prescribed in considerable detail. The calculations are complex, and there have been many criticisms of the MFR in recent years. Although the government intends to abolish the MFR, it is worth reviewing the standard in order to learn lessons for the future and for other countries.

For these purposes:

- Assets are taken at realizable market value.
- The accrued liabilities are valued using the current unit credit method.
- Accrued benefits for active employees are calculated on the assumption of immediate termination of employment (accrued, vested rights).
- There are complicated rules on the “MFR pension age”, i.e. the age at which pension payments are assumed to commence.
- If partial cash commutation is permitted at retirement, then the calculations should assume the member exercises this option to the maximum allowed.
- Allowance must be made for discretionary benefits already granted (e.g. ad hoc pension indexing), but there must not be any allowance for future discretionary benefits.
- The discount rate for valuing pensions-in-payment is the prevailing market yield on UK government securities (gilts). However, pensioner liabilities in excess of £100 million may be valued using the assumed long term return for UK equities (plus the market value adjustment factor – see below).
- For the period up to retirement, the discount rate for valuing the pension rights of members who have not yet retired is broadly the assumed long-term return on equities. For the ten years up to MFR pension age, the discount rate gradually moves from the equity return to the gilt return. For the period after retirement, the discount rate is the assumed long-term return on gilts. A “market value adjustment” factor then is applied to the resultant liabilities, to reflect prevailing UK equity dividend yields. This market value adjustment factor in relation to equities is the ratio of 3.00% to the current dividend yield on the FTSE Actuaries All-Share Index.
- Pre-retirement and post-retirement mortality is generally to be determined in accordance with the PA(90) standard mortality table, rated down two years.
- Other assumptions are prescribed in some detail.
- There should be an allowance for termination expenses. The formula is prescribed.

In the event of a shortfall (assets less than accrued liabilities), additional contributions must be made to the fund such that:

- the fund assets reach at least 90% of the MFR level within three years (formerly, one year).
- the fund assets reach at least 100% of the MFR level within ten years (formerly, five years).

## Funding Rules and Actuarial Methods

152. The plan actuary, as part of the regular valuation (see below), also is required to make a statement regarding the adequacy of the fund assets to meet its liabilities if the plan were to be discontinued. This should not be confused with the MFR.

### **6. Customary funding practices.**

153. There are no government constraints in this area. The actuary works in accordance with the requirements of his profession. In particular, generally accepted valuation methods for pension plan actuarial valuations are set out in "Actuarial Guidance Note GN26".

- Pension plan liabilities are generally calculated on the assumption that the plan is ongoing.
- The most common actuarial valuation method is now Projected Unit Credit, prompted in large part by the accounting standards for pension costs in company accounts. Historically, the objective has been a stable future funding rate, in the form of a level percentage of salary. Thus, Aggregate, Attained Age and Entry Age methods were more common, and they are still sometimes used. The minimum funding standard uses the Current Unit method and the maximum funding method uses the Projected Unit Credit method.
- The method of calculating the actuarial liability for pensions-in-payment and deferred pensions is common to all the funding methods.
- There must be an explicit allowance for future expenses that are a responsibility of the fund.
- The actuary establishes the economic and demographic assumptions in accordance with standard actuarial practices and unconstrained by government regulations.
- Disability and death-in-service benefits may be insured, in which case the annual insurance premium will be added to the current service cost for the retirement benefits. Even if these benefits are not (re)insured, the actuary may still cost them on an annual "risk premium" basis. In this regard, it is important to understand that most UK pension plans provide large lump sum death-in-service benefits that are not a function of accrued pensionable service.
- The minimum funding requirement is a funding constraint, rather than a funding objective. Clearly, the maximum funding limitation also is a funding constraint.
- Fund assets are now usually taken at market value, although other approaches are still used.
- These valuations serve as the basis for claiming employer tax deductions.

