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Actuarial Conservatism: Not in Public Sector Defined Benefit Pension Plans

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Abstract

Most actuaries tend to be conservative, and most, including this writer, probably would be happy to be so categorized. But actuarial conservatism may not be the best rule in defined benefit public sector pension plans. This paper argues that it is not appropriate for actuaries to employ conservatism assumptions in such public sector plans.

Key words and phrases: *assumptions, risk, funding, generational equity*

1 Introduction

Actuarial conservatism in the valuation of pension plans¹ manifests itself in two basic and related areas: (i) selection of actuarial assumptions; and (ii) recommendations of contributions where the particular

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¹Throughout this paper, *pension plan* will mean a defined benefit plan and *public sector plan* will mean a governmental plan as defined in §3 (22) of the Employee Retirement Income Security Act of 1974 (ERISA), as amended. Although the paper focuses on the U.S., the arguments apply equally to foreign governmental plans (although legislation in other countries may foreclose some issues raised here).

The *Code* refers to the Internal Revenue Code of 1986, as amended. *Interest* covers all investment earnings including dividends and capital gains that are reflected in the actuarial value of assets.

funding method² produces a range of possible contributions. Actuarial conservatism generally is understood to mean a weighting of one or more assumptions intended to provide a safety margin, i.e., to deliberately overstate recommended deposits to some extent.³ Conservatism can be introduced via an explicit margin added to recommended deposits, but implicit conservatism is much more common. The typical actuary knows that when he or she builds a model of expected future experience, he or she is entering the realm of speculation. The actuary's crystal ball is no better than anyone else's, although the actuary's experience may give a greater appreciation than most of the effect of various alternative bases for speculation.

When recommending contributions—when the actuary recommends accelerated funding, again increasing costs—the actuary often is looking to ensure that the fund becomes as solvent as possible as quickly as possible. This emphasis on solvency must be tempered, however, because any additional dollar put into the pension plan may mean a reduction in the employer's investment opportunities. Reduced investment opportunities may lead to a reduction in expansion of job opportunities.

Why do actuaries lean toward conservatism? To answer this question, we will focus primarily on the economic assumptions (interest rate and salary progression, both heavily dependent on future inflation) rather than on demographic assumptions (mortality, withdrawal, etc.). This simplifies the discussion, although much of the argument applies equally, *mutatis mutandis*, to demographic assumptions.

2 Conservatism

In my opinion, actuarial conservatism reflects the fact that while the actuary may not be expert in the economic disciplines required to accurately forecast interest and inflation rates, the actuary's expertise is in risk analysis. The actuary understands that there are two separate fi-

²At the risk of some loss of generality, the various actuarial cost methods—entry age normal, unit credit, etc.—will not be discussed in this paper. This is primarily to simplify the presentation, but it also reflects a conviction that detailed discussion of the mechanics of applying these methods to the broad issue discussed in this paper would result only in obscuring the main points. It also reflects the fact that many states mandate the funding method.

³Not every margin or adjustment to an assumption evidences conservatism under this definition; for example, a projection of decreased mortality rates in future years (based on an expectation that mortality will continue to improve) or an interest rate below current earnings reflecting an expected reduction in market rates.

nancial risks to consider when building a model to represent a pension plan:⁴ (i) future inflation and the resulting investment yields will be *underestimated* so that when participants reach retirement the amount required to provide their benefits will be less than the amount assumed in the funding calculations and a surplus will develop; (ii) the complementary risk that future inflation and yields will be *overestimated* so that the actual cost of benefits at retirement will be greater than assumed, i.e., there will be inadequate funding at retirement. These two alternatives are based on the fact that for the typical salary-related plan, comparable changes in the salary progression and interest assumption broadly cancel before retirement, but after retirement only interest is a factor, absent full cost-of-living adjustments (COLAs).⁵

The first of these risks is, *from the plan participant's point of view*, much less serious than the second. Potential underfunding is a serious threat, especially when one remembers that no private sector enterprise has any guarantee of perpetual life; underfunding often becomes a problem at precisely the time that the plan sponsor is unable or unwilling to make additional contributions. On the other hand, potential overfunding (especially in a high inflation environment where there is likely to be pressure to grant ad hoc COLAs and thus spend the surplus) is a less serious problem.⁶ Also, the point where the interest rate standing alone becomes dominant after retirement is well in the future—when forecasting is hardest. For these reasons, most actuaries are comfortable with a conservative posture.

Despite the clear thrust of the minimum funding standards of ERISA and the Code⁷ against underfunding, the Internal Revenue Service (IRS) has adopted maximizing government revenue as its main objective and seems hostile to the above approach. The IRS promotes high interest rates that have an inherent bias toward underfunding, especially in light of the statutory provision⁸ limiting (and for the highest paid and most expensive employees prohibiting) projection of salary increases in the

⁴It is assumed that this model will avoid the obvious traps of inconsistent projections of future interest rates and salary increases; that is, that the wage and cost-of-living inflation underlying these two key assumptions will be reasonably related. More importantly, all of the above items reflect a fundamental assumption that inflation and yields are positively correlated over the long term.

