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PENSION PLAN FUNDING – DISCUSSION AND ISSUES

By David Lindeman
OECD Secretariat

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Discussion and Issues Paper on Pension Plan Funding

Funding is a concept that mostly pertains to occupational pensions in which sponsoring employers promise a definable outcome ("pensions with promises"). The outcome may be promised by a single employer (single employer), or it may be promised by one or more employers (multiple employer plans) with risk sharing within the sponsoring group. The primary objective of funding these promises is benefit security; that is, to collateralise the pension promises in ways to make it more likely that the promised benefits will materialise. Typically this means diversifying the pension members' risk away from the insolvency of the sponsoring employer(s). A second objective is to minimise the potential for claims against the public in the event of pension promises not being delivered by insolvent employers.[1] A third objective is to minimise financial uncertainty for shareholders and bondholders in those firms that sponsor pensions. A competing policy constraint is that any tax arbitrage inherent in funding should not be excessive.

In pensions with promises, a pension is deemed "funded" when properly valued assets equal one or more liability measures (discussed below) of the promise. The terms funded or fully funded are often used with respect to defined contribution plans that do not have any promised return associated with them. *In defined contribution plans in which participants bear investment risk, there is no pension promise (liability) that is independent of the asset. By definition, these defined contribution schemes are always technically funded.*[2] The pension is simply whatever value the assets have at the time of retirement. In these instances, however, households face the same choices concerning retirement targets and portfolio choices that employers (and unions) face when designing occupational schemes that promise particular outcomes.

Pensions with Promises. In general there appear to exist two kinds of "pensions with promises."

- In *traditional defined benefit plans* the promise is expressed as a function of salary, wage or (more rarely) some other measure of work.

- There are also pension arrangements in which the sponsoring employer makes a promise about a minimum return on dedicated contributions – what might be termed *defined*

[1] Claims against the public are usually indirect. Some countries have insolvency insurers that substitute for external funding (Germany) or back up the provisions that require external funding (US, Japan, Sweden, Finland). The financing burden for insolvency insurance often falls on pension plan sponsors in ways that are not very well correlated with exposure and risk and therefore are a hidden if minor tax on production. Even in the absence of formal insolvency insurance, societies reasonably might feel it necessary to provide relief to pension plan members in the event of significant pension defaults.

[2] This automatic "full funding" also exists technically when the investment risk has been transferred to a third party insurance company. Strictly speaking, sponsors of defined contribution plans do make promises to pay contributions over to members' accounts according to plan terms, and national laws may regulate how indeterminate such promises can be.

It can be argued that defined contribution plans with participant risk are funded in a meaningful sense only when the portfolios are diversified outside the sponsoring employer (or one trade or industry in the case of some multiple employer plans). Many countries, however, permit defined contribution plans to be invested in the securities of the sponsoring employer, either at the employer's choice or because members choose to do so in member-directed plans. Whether these are prudent investments is, however, another matter.

contribution plans with guaranteed returns.[3] Some examples of this model include the following.

In Switzerland, the mandate may be satisfied in several ways. The legal minimum, however, is expressed as an age-related contribution rate on which a minimum return must be assured.

In the United Kingdom, contracting-out can take the form of a money-purchase plan, but that plan must assure a benefit equal to the state system (SERPS) equivalent, including post-separation indexing for those who leave the plan before retirement.

In the United States, some firms have adopted plans that promise lump sum benefits – convertible to an annuity – that are a function of prescribed contributions and a guaranteed return (cash balance plans and variants).

Some countries mandate that employers promise a minimum level of benefits (Switzerland). Some allow employers to offer pensions that equal or exceed a general state pension scheme ("contracting-out" as in the UK and Japan). Other countries require employers to participate in broadly negotiated pension arrangements that approximate in effect a legal mandate (Sweden). Yet other countries facilitate employers making pension promises through conducive tax provisions, collective bargaining and other labour laws.

Pension Liabilities and Collateral. Firstly, funding requires that sponsoring employers accurately define and calculate promised benefits, taking into account relevant contingencies. Secondly, funding requires that assets are dedicated and allocated overtime such that they equal promised benefits according to one or more recognised standards for defining accrued liability. Pledged assets may include the capital (securities or property) of the sponsoring employers.

