WHAT AILS PUBLIC PENSIONS? AND WHAT CAN BE DONE TO STRENGTHEN THEM?

Pension plans in the public sector have much to recommend them. In providing a defined benefit, they eliminate much uncertainty for employees on their retirement income. So-called DB plans also simplify financial management for employees. The relative certainty and simplicity help government employers compete for workers. DB plans pool mortality risk, making them efficient annuity providers. Most pension experts believe that the collective design features of DB plans make them superior vehicles for delivering retirement income in the public sector than are defined contribution plans.

Benefit security is a great strength of these plans. Public pensions are funded plans. Moreover, many states in the United States provide constitutional guarantees of pensions, regardless of actual funding. And with or without the latter, the state has the power to tax.

Public funds are cost-effective. They spread administrative costs over a large participant population, use low-cost indexing, and negotiate investment management fees. Large funds operate at an enviably low cost – as little as 0.25% of assets per year, all included.

Public fund investment performance has been satisfactory by any standard.

- In the last 25 years, owing to extraordinary stock and bond market performance, public funds in the U.S. have earned on average about 11% per year net. This figure is several percentage points higher than actuarially assumed returns over this period (more on this later).[1]

- CEM Benchmarking, Inc., which tracks the performance of large public funds, indicates that for the 15 years through December 2005 public pension funds outperformed their respective market-based benchmarks by a small margin on average, after costs.[2] This is no mean feat, considering that most investors underperform market benchmarks after costs.

- Returns earned by DB assets compare favorably to those of defined contribution plans. This is relevant because, in the long run, benefits equal the sum of contributions and net investment return, regardless of plan type. Research indicates that DB assets produce a return approximately 100 basis points per year greater than DC assets. The principal factor accounting for the return difference is the cost differential.[3]

Appealing design features. Benefit security. Cost-effectiveness. Good investment performance. One might surmise that all is well with the $3 trillion public pension system in the U.S. Yet those familiar with it know better. Plan participants, trustees, and administrators are concerned about the future of pensions. And with reason: There is much criticism of public pensions and efforts to replace DB plans with DC plans. What ails public pensions? And what can be done to strengthen them?

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[1] Mellon Analytical Services is the source of the data after 1986. Before that, the source is CDA, which merged in 1999 with Thompson Financial Securities Data.
[2] See http://www.cembenchmarking.com/surveys.aspx
[3] See, for example, "DBization of a DC World: Helping Participants Form More Efficient Portfolios," EnnisKnupp Research, http://www.ennisknupp.com.

The Valuation Debate

Stark differences exist in the valuation practices of public and private pension plans. The public-sector practice is to "smooth" asset values and value liabilities using the expected return on assets as the discount rate. The private sector values assets at market and discounts liabilities at a lower, investment-grade bond market rate. The two approaches produce sharply different results. All else the same, an "actuarial" funded ratio will be higher and more stable than a "market" funded ratio.

The difference in valuation practice is a source of controversy. Financial practitioners and academics, as well as a growing number of pension actuaries, question the public-sector convention. They fail to see its financial logic and believe the approach misstates the funded status of public pensions. In defense of the public-sector convention, public plan actuaries typically offer this rationale:

> States are sovereign entities with the power to tax. Hence, there is no risk of insolvency of a state-sponsored pension plan. Therefore, a market-valuation approach, which makes sense for the private sector, where insolvency of the sponsor is a real possibility, simply does not apply in the public sector. Moreover, it introduces instability unnecessarily into public pension finance.

In other words, public fund actuaries are *not* arguing that their pension values are correct in the context of financial theory. Rather, they are saying that disclosing conceptually correct asset and liability values is irrelevant – and just complicates things.

A goal of this paper is to illustrate why theoretically correct pension asset and liability values are in fact very important in the public sector.

Why Valid asset and liability values matter

In a nutshell, valid asset and liability values are required to establish the fair value of pension obligations. Taxpayers *know* they are on the hook for public pensions. What they don't know and increasingly want to know is what promises made on their behalf are *worth*. Without that, there is no way to know when pension obligations are funded in fact or when wealth transfers occur in the course of operating public pension plans. But this is to get ahead of the story. First, let's take a closer look at the measurement of pension liabilities.

Measurement Issues. The most basic concept in the field of finance is that of the present value of a future payment, whereby the future payment is discounted at a rate that reflects the risk associated with the payment. Public pension payments are risk-free for all intents and purposes. Accordingly, a theoretically correct discount rate is the yield of long-term U.S. Treasury bonds.