### **7. Maximum funding limits.**

154. The Inland Revenue (tax authorities) imposes strict limits on the maximum amount of assets that can be held in a pension fund without the loss of tax advantages. In simple terms, the assets should not exceed 105% of the accrued liabilities (as calculated under the projected unit credit method). Some of the key actuarial assumptions are prescribed. For example:

- An investment rate of return of 8.5%pa;
- A general earnings increase of 6.9%pa;

## Funding Rules and Actuarial Methods

- A maximum rate of increase to pensions-in-payment of 5.3%pa (unless index linking is guaranteed).
- For post-retirement mortality, the PA (90) table, rated down one year.

In the event of assets exceeding the maximum, there are a number of choices available:

- all or part of the excess can be used to reduce or suspend employee or employer contributions during the next five years;
- all or part of the excess can be used to fund retroactive plan improvements;
- any excess still remaining must be withdrawn from the fund (special taxes apply).

The government has announced that it intends to abolish these maximum funding limits. There will then be no general maximum funding constraint on plans.

### **8. Frequency of actuarial valuations.**

155. Valuations are generally required to be performed every three years.

### **9. Bankruptcy of plan sponsor.**

156. In the event of the bankruptcy of the plan sponsor, the pension fund has the status of a non-preferential creditor. A government compensation fund is only available in cases of proven theft or fraud.

### **10. Termination of an overfunded plan.**

157. The plan rules govern the application of excess assets arising in the event of a plan termination. If allowed by these plan rules, excess assets can be refunded to the plan sponsor; in which case, a special tax will be applied.

### **11. Who appoints the actuary?**

158. The UK equivalent of the “pension entity” in OECD parlance is the board of trustees. The trustees appoint the plan actuary.

### **12. Role of the actuary.**

159. The roles of the actuary are (a) to assess the funding level and advise on the contributions needed to achieve and maintain the desired level, (b) to make a statement regarding the MFR, (c) to make a statement regarding the plan’s ability to meet plan termination liabilities, (d) to provide a contracting out certificate, where required, (e) to make calculations required for the plan sponsor’s commercial accounts, and (f) to provide a statement to the tax authorities regarding the 105% limit. Typically, the plan sponsor and the trustees agree on the employer’s future funding rate, based on the advice of the actuary.

## UNITED STATES

### **Supervisory Control.**

160. There are specific minimum and maximum funding requirements in the U.S.A. The minimum funding requirements are established under identical provisions in the Internal Revenue Code (IRC) and ERISA. Maximum deductible funding constraints are established in the IRC. Customary funding practices are established by the actuarial profession, but are constrained by the minimum and maximum funding limits. Minimum and maximum funding are both enforced by the Internal Revenue Service (IRS), which is part of the U.S. Department of the Treasury. The legislation governing pension plan funding is long and complex. At first glance, it would also appear to be very prescriptive, but there are still some important areas where the actuary has control over the all-important aspects of choosing the actuarial funding method and actuarial assumptions. Given the massive detail in the U.S. legislation, this summary will serve only to highlight the key points and issues.

### **5. Minimum Funding Requirements.**

161. The minimum funding requirements need to be understood in two parts. The first requirement, which was part of the original 1974 ERISA legislation, requires the establishment of a “Funding Standard Account”. In simple terms, ignoring the complexities of interest credits and debits, the Funding Standard Account now requires the accumulated payment of at least the following:

- the normal costs (i.e. the current service cost under the plan’s funding method);
- amortization over 40 years of the initial unfunded past service liability for plans in existence on 1 January 1974;
- amortization over 30 years of the cost of plan improvements and of the initial past service liability for plans that were not in existence on 1 January 1974;
- amortization over 10 years of the effects of changes in actuarial assumptions; and
- amortization over 5 years of experience gains and losses.

162. Some of the amortization periods are (even) longer for multi-employer plans, but this summary will focus on single employer plans. *Note* - all of the above costs “shall be determined under the funding method used by the actuary to calculate funding costs”; there are few constraints. The value of plan assets “shall be determined on the basis of any reasonable actuarial method of valuation that takes into account fair market value and which is permitted under regulations”, i.e. fair market value or smoothed market value.

163. As can be readily appreciated, a pension plan comfortably could comply with the above minimum funding requirements and yet still maintain a very poor ratio of plan assets to accrued liabilities.