[3] The term "defined contribution" has different meanings in different countries. In the UK and other countries the term is used both (i) with respect to plans in which investment returns, by law or voluntary provision, are guaranteed on accumulating contributions and past returns and (ii) with respect to plans in which investment risk is borne by the participants. In the United States, in the narrow legal sense, the term applies only to plans where the investment risk is borne by the participants. This includes both instances where participants have portfolio choice and instances where the sponsor makes all portfolio decisions. In the United States, the insolvency insurer (an agency of the Department of Labour called the Pension Benefit Guaranty Corporation or PBGC) determined that "defined contribution" cash balance plans were just another way of expressing career average defined benefit plans that the agency already insured. On the grounds that substance should dominate form, the PBGC labelled cash balance and kindred arrangements as insured defined benefit plans. This labelling has been followed by the other ERISA agencies (Internal Revenue Service and the DOL Pension and Welfare Benefits Administration, PWBA) and most private pension practitioners in the US. Private pension analysts, however, sometimes use the label "hybrid" to cover cash balance and kindred arrangements.

Pension economists who focus on state schemes, however, tend to use the terms quite literally: is the pension undertaking expressed as defined benefits or defined contributions? The (largely) PAYG state pension regimes in Sweden and Italy have been repackaged in recent years as defined contribution, even though during the accumulation phase, the underlying promise is very similar or the same as in a defined benefit equivalent. (The guaranteed return is average wage growth, the same index used in defined benefit regimes such as the US or Germany.) At the time of retirement in Sweden or Italy, however, each cohort faces the possibility that a new mortality table will be used to determine their benefits. To that extent, retirees will bear more biometric risk than in standard state schemes using more traditional defined benefit formulas.

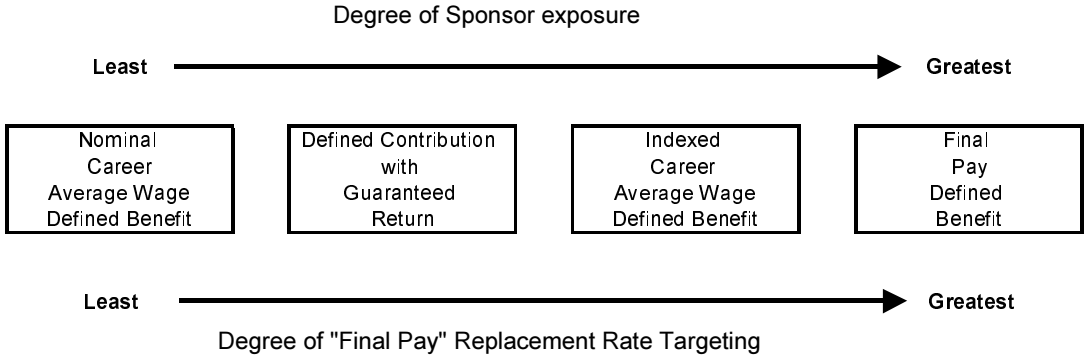
In general, there are *three major approaches to collateralising pensions with promises*.

- One approach is that sponsoring employers maintain *segregated pools of assets* (so-called autonomous pension funds) that have a value equal to recognised accrued liability(ies). Under this approach, asset matching and diversification are key principles. Autonomous pension funds may be entities with legal personality and capacity or simply pools of assets managed by third parties (standard financial intermediaries, or specialised intermediaries - pension fund managing companies). In both cases, however, the assets are legally separated from the employer or employers sponsoring the pension plan.

- The second approach is for sponsoring employers to *purchase allocated funding instruments from insurance entities* (such as individual or group deferred annuity contracts) that transfer all or some of the emerging investment risks and/or biometric risk to insurance companies or mutual insurance entities. In some countries, such as Denmark, this approach is required. In other countries, the legal framework, such as in the UK, encourages this approach.

- The third method (less common) is that sponsoring *employers explicitly recognise accrued and accruing liability on the balance sheets of the firm* (so-called non-autonomous pension funds) and that they enter into arrangements to collateralise the risk *through insolvency risk insurance.*

Promises Based on Average-Pay versus Final Pay. Cutting across the defined benefit/defined contribution distinction is another usual classification: is the pension promise only one that is based on *increments a worker's evolving salary or wage history-- average pay*. Or is it one that pivots off a worker's *final pay under the pension plan -- final pay*. There also exist in-between pension formulas that use average pay but *each year's increment is explicitly or implicitly indexed – indexed average pay.* Depending on design choices, workers may face more or less replacement rate uncertainty (relative to post-retirement income and consumption levels).