The Financial Accounting Standards Board (FASB) has for many years required sponsors of private-sector pensions to disclose the *accumulated benefit obligation* (ABO) and *projected benefit obligation* (PBO) as measures of what benefits are worth. Both measures cover benefits accrued to date, discounted at a *market settlement rate*. Practice has evolved such that the yield of long-term AA corporate bonds is the accepted market settlement rate for private-sector pensions, reflecting the fact that some risk is attendant their payment.

The difference between ABO and PBO is that the latter takes into account a *projection* of wage increases in determining future benefit levels that are discounted to a present value. Consequently, PBO is usually a significantly greater figure than ABO for a wage-based plan. Those who favor PBO as the measure of fair value of benefits typically contend that it is the more appropriate measure of pension obligation for a going concern than is ABO. On the other hand, those, including the author, who favor ABO as the measure of what benefits are worth, look upon the liability increment associated with future pay increases as inappropriate for inclusion in today's liability, because pay *increases* (a) are not contractual and (b) will occur in the future. It is fair to say that the jury remains out as to which of the two is the more appropriate measure of what benefits are worth. Both methods, however, employ a market settlement rate in order to reflect pension obligations as the financial claims that they are.

Turning to the public sector, Governmental Accounting Standards Board (GASB) Statement 25 requires disclosure of actuarial (smoothed) asset values and the "actuarial accrued liability." The actuarial accrued liability, like the PBO, incorporates a projection of future pay increases. It may be determined under a wide range of methods and assumptions, at the discretion of the plan actuary. As a result, GASB allows for a wide range of outcomes in valuing liabilities, depending on methods and assumptions employed. In determining the actuarial accrued liability, the actuarial convention is to discount future benefits not at a market settlement rate but at the actuary's assumed rate of future investment earnings, which includes a risk premium. The median earnings assumption of state pension plans is currently 8.0%.[4] This is roughly 250 basis points greater than long AA-corporate rates and more than 300 basis points greater than long Treasury rates have averaged in recent years.

No interpretation exists in the field of finance for the "accrued actuarial liability," because there is no economic logic for discounting riskless payments at a rate that reflects a sizeable risk premium. Strictly speaking, it can not be described as a present value.

Magnitude of the Difference. What is the magnitude of the difference between reported public pension liabilities and their fair value using a market settlement rate? The most recent National Association of State Retirement Administrators (NASRA) survey of 101 state plans estimates that those plans were 87% funded in 2005.[5] This funded ratio is based on the actuarial asset and liability values. I adjusted this figure to produce a rough approximation of the funded percentage of an ABO-type liability for those plans in 2005. The adjustment has three components. One is to remove the effect of assumed future pay increases in determining benefits to be discounted. This has the effect of improving the funded ratio. The second adjustment values the liability using a 5.5% discount rate. Inasmuch as the median discount rate for the plans in the NASRA survey was 8.0%, this has the effect of reducing the funded ratio significantly. The third adjustment substitutes the market value of assets for the actuarial value, which improves the ratio slightly.

With these adjustments, I estimate that the funded percentage of the ABO-type liability of the plans in the NASRA survey was roughly 75%. In 2005,

[4] See http://www.nasra.org for actuarial assumptions.
[5] http://www.nasra.org

public pension plans in the U.S. had aggregate assets of approximately $3 trillion, which implies that their aggregate ABO-type liability would have been roughly $4 trillion.[6] Therefore, the unfunded portion of the debt was roughly $1 trillion.

My rough estimate of the funded ratio of a PBO-type liability is 62%, which would put the unfunded PBO at approximately $1.8 trillion.

In summary, using basic financial principles, public pension benefits are worth a good deal more than the value at which they are being carried on the pension plans' books. The 2005 ABO was approximately $4 trillion and the PBO $4.8 trillion, while the actuarial value of liabilities on the books was approximately $3.5 trillion.

For the balance of our discussion, a fully funded plan shall be one for which the market value of assets equals the ABO. If assets exceed the ABO, the plan has a surplus. When assets fall short of the ABO – for whatever reason – the plan has a funding deficit.

Unintended Consequences. The actuarial convention of using an assumption about future investment earnings as the discount rate promotes use of a higher discount rate when a fund board selects an equity-oriented rather than bond-oriented investment policy. The higher the discount rate, all else the same, the lower the required taxpayer contribution will be for the current year.