## Funding Rules and Actuarial Methods

A second, more conventional minimum funding requirement then was introduced, and it does indeed focus on accrued liabilities and accumulated assets. For these purposes:

- The assets are to be taken at actuarial value, which may be fair market value or smoothed market value.
- The “*current liability*” is the value of accrued benefits – calculated under prescribed mortality tables and discount rate, and with ongoing plan assumptions as to retirement rates, turnover, etc;
- The discount rate is defined as the four-year weighted average yield on 30-year Treasury bonds, and the actuary then can calculate the *current liability* using a rate in the range of 90%-105% of this rate. The 105% has been temporarily relaxed to 120%, as Treasury bond yields have been at historic lows relative to conservative long-term corporate bond rates, and the basis was artificially inflating *current liability*. Indeed, the government no longer is issuing such 30-year bonds, so the whole basis is under review.

164. If the unfunded current liability is less than 10% (i.e. the ratio of assets to current liability is at least 90%), the plan sponsor is not required to make any supplemental contributions. [There is also a temporary relaxation in this area – if the funded ratio is at least 80% and two consecutive of the previous three years’ ratio were at least 90%, then no action is required]. If the ratio is less than 90%, then a supplemental contribution must be made to bring the otherwise required contributed up to the “amortization percentage” of the unfunded current liability. The “amortization percentage” is 30% for funded ratios below 60%, and for funded ratios above 60% it is 30% less 0.40 times the excess over 60% (e.g. a funded ratio of 75% means an amortization percentage of 24%) – complicated, but logical.

165. Minimum funding requirements cut off when the plan’s assets reach the full funding limitation. The full funding limitation is the greater of (a) 90% of the current liability and (b) the lesser of 170% of the current liability and 100% of the accrued liability. [Note: the 170% no longer applies after 2003.] Assets are taken at the lesser of the smoothed market value (if such smoothing is used for minimum funding purposes) and the fair market value.

### **6. Customary funding practices.**

166. All regularly acceptable actuarial funding methods are allowed, but the Projected Unit Credit method is dominant, especially among large plans. However, the method and assumptions need to be chosen very carefully, as they impact both the Funding Standard Account (item 5 above) and the Maximum Funding Limit (item 7 below). In the event that the selected actuarial funding method does not produce a value for accrued liabilities, then this value is to be calculated under the Entry Age Normal method.

### **7. Maximum funding limits.**

167. In general, a plan sponsor cannot make contributions, or at least cannot make immediately tax-deductible contributions, when the full funding limitation is reached. However, the employer can contribute and deduct up to the excess of 100% of the current liability over assets. Furthermore, there are special excise taxes on some contributions in excess of the maximum deductible contribution.

### **8. Frequency of actuarial valuations.**

168. Valuations are required to be performed every year.

**9. Bankruptcy of plan sponsor.**

169. In the event of the bankruptcy of the plan sponsor and an underfunding in the pension plan, the plan may continue. However, if the plan meets the conditions for termination, the Pension Benefit Guaranty Corporation (PBGC) steps in and pays benefits up to certain guarantee limits. Plan sponsors pay annual premiums to the PBGC, based on the number of plan members and the size of the unfunded liability.

**10. Termination of an overfunded plan.**

170. Upon termination of a plan, the plan sponsor must purchase annuity contracts in the private insurance market (or make lump sum payments if the participant and the participant's spouse agree). Surplus assets can revert to the plan sponsor. However, plan sponsors that terminate overfunded defined benefit plans are subject to an excise tax penalty of up to 50% of the excess (20% under certain limited conditions). In addition, the proceeds are taxable income to the plan sponsor, and thus subject to corporate income taxes. In effect, the plan sponsor must take all necessary steps to avoid overfunding – now and in the future. These rules strongly discourage conservative funding, as the plan sponsor has no way to recoup excess assets if future investment returns and other plan experience are more favourable than expectations.

**11. Who appoints the actuary?**

171. The plan administrator appoints the actuary.

**12. Role of the actuary.**

172. The actuary may be a fiduciary, and the roles and responsibilities of the actuary are prescribed in some detail.