Nominal average-pay promises. Some pension promises are based on workers' nominal average pay over their work histories. Because of inflation and salary growth, the accrual factors or salary bases in these plans are adjusted periodically. While the flexibility inherent in these plans is prized by some employers (and even some unions), these habitual but technically ad hoc adjustments create layers of unfunded liability that minimise benefit security and may affect perceptions of financial stability.

Indexed career-average pay promises. Other pension promises are based on workers' average pay over their work histories but adjusted by some index such as inflation or average wage growth. Firms might still make ad hoc adjustments in these plans that reflect, for example productivity gains in excess of inflation. But the adjustments result in lower amounts of unfunded liability. In the United Kingdom, some degree of indexing is internalised. In the United States, indexed career average defined benefit plans are

rare, but in recent years a close substitute has become popular. These are defined contribution plans in which a guaranteed return is promised, but the funding responsibility for fulfilling that guarantee remains with the plan sponsor rather than an insurance company ("cash balance" plans). For every indexed career average plan at some accrual rate there exists a defined contribution/guaranteed return plan cognate at some contribution rate, so long as the indexing factor and guaranteed return are the same.

An average pay defined benefit plan generates an annuity that is not likely to be adjusted to capture increased longevity from one cohort to the next, and it is not likely to make actuarially neutral adjustments workers retiring before or after the plan's normal retirement age. In contrast, the defined contribution alternative provides a lump sum that can (or must) be converted to an annuity. Accordingly, each successive cohort faces the possibility benefits will be adjusted downward to reflect increased longevity projections at the time of conversion. The annuity also will reflect the age at which the individual makes the conversion.

In the case of pension promises that index wages or provide a guaranteed minimum return, there is less replacement rate uncertainty than in an non-indexed average pay pension. Any individual's replacement rate (relative to final pay) will depend on slope of the indexing factor relative to the pattern of his or her salary or wage history. Overall replacement rates also will depend on whether the indexing factor is adjusted from time to time across or even within cohorts, relative to nominal wage growth.[4]

Compared to final pay plans (below), in average pay defined benefit plans and defined contribution plans with guaranteed returns, it maybe easier for sponsoring employers to lay off investment and biometric risk with insurance companies. The risk transfer is achieved buying guaranteed investment contracts or deferred annuity contracts. Alternatively, fund administrators can purchase a portfolio that closely matches the plans' emerging liabilities overtime. The corollary is that workers face greater uncertainty from cohort to cohort in replacement rates (relative to income and consumption in years just before retirement).

Final-pay promises. Final pay defined benefit plans base promised annuities on some measure of final pay. Accordingly, covered workers are assured a greater degree of replacement rate certainty (relative to income or consumption in the years just before retirement) from cohort to cohort. It is possible to mimic final pay defined benefit plan with a defined contribution equivalent, though defined contribution analogue looks less like a conventional defined contribution plan. These so-called "pay equity plans," however, do shift to workers the longevity risk associated with annuity conversion. The corollary is that final pay pensions have a greater degree of uncertainty associated with them for the sponsoring employer or employers.

When is a plan funded? The terms funding, funded and fully funded have taken on so many descriptive and even normative meanings in different country and policy contexts that it is often difficult to know what people mean when they are using these terms.

In countries that have a large number of traditional defined benefit plans, a *distinction has developed in recent decades between "terminal" (or termination or wind-up) liability and "ongoing" liability*. For tax, regulatory and accounting purposes, these concepts apply to a "closed" group – that is, the members of the plan at the time of valuation. In both instances, because workers will leave plan coverage and new workers will be added, the closed group likely will change from one valuation date to the next. However, "ongoing" in this context only connotes the proposition that the sponsoring firm (firms) and the plan will be ongoing for those now covered.[5]

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[4] In Denmark, successive cohorts are guaranteed different rates of return on a fixed schedule of contributions. If the guaranteed rate falls, as it recently has, then younger cohorts will receive less than older cohorts if their salary growth does not commensurately decline as well.

[5] Countries that sponsor state managed and financed pension schemes often perform actuarial valuations that are also "ongoing" in that they assume that the polity, its economy and the terms of state scheme continue throughout the valuation period. The valuation, however, is typically "open-ended" in that it takes into

For long-term strategic planning purposes, some firms may supplement their terminal and ongoing closed group analyses with an ongoing open group analysis. In this case, the analysis assumes that both the plan and the firm are ongoing. In particular, new workers are assumed to join the firm.