Large public plans are equity-oriented investors, averaging 74% in equities of all types. Moreover, they are homogenously equity oriented; 50% of the funds have equity percentages of between 72% and 77%.[7] The high equity allocations provide important support for the use of a median earnings assumption as high as 8.0% net. Given the actuarial convention, politically sensitive public pension boards have an incentive to adopt equity-oriented investment polices: Doing so produces contribution rates 20% to 40% lower than what they would be if liabilities were valued using a market settlement rate.

Pension actuaries invariably maintain that actuarial assumptions are not intended to *drive* investment policy. In fact, this is precisely what happens in practice. It is the direct result of the actuarial convention of basing contribution requirements on an estimate of future return that ignores risk.

Allowing a plan sponsor to contribute less because an agent elects to take risk with trust investments makes no sense to financial people. Yet this is the actuarial funding convention for public pensions. It encourages fund boards to invest in equities, which, in turn, depresses the charge to current taxpayers. This makes public pension plans appear cheaper to maintain than a proper financial valuation would dictate.

Any cumulative contribution shortfall, of course, is made up for by future taxpayers. Thus, actuarial convention has the effect of systematically pushing some of the funding risk of pension obligations into the future.[8]

Wealth and Risk Transfers. Whenever a difference arises between the value of pension

[6] *Money Market Directory* for 2005 reports the value of public pension assets at $3.168 trillion.

[7] See http://www.cembenchmarking.com/surveys.aspx

[8] For an excellent discussion of risk transfer in public pensions, see Jeremy Gold, "Risk Transfer in Public Pension Plans," in *The Pension Challenge: Risk Transfers and Retirement Income Security*, Olivia S. Mitchell and Kent Smetters, Eds., Oxford Press, December 2003.

assets and the ABO, a wealth transfer occurs among generations of taxpayers. A pension deficit indicates that a wealth transfer from current and future taxpayers to past taxpayers has occurred. A surplus amounts to a wealth transfer from past taxpayers to present and future taxpayers. The only way to keep asset and liability values equal at all times – and thus to preclude such wealth transfers – is to fund benefits as they accrue *and* invest exclusively in bonds with characteristics similar to those of the liability. This is a truism, *not* an investment policy recommendation.

- *The pension put*. Wealth transfers are not just possible but actually inevitable when investment risk is introduced. Investment-driven wealth transfers may offset one another over time, but there is no assurance that they will; after all, they emanate from investment *risk*. To assume in advance that wealth transfers will wash out over time shifts risk from this generation to the next.

More generally, *the very existence of investment risk in a portfolio constitutes a wealth transfer from future to present taxpayers.* It is analogous to the *pension put* associated with the advent of the Pension Benefit Guaranty Corporation in the U.S. A pension put arises whenever the current bearer of pension fund investment risk stands to gain from risk-taking while laying off much if not all of the adverse consequences of risk on others. The "others" are the PBGC (and federal taxpayers, ultimately) in the case of corporate pensions in the U.S. and future taxpayers in a jurisdiction in the case of state and local pensions.[9]

- *Surplus abuse.* Other wealth transfers result from the disposition of any surpluses, however ephemeral they prove to be. Surpluses should be viewed first and foremost as reserves against possible future losses. Yet frequently lawmakers have used them to justify increasing benefits. Such benefit increases amount to a wealth transfer from future taxpayers to plan participants.

Lawmakers have also used surpluses (or what they have perceived as surplus) to justify lowering contribution rates excessively. Contribution holidays and other arbitrary breaks for current taxpayers that derive from surpluses represent wealth transfers from future taxpayers to current ones.

More generally, whenever lawmakers look upon a pension surplus as a windfall, future taxpayers face moral hazard. They're just not in a position to do anything about it.

- *Altruism, politics and targeting*. At the hands of lawmakers, future taxpayers are susceptible to other forms of moral hazard. One is *altruism* of the type associated with so-called social investments. Divestment of tobacco stocks is an example. Attempting to do good while investing pension funds may involve making a concession of some type, if only because it impinges upon an investment manager's ability to make the best investments possible. Costly geopolitical divestiture initiatives involving Sudan, Iran and "terrorism" have been rampant

[9] Assuming federal government will stand behind the PBGC, which it has no statutory responsibility to do.