⁵Many, if not most, state pension plans have at least partial COLAs, sometimes on a discretionary or ad hoc basis, more often as part of the formula.

⁶The above analysis also supports a conservative approach to the demographic assumptions; again, spending a surplus is far less of a problem than attempting to explain and deal with a deficiency.

⁷ERISA §302 and Code §412, especially the recently enacted §302(d) and 412(l).

⁸Code §404(l).

funding calculations. It bases this position on the language of ERISA⁹ and the Code¹⁰ requiring the use of the actuary's best estimate in funding calculations, and (according to numerous IRS speakers at actuarial meetings) the IRS interprets that language to require a straight-down-the-line interest projection with no bias toward conservatism. The case *Vinson & Elkins v. Commissioner* (1993)¹¹ recently rejected this IRS position and strongly endorsed the use of conservative assumptions. The opinion notes that ERISA requires the actuary be retained "on behalf of the plan participants."¹² Most actuaries regard this as a charge to act conservatively and to treat the second of the two risks as the larger threat to the interests of his or her statutory clients: the plan participants.

I strongly endorse the actuarial attitude described above, i.e., a pension actuary should lean toward conservatism and should minimize the risk of a plan being unable to deliver promised benefits in the long run.¹³ This view, like all such broad statements, is subject to some qualification; it would be indefensible to be so conservative in an actuarial valuation that either benefits were held below an affordable level (and unreasonable surpluses were built up) or that contributions exceeded any reasonable level required to finance benefits. While most actuaries would accept the above proposition, there is a broad spectrum of opinion about the appropriate definition of conservatism and the point at which it may become excessive.

⁹Code §302(c)(3)(B).

¹⁰Code §412(c)(3)(B); the language also appears in Form 5500 Schedule B which the actuary must sign.

¹¹This case upheld the actuary's 5 percent interest assumption against an IRS attempt to impose a minimum of 8 percent. It explicitly recognized as a "particularly important" factor "the conservative nature of the actuarial assumption selection process;" also, it noted that:

(i)f a financial analyst's predicted rate of return is higher than the actual rate earned, the investor simply earns less than he supposed he would earn (, but) (i)f an actuary makes the same mistake, there is a significant risk that the plan will become underfunded and the pensioners' full benefits will be unpaid.

The case dealt with small, one participant plans and, therefore, should be treated with some caution when applied to larger plans.

¹²ERISA §104(a)(5)(B).

¹³This is to be distinguished from the situation in the early years of a plan when assets are being built and underfunding is part of the natural order of things and not to be condemned. Jones (1994) gives a lengthier discussion of this point.

3 Public Sector Plans

For state or local government plans, I believe conservatism is no longer appropriate. Because we can assume that plan sponsors have perpetual life,¹⁴ the overriding consideration should be equity between generations of taxpayers, not protection of participants. Participants are protected already by the impossibility (as a matter of practical politics) of benefit reductions. In many states, there is explicit constitutional, statutory, or case-law protection. Many of the actuary's almost instinctive reactions of private sector experience do not hold in the public sector.¹⁵

Conservatism in assumptions is appropriate in the private sector because employers may go out of business. But why should contributions have a safety margin to guard against a nonexistent risk in the public sector? If today's taxpayers make contributions containing a safety margin, in all probability¹⁶ they are simply paying in advance contributions more properly attributable to the next generation of taxpayers. Conservatism in assumptions, deliberately applied, means that average experience is *expected* to be more favorable than the assumptions over the long run; such an approach does not fit the public sector environment. When the objective is equity between generations of taxpayers, it is appropriate that the assumptions be unbiased so that long-run, average experience is as close as possible to the assumptions.

This argument also applies to funding. In an ideal world all pension plans, both public and private, would be set at liberal levels from the beginning, avoiding any necessity for future benefit increases. Full contributions would be made from the point where the first employee was

¹⁴It is important to note that it is the plan sponsor, not the plan itself, that is assumed to have perpetual life. Public plans can be, and have been, terminated or frozen, but this possibility does not affect the argument of this paper. Also, as one referee pointed out, the argument would not hold for a very small local governmental unit that was on its own for pension purposes and not participating in a larger plan such as the statewide plans that many states maintain. Today's healthy little mining town could well be tomorrow's ghost town.

¹⁵In public sector plans the choice of assumptions (and methods) often is not the actuary's domain. This contrasts with the situation under ERISA where the enrolled actuary is required to certify, on Form 5500, Schedule B, that the methods and assumptions represent the actuary's "best estimate" of future experience. Therefore, recommendations that "the actuary" proceed in a particular way should be addressed to the actuarial decision maker: in some cases, this is the actuary, while in other cases it is a board of trustees acting on actuarial advice (or sometimes without, or in spite of, actuarial advice). This qualification applies throughout.

¹⁶The expression "in all probability" is used because future experience inevitably will depart from projections and what is intended as today's conservative assumption could be tomorrow's reality.

hired; grants of past service would not be needed; and all plans would be fully funded at all times. All plans would have actuaries who could project future experience precisely; and plans would run indefinitely paying this year's cost plus expenses and avoid surpluses or deficiencies entirely.