Terminal Funding. Probably the most self-evident or intuitive meaning of "funding" relates to terminal liability. Do plan assets (including insurance contracts and pledged assets covered by insolvency insurance) equal the accrued rights (promises to date) of workers and other participants if the pension plan was stopped at the time of valuation? The concept (norm) of "fully funded for terminal liability" is appealing because it easily covers all the types of pension promises outlined earlier. It can apply whether the promise relates to final pay, average wage or indexed average wage, and it can apply the promise takes the form of a defined benefit plan or a defined contribution plan with a guaranteed rate of return. The concept also can be easily associated with external funding either through insurance products or through arrangements in which a trust, foundation or contract holds or surrounds plan assets.

Countries will differ in how terminal liability is measured, depending on each country's law defining accrued rights. In the United States, for example, the definition of accrued rights in the event of plan termination requires non-vested workers to become vested with respect to their work to date. The definition, however, does not require – unless the plan's terms require – any projection of salaries from the time of termination until some permissible retirement age. In the United Kingdom, individuals who leave a pension plan are entitled to protected pensions that carry with them automatic indexing (up to a ceiling). More rigorous valuation rules apply with respect to any "contracted-out" component of the pension scheme. By necessity, terminal liability in the United Kingdom is a larger measure than in the United States. In addition, for purposes of calculating lump sum equivalents or preserved pension rights, countries need to establish rules concerning permissible discount rates and life expectancies.

Traditionally, though the terminal liability concept might be used from time to time, the concept was not as important as the ongoing liability concept for contribution obligations and tax deduction rules. In the past two decades, however, tax authorities and other regulators have begun to use the concept of terminal liability to prescribe floors on minimum contribution requirements (mandatory supplements to the normal requirements) and ceilings on what sponsoring employers may contribute.

In addition, the accounting profession, working in concert with the market regulator, may require that *pension plan administrators* prepare financial statements using the concept of terminal liability. In this accounting context, the term *"accumulated benefit obligations" (ABO)* in often used for terminal liability.[6]

Funding for Ongoing Liability. Ongoing liability is a more complex concept, involving estimations of many kinds of future events – inflation and real salary growth, when will workers choose to leave the firm, potential downsizing, disability, death, and so on. Depending on the actuarial funding method employed, future work under the plan may be taken into account only for limited purposes (the potential for vesting, for example) or future benefits accruals due to additional work as well.

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account not just those who already have rights under the state scheme but also future workers. Analyses done by the World Bank and others attempt to measure the 'implicit pension debt' of countries, using a close-ended group concept similar to private pension valuations. In so doing, they often project salary growth with respect to accrued benefits at the time of valuation, but they rarely project future accruals. Accordingly, these closed-group IPD estimates are closer to an "indexed benefit obligation" valuation of private pension terminal liability versus a narrower "accumulated benefit obligation" valuation that uses only salaries at the time of the plan's termination.

[6] In the United States, the relevant standard is FASB Statement No. 35. Information off these financial statements typically is used for filings with the three key pension agencies in the US. The actual term in FASB 35 for terminal liability benefits is "actuarial present value of accumulated plan benefits," but that term is essentially the same as "accumulated benefit obligations" or ABO under FASB Statement No. 87.

The concept of ongoing liability is necessary in the context of pensions where sponsoring firms retain primary contingent liability (versus having shifted investment and/or longevity risk to an insurance entity). Arguably the concept's usefulness is the greatest with respect to final pay defined benefit plans, where the need to anticipate costs and hedge against uncertainty is the greatest. Final pay plans, however, are not common to all OECD countries. In some countries (such as the US) in which final pay plans were a major factor, they are in decline. They are being superseded either by average pay defined benefit plans (or defined contribution equivalents) or pure defined contribution plans where participants are exposed to investment risk and, increasing, make their own portfolio choices.

Tax and labour law provisions may require the use of the concept of ongoing liability for calculating annual minimum contributions, maximum contributions that can be deducted without penalty, and a "full funding" limit. These are discussed later. Forcing sponsoring firms to use the ongoing liability concept often (but not always) results in the condition that assets are more likely to exceed terminal liability, thus enhancing benefit security and reducing contingent liability in countries that have back-up insolvency insurance arrangements.[7]

The usefulness of traditional concepts of ongoing liability has been under growing challenge. Some have argued that terminal liability with a "buffer" (that is some multiple of terminal liability) is equally valid as a funding target and limit that balances benefit security needs with other concerns (such as tax arbitrage discussed later). Indeed, the accounting profession has adopted a standard that takes into account many, but not all, future probabilities under the plan.[8] *The standard pivots around a measure called "projected benefit obligations."* It is used more for the purposes of firms' accounting for their pension plans than for pension plan accounting, as such.