> in recent years. Another problem is making *economically targeted investments* (so-called ETIs). In this case, the investment trustee is pressured to make investments that offer some presumed benefit to the state, such as job creation. In the author's experience, these investments often would not clear in the marketplace on their merits and require a politically motivated assist.

If concessions – in the form of uncompensated risk or illiquidity – are made for any reason, or greater costs than necessary are incurred, future taxpayers bear the cost.

Have our future taxpayers paid a price in fact? Let's look back over the last 25 years. I have noted that public funds earned a net return of approximately 11% per year over the last 25 years. I estimate that these funds faced a progression of assumed actuarial returns that would link to about 7% per year over this period. One dollar invested at 11% would have grown to $13.59 over the period. A dollar invested at 7% would have grown to $5.47. The ratio of actual over assumed cumulative wealth is approximately two and a half to one.

So, investment returns outpaced actuarial earnings assumptions by roughly 400 basis points a year over the last quarter century, implying existence of a large collective surplus today, all else the same.[10]

[10] Another factor is at work in the comparison of funded status over time: the initial conditions. Namely, public pension plans were much less than fully funded by conventional actuarial measures at the beginning of the 25-year period, which the calculations here ignore. That said, it is interesting to note that U.S. Treasury bonds yielded 13.75% at the end of 1981. That figure was roughly twice as great as then-prevailing actuarial earnings assumptions, which means ABO-type liabilities then would have been a fraction of conventional actuarial liabilities. Thus, we can only speculate about pensions' funded status 25 years ago on an ABO basis. In any event, this ambiguity does not alter the conclusion.

But as we saw earlier, the funded percentage of public pensions on a fair value basis is between 62% (PBO) and 75% (ABO). In other words, despite more than two decades of truly extraordinary investment returns, current and future taxpayers bear substantial unfunded pension liabilities for government services rendered in the past.

Taxpayer discontent is what ails public pensions. That discontent springs from two principal sources. One is actuarial convention that obscures and understates the fair value of pension benefits, which in turn pushes funding risk onto future taxpayers and masks the potential for significant wealth transfers. The other is the failure of many – not all, but many – lawmakers to manage public pension systems knowledgeably and responsibly.

Strengthening Public Pensions

The ideal long-run outcome is for public retirement systems to evolve into *quasi-autonomous financial institutions,* whereby each tub stands on its own bottom, so to speak. A number of steps can be taken to move in this direction, helping to preserve an otherwise effective system for providing retirement income for public employees.

1. Marking to Market. Lawmakers should know and taxpayers are entitled to know what benefits are worth based on fair value accounting principles. Without this, they have no way of knowing whether pensions are funded in fact or what type of wealth transfers are occurring. The ABO should be disclosed and compared with the market value of assets in order to track the funded status of the plan.

This is a very different logic than has prevailed traditionally in the operation of public pensions. The seriously flawed traditional logic is that because states have the power to tax, everything is assured of working out in the long run and, thus, so-called solvency measures are superfluous. One has only to reflect on the determined efforts to replace public DB plans with DC plans to see that the traditional view has failed the test of time. It's not an issue of the potential for sponsor insolvency. It's about the value of the obligation, the cost to extinguish it, and knowing upon whom the burden of that cost falls. In a word, it's about accountability.

For public employee retirement systems to be regarded as quasi-autonomous financial institutions and not merely line items on the state's balance sheet, they will have to account for their assets and liabilities in fair value terms. This means marking to market.

2. Funding Discipline. Lawmakers are responsible both for establishing pension benefits and for funding the plans. In the end, *these are the make-or-break decisions affecting the viability of public pensions*. A major part of funding comes from taxes. In principle, state lawmakers would (1) act responsibly with respect to the interests of taxpayers and (2) develop benefit and funding policies *in concert* with one another. Some lawmakers do not adhere to these principles. Some modify pension benefits in a reactionary mode; they react to lobbying. In some jurisdictions, setting pension contribution rates and making funding decisions are simply part of the horse-trading that characterizes the budgetary process. In short, lawmakers in some jurisdictions have failed to fund public pensions knowledgeably and responsibly.

   Lawmakers in the State of Maine have set a good example. Maine amended its constitution to require paying off unfunded liabilities as of July 1, 1997, in 31 years, or by the year 2028. The amendment also prohibits the creation of new unfunded liabilities. In practice, this means that if a benefit is improved, the legislature must fund *then* any past service liability associated with the change *and* increase the normal cost so as to cover the future liabilities. Experience losses are amortized over 10 years. The provision has teeth – it's written into the state constitution.