We do not live, however, in an ideal world. Pension plans—both public and private—seldom start when the first employee is hired; plans usually are established later, often at modest levels, and are liberalized when the sponsor can afford additional benefits. Thus, most plan contributions are paying the cost of benefits attributable to the current year (*normal costs* in actuarial parlance), additional catch-up amounts to fund the cost of benefits attributable to earlier periods (*actuarial accrued liabilities* or *prior service costs*), and additional contributions to provide a safety margin. Just as most actuaries select conservative assumptions, they also tend toward conservatism in recommending catch-up contributions. The objective of the actuary is to bring the plan to full funding and maximum benefit security as quickly as possible.¹⁷

Public sector plans also do not exist in an ideal world. Such plans were not funded from day one, and prior funding often may have been at relatively low levels as compared to private sector plans. Public sector plans, therefore, may have a large overhang of benefits attributable to prior years that must be provided eventually. Focusing on intergenerational equity, we should reflect that such funding did not happen in a way that imposes the resulting extra cost equally on all future taxpayers.¹⁸ This means that we should not require any later generation of taxpayers to pay high catch-up payments at the level required to meet the cost of these benefits in full. In actuarial terms, I suggest an open group aggregate funding approach where contributions pay only the amounts required to avoid an increase in plan liabilities as a *percentage of payroll*,¹⁹ but that the actuary need not amortize these liabilities. In everyday language, future taxpayers should go some way

¹⁷Once again, this can be taken to extremes: it would be unreasonable to accelerate such payments to an extent such that benefit levels were unreasonably depressed in the early years. This is the major fallacy in legislation that treats maintaining a less-than-fully-funded pension plan as an antisocial act and the sponsor of such a plan as a pariah. This point is developed more fully in Jones (1994).

¹⁸There is, of course, no way to impose them on the prior taxpayers who initially consumed the services.

¹⁹This is a lesser requirement than is called for in ERISA and also less than the traditional pre-ERISA standard of interest-only funding. Even that standard usually had an element of funding conservatism in that it maintained the liabilities at a constant level in dollars which usually meant a decrease as a percentage of payroll. In the private sector, however, there are declining (not to mention vanishing) industries, so there can be significant risks in such funding. This is not the case in the public sector.

toward making up the shortfall of interest earnings resulting from the shortfall of contributions in the early years, but need not make additional contributions to fully replace these missing contributions.²⁰

The above recommendations cannot be absolute. In very difficult economic times, it may be appropriate to cut pension contributions²¹ in order to avoid cuts in essential services. Intergenerational equity may have to take a back seat to harsh reality. On the other hand, it may be appropriate to fund at higher levels than are suggested above—in particular to fully or partly amortize the costs attributable to prior years—if a plan sponsor is experiencing unusually good times. For example, this might be particularly desirable where a plan sponsor is enjoying high tax revenues from a nonrenewable natural resource.²²

It is a fact of political life that in some situations it is necessary to make a gradual transition to the recommended funding levels over a period. This means that the shortfall described above would continue to increase, both in dollars *and* as a percentage of payroll, during the transition period. If so, there does not seem to be any good reason to treat such increases differently. The same is true of actuarial gains and losses.²³ All of these reflect events that cannot be carried back to the taxpayers on whose watch they arose—therefore, the costs of these events should be spread over all future generations.

4 Summary

The past and its effect on public sector pension plans are water over the dam. The public sector actuary's task is to look forward and to es-

²⁰This would produce contributions that should remain essentially level as a percentage of payroll for the indefinite future; each generation of current and future taxpayers will pay its own costs and an equal share with other generations of prior shortfalls. The above proposal would not produce exactly level costs under various actuarial cost methods that might be used for a particular plan. The most direct method of computing a level-percentage-of-pay contribution would be an open group aggregate funding calculation producing a single percentage-of-pay recommended cost. These ideas on open group aggregate funding date back at least as far as Trowbridge (1952).

²¹Or, which amounts to the same thing, to lend plan assets back to the sponsor/employer.

²²It is also true that the ability of a state or municipality to borrow at low tax-exempt rates and to invest the proceeds in regular securities within its pension funds opens the possibility of a risk-free arbitrage gain, but this obviously raises questions beyond the scope of this paper, especially in the mind of bond analysts.

²³It is not inconsistent with the above, although it is not essential, for asset gains to be dampened by one of the common smoothing techniques used to determine an actuarial value of assets differing from pure market value before gains and losses are computed.

tablish (or recommend) a level of contributions that strikes a long-term balance between future generations of taxpayers. There is no reason to impose disproportionate costs on one group of current or future taxpayers, regardless of whether these costs were created by a new plan, by an amendment liberalizing benefits under an existing plan, by past levels of funding or lack of funding, or by experience in gains or losses. Whenever possible, the objective of the actuarial exercise in the public sector should be to develop a level-percentage-of-payroll contribution, based on the most realistic possible assumptions, designed to remain level indefinitely. This is the way to reach intergenerational equity. Contributions above or below this level (however desirable they may be in the private sector in order to enhance participants' benefit security) are not appropriate in public sector actuarial work.

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