Policy Issues

Impact of funding and accounting rules on occupational pension provision: security vs. flexibility. Plan liabilities do not always follow smooth and predictable courses that make funding easy to achieve and maintain. Some plans begin with credit for years of work with the employer (or employers) before the plan's inception. Other plans that do not use projected salaries habitually update plan terms in light of inflation and wage growth, creating new layers of unfunded liability. Investment returns can turn negative decreasing assets and interest rates can drop increasing liabilities, sometimes, as recently, as the same time. These create deviations from expected results that have to be recognised and settled. These various unfunded liabilities can create uncertainties for members and shareholders. If the uncertainties are

[7] For ongoing liability purposes, a plan has hit its "full funding limit" when assets equal accrued liability. Accrued liability is the actuarial value of projected benefits (AVPB) for the closed group minus the present value of future contributions. When terminal liability is defined as ABO, ongoing accrued liability is quite likely larger than terminal liability. Ongoing accrued liability is less likely to dominate when terminal liability uses indexed salaries. In any event, whether ongoing accrued liability will dominate terminal liability, or vice versa, also depends on the plan's maturity and the age structure of covered workers.

[8] Ongoing liability concept starts with a measure called the "actuarial value of projected benefits (AVPB)." This derives from calculations that assume growth in compensation according to plan terms over a given worker's work life. The calculations also adjust the projected liability by probabilities of workers voluntarily leaving the plan, being laid off, death and disability. If the promise is a traditional defined benefit, the actuary also make assumptions about how long workers will live past the plan's retirement ages (and often the life expectancies of spouses). If the plan offers subsidises early retirement, offers disability benefits, survivor benefits, all those probabilities and plan terms are taken into account. Traditionally, actuaries also took future accruals due to future work into account. The resulting AVPB would then be divided in different ways across the plan's full service life (e.g., 35 years). This would determine the plan's normal cost. Depending on the allocation method, normal cost would relatively flat or it might follow a rising cost curve over time.

mitigated through backup insolvency insurance, then moral hazards and non-transparent subsidies are created, and those in the insolvency pool or taxpayers as a whole face contingent liabilities.

For these reasons, traditional ongoing funding methods require an amoritisation of unfunded liabilities. The amortisation periods differ according to the origins of the underfunding. Countries have moved to buttress ongoing funding rules with minimum funding criteria based on terminal liability. The introduction and implementation of minimum funding rules in the United States was a matter of controversy that largely died down in the 1990s bull markets. Comments are surfacing in the financial press about the MFR rules in a world of much lowered interest rates and much lowered stock values. In the UK the parallel debate is even more intense, given the UK's more rigorous measures of terminal liability. In both the UK and the US, the accounting profession has imposed accounting disclosure rules that are more demanding for many firms than that to which they have been accustomed.

These minimum funding rules and the accounting rules, however, have a price – especially with the impact of the maximum funding rules discussed below. They can discourage the formation of new defined benefit plans, especially those with past service credit, and they may be discouraging sponsors of existing plans to liberalise them. They also have encouraged sponsors to amend plans to make future liabilities more predictable and, in so doing, have shifted some risks back onto mid-career workers (breaking what some analysts have called the "implicit pension contract"). Though only part of a complex story, these rules have contributed to a general attitude among employers that it is better, on the whole, to move to a pure defined contribution modality.[9]

Limiting Tax Arbitrage Versus Delaying Funding. Tax policies also can affect the potential for swings in pension funding. Countries may impose limits that prevent employers from anticipating the entire amount of projected liability. These limits exist to prevent excessive tax arbitrage[10] by companies maintaining defined benefit plans based on projected salary growth. Hence, contributions cannot occur in a year when assets exceed accrued liability.[11] Accrued liability is total plan costs allocable to date under the actuarial method. As discussed earlier, the accounting profession requires that firms use a particular actuarial method, called projected unit credit, in determining the annual ("net periodic pension cost") of its pension plans. Faced with having to deal with more than one set of pension books – one for the IRS and another for the SEC in effect – large firms have adopted projected unit credit for tax accounting as well. This has made this traditional funding limit more constraining and has pushed contribution obligations more into the future.