   Lawmakers must develop a better understanding of the workings of public pensions. They must make the connection between benefit and funding decisions. They should adopt constitutional amendments that ensure adequate funding of the ABO without exposing future taxpayers to unacceptable risk.

3. Risk-Sharing. Some pension experts believe a key to preserving DB plans is to introduce risk-sharing between plan sponsor and participants. For example, inflation-indexing of pre- or post-retirement benefits could be tied to the funded status of the plan. This design feature has the potential to reduce risk to future taxpayers significantly. It is common in the Netherlands and in the public sector in Canada. TIAA-CREF incorporates a risk-sharing feature in connection with its annuities.

4. **Multigenerational Awareness in Investment Planning.** Public pension sponsors need to begin taking into account the potential for wealth transfers in the operation of their plans. The asset-liability studies commonly used to justify investment policy for public funds generally ignore the differences between the interests of current and future taxpayers, erroneously treating taxpayers as a unitary constituency through time. Here lies a common fallacy of the theory of public pensions: namely, that because public pension plans in many respects face a very long-term time horizon, there is ample opportunity for benign inter-temporal investment-risk-sharing.

   Not so. Current taxpayers can be enriched at the expense of future taxpayers; at the same time, there is no way for any generation of taxpayers to share losses with (claw back moneys from) the prior generation. Investment policy analysts should take account of this severe limitation on inter-temporal risk-sharing and consider explicitly how policy alternatives may affect various generations of taxpayers.

5. **Investment Integrity.** Investment trustees are besieged nowadays by all manner of socio-political divestment and economic development initiatives. Some have been misled into believing it is their civic duty to deploy public pension funds in service of some greater good. Trustees must be reminded that their fiduciary duty is *exclusively* to plan participants. They should resist pressure to make concessions of any type, whether for social, political or targeted investments. Investment staff and legal counsel can play an important role in helping trustees discharge their responsibilities in this respect.

   More important by far, elected officials owe it to plan participants and taxpayers alike to stop meddling with public pension investments for social, political or economic development purposes.

Only when public pension systems advance along these lines will they realize the opportunity to evolve into quasi-autonomous financial institutions.

Investment Policy Conjecture

Imagine a world with better legislative oversight and sounder financial management practices. Here constitutional requirements would serve to eliminate unfunded liabilities over a fixed period and to provide funding for any new benefits. For the purpose of tracking funded status, liabilities would be valued as financial claims. Benefit formulas might well incorporate some form of risk-sharing. Contribution rates would not be reduced to reflect expected (hoped for) gains from risk-taking. And better protection of pension surpluses would exist.

In this new world, we might find pension investment policies *not* homogeneously equity-oriented. We might observe plans that have genuine surpluses and thus much to lose, as it were, holding more bonds. (Alas, few state plans would have a surplus if we were using the ABO.) At the same time, we might find poorly funded state plans, those with relatively little to lose and for which investment outcomes will have relatively little impact on future contribution rates, invested even more heavily in equities than they are today. (Under this particular theory, states' tolerance for risk with pension investments varies inversely with funded status.)

In all cases, we would almost certainly observe longer bond durations as pension liabilities come to be recognized as financial claims rather than inert actuarial figures.

And finally, introducing risk-sharing (relating inflation-indexing of benefits to funded status) would provide a sounder economic basis for participant input into investment policy than exists today. Under risk-sharing, participants would have a direct stake in investment outcomes.

This would be a world in which investment policy is not subverted by a failure of policy or practice. It would provide a more level field upon which pension fund investment policy could play out uncompromised. In this ideal world, authentic risk tolerances could emerge and become operative. And investment policy could evolve for the collective welfare of *all* the affected parties.

Conclusion

The defined benefit plan is an effective and efficient way to deliver retirement income to public workers. This institution should be preserved and strengthened. Ideally, public pension systems will evolve into quasi-autonomous financial institutions. For this to happen, the systems will need to mark assets and liabilities to market. Lawmakers will have to fund them consistently in accordance with sound actuarial practices and carefully manage the process by which they grant benefits in the future.

Finally, elected officials must respect the prerogative of lawfully appointed fund fiduciaries in managing investments, resisting the temptation to have the funds serve two masters.

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