In addition, in the United States, the traditional full funding limit has been buttressed with a second limit that pivots off terminal liability – deductible contributions cannot occur in a year in which assets exceed 150 percent of terminal liability. This second limit has also pushed contribution obligations more into the future. Noteworthy is that this non-traditional funding limit was amended to move up to 170 percent of terminal liability by 2005.

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[9] The trend away from defined benefits in the US also has much to do with changes in the economy. Thanks to productivity increases and open markets, the manufacturing sector has declined. That sector traditionally had defined benefit schemes. Employment growth has been in those parts of the service sector that traditionally prefer defined contribution schemes. At the margin, however, firms clearly weigh the regulatory burden associated with defined benefit versus defined contribution schemes, including insolvency insurance fees or exposure.

[10] Tax arbitrage arises when a firm or an individual may, on the one hand, accumulate assets in a tax-free solution (e.g., in tax-advantaged pension) and still borrow and deduct interest (e.g., as a business expense, mortgage deduction). If a firm can put aside in tax-free pension plans/trusts more than that which is "really needed," it effectively can borrow on a tax-deductible basis to finance that excess pension funding. Tax analysts are concerned that this creates unfair advantages for some firms.

[11] Technically, contributions in excess of the funding limit are not deductible. More important, contributions in excess of permissible deductions are subject to a penalty excise tax.

Recent decades have seen remarkable increases in the value of pension plan assets. In some periods, increases in interest rates – leading to declining liabilities – have accompanied these increases. Given tighter minimum funding rules, many firms have enjoyed "contribution holidays" with respect to their pension plans. In wake of decreases in both interest rates and asset values, firms will have to resume making contributions, perhaps to a significant degree. More tolerant maximum funding rules may have provided a more reasonable buffer.

Arguably, tax policy and authorities should be more indifferent to the timing of contributions. From one perspective, the present value of contributions is the same if contributions occur now or at some later date. Revenue and budget authorities, however, tend to focus on current tax receipts. In principle, firms affected by these more constraining limits can set up after-tax reserves in the firms' balance sheets that are available for when tax deductible contributions come due. Any such reserves, however, can only earn an after-tax return, and company financial officers would rather put accumulated profits to other uses. Large shareholders and buy-out specialists often chaff when firms set aside tax-sheltered tax reserves to the maximum extent allowed by either full funding limit. By the same token, they likely would view after-tax reserves for future pension costs with even greater displeasure.

Ownership of Reversions. The tension between benefit security needs and tax arbitrage concerns is highlighted when a sponsoring firm (or employer group) terminates a plan and assets exceed legal liabilities (reversions). This tension is further complicated by competing economic theories as why reversions exist and to whom they should be allocated. Particularly if public policy (or plan terms) does not require post-separation for early leavers, accrued liability often will exceed terminal liability. Some analysts argue that this condition exists because workers have taken lower current pay commensurate with contributions consistent with funding accrued liability, in particular salary growth expectations ("implicit pension contract"). Arguably, therefore, any surplus (reversion) should be distributed to plan members.[12]

Others argue that sponsoring employers have borne substantial liability and investment risk and deserve whatever buffers exist from their past prudent behaviour at the time of termination. Those rights to the reversion, however, logically do not extend to that part of the reversion that exists because assets accumulated tax-free (vis-à-vis if they had accumulated at an after-tax return). In the United States, an excise tax that originally existed to recapture the wedge between tax-free and taxable rates of return was amended to encourage sponsors to share reversions or create successor pension plans. Some analysts argue that this change will encourage sponsoring employers to adopt ongoing funding assumptions that minimise the difference between ongoing and terminal liability. In effect, employers may be inclined to recapture potential reversions by minimising ongoing contributions, even at the cost of less tax arbitrage. Accounting standards and concerns about reporting pension liabilities on the balance sheet, however, are pulling in the opposite direction.

[12] A more complicated form of this argument is that the pension plan has made the covered workers more productive than they otherwise would have been. This comes about by discouraging early leavers and maximising the human capital of faithful workers. It is the pension-induced extra product that helps finance the long-term pension contract. In this view it not fair that any pension reversion should redound solely to the sponsoring employer in the event of any windup. Similarly, early leavers should not be part of the protected group at the time of reversion.