

## PERSPECTIVES

# Proposed GASB Rules Show Why Only Market Valuation Fully Captures Public Pension Liabilities

Andrew G. Biggs

*The Governmental Accounting Standards Board has released preliminary views on how public sector pension plans should value benefit liabilities. Because the GASB's proposals ignore government's contingent liability to pay plan benefits should assets fall short, they omit the full value of plan liabilities and contradict the GASB's own standard of "interperiod equity."*

**T**he financial health of pension plans for state and local government employees has received increased public attention over the past several years. For instance, the Pew Center on the States reported that as of mid-2008, state government employee pension plans reported \$452 billion in underfunding.<sup>1</sup> Local government pensions are underfunded by hundreds of billions more.<sup>2</sup> Current pension funding health is likely even poorer owing to low asset returns since 2008. As a result, public pension reform has become an active policy and political issue in states across the country.

Alongside this public concern, an accounting debate has been brewing over the best way to measure public pension liabilities. Current actuarial methods discount benefit liabilities by using the expected return on plan assets, usually around 8 percent. Financial economists counter that a virtually guaranteed public pension benefit should be discounted by using a lower interest rate that reflects that guarantee. This market valuation approach would discount public pension liabilities at municipal bond or U.S. Treasury security interest rates, potentially increasing the value of unfunded liabilities to more than \$3 trillion.<sup>3</sup>

Having considered the market valuation debate since 2006, the Governmental Accounting Standards Board (GASB) issued a formal Invitation to Comment to gain input from interested parties in 2009.<sup>4</sup> On 16 June 2010, the GASB weighed in with preliminary recommendations for changes to public pension discounting that represented an

apparent compromise between current accounting practices and market valuation techniques.<sup>5</sup>

Unfortunately, the GASB's preliminary proposals will do little to settle this debate. The GASB recommendations pay lip service to the financial economics critique but do not fully capture the government's—and thus the taxpayer's—contingent liability to fund accrued public pension benefits should plan assets fall short. Nevertheless, examining the reasoning behind the preliminary GASB rules helps show why market valuation of public pension financing is the only method that fully recognizes the value of these liabilities.

The key disagreement concerns how to translate pensions' benefit liabilities, which may occur years and even decades in the future, into terms that allow for comparisons with the assets that the plans hold today. Once liabilities are in present value terms, plans calculate two principal measures: the ratio of assets to liabilities (the funding ratio) and the unfunded liability, which equals assets net of liabilities. The funding ratio is a common measure of a plan's financial health; the unfunded liability is an important value used in calculating the level of annual contributions that state governments should make to their pensions.

Although states are free to follow their own accounting and funding standards, most adhere to guidelines established by the GASB. Its Statement No. 27 recommends that the discount rate for the evaluation of pension liabilities be based on the long-term expected rate of return on assets held by the pension.<sup>6</sup> State employee pensions use a range of return assumptions, averaging around 8 percent. On the basis of these assumptions and methods, state pensions reported aggregate underfunding of

*Andrew G. Biggs is a resident scholar at the American Enterprise Institute, Washington, DC.*

\$452 billion as of mid-2008, with an average funding ratio of around 84 percent.

Overstating economists' disagreement with the actuarial approach would be difficult. In 2008, Donald Kohn, then vice chairman of the Fed, declared,

While economists are famous for disagreeing with each other on virtually every other conceivable issue, when it comes to this one there is no professional disagreement: The only appropriate way to calculate the present value of a very low-risk liability is to use a very low-risk discount rate.<sup>7</sup>

Likewise, Jeffrey Brown and David Wilcox observed, "Finance theory is unambiguous that the discount rate used to value future pension obligations should reflect the riskiness of the liabilities."<sup>8</sup> The market valuation approach is roughly consistent with private sector pension accounting standards, which require that liabilities be discounted at the interest rate paid on a portfolio of high-quality corporate bonds. Public pension benefits, which carry less risk of nonpayment than do private benefits, should thus be discounted at a lower interest rate.<sup>9</sup>

Under a risk-adjusted discount rate derived from U.S. Treasury securities, aggregate state employee pension underfunding exceeded \$3 trillion in 2008; average funding ratios declined from 84 percent to 45 percent. For context, the U.S. Department of Labor characterizes any private sector plan with funding below 65 percent as "critical." Higher estimated benefit liabilities would increase the annual government and employee contributions necessary to fully fund future liabilities.<sup>10</sup> Defenders of public sector pensions have strongly resisted the use of risk-adjusted discount rates.<sup>11</sup>

The GASB's June 2010 preliminary views included recommendations in various areas of pension accounting. Its views on discounting can best be explained through an example provided by the GASB itself:

If on a given date the obligation for pension benefits equals \$1 million, and the value of assets in the pension plan equals \$800,000, then the pension plan is responsible, first and foremost, for \$800,000 of the pension obligation. The government is primarily responsible for the remaining \$200,000 and secondarily responsible for the \$800,000, should the assets in the plan decline in value.<sup>12</sup>

A pension plan's overall liabilities for accrued benefits can be described as the sum of three subliabilities: the plan's liability for funded benefits, the government's liability for unfunded benefits, and the government's contingent liability for funded benefits should the plan's dedicated assets prove

insufficient. Although the GASB's approach, as previously outlined, is not exactly how an economist might frame the problem, it does fully encapsulate the liabilities associated with pension provision.

According to the GASB's proposals, funded liabilities would continue to be discounted at the expected return on the underlying assets. Unfunded liabilities without underlying assets, however, would be discounted by using a lower interest rate derived from high-quality municipal bonds.

A stylized example illustrates how this new formulation might compare with current methods and with a market valuation approach. Imagine a pension that owes benefits of \$1 million a year for the next 50 years. The pension plan holds \$10 million in assets, which it assumes will return 8 percent each year. Under current pension accounting practices, the plan discounts all future benefit liabilities by the 8 percent interest rate projected for plan assets. In contrast, economists would discount these liabilities at a risk-adjusted interest rate, generally ranging between 4 percent and 6 percent.<sup>13</sup>

Under the GASB's proposed method, the pension would calculate how long it expects its assets to last. In this case, the pension's \$1 million in assets earning 8 percent annual returns could pay full benefits from 2010 through 2025. Benefits during this funded period would be discounted at an 8 percent interest rate. Benefits from 2026 through 2050, which are unfunded, would be discounted by using an interest rate derived from an indexed portfolio of high-quality municipal bonds. Total plan liabilities would equal the sum of these two calculations.

This approach seems peculiar from the start, for two reasons. First, liabilities that are backed by assets—and presumably are more likely to be paid—are discounted at a higher rate than are liabilities without underlying assets. This approach is not merely inconsistent with economic theory—it is wholly contrary to it. Second, the use of a municipal bond index rate appears to be neither fish nor fowl: On the one hand, if unfunded liabilities are to be discounted by using an interest rate commensurate with the risk that plan sponsors intend for pension benefits (i.e., zero), then a U.S. Treasury rate is appropriate. On the other hand, if we wish to calculate the true market value of the liability, the interest rate would be based on the individual plan sponsor's ability to pay, in which case the plan sponsor's own bonds, not a market average, would be the appropriate source.

Even more important, this calculation completely ignores the GASB's own depiction of the government's contingent liability to pay funded benefits should the plan's assets fall short. In other words, the government acts as an implicit put option backing the plan's assets, yet the cost of this guarantee—which is borne by the taxpayer—is not included. The value of this implicit put option is high because of the correlation between low stock returns and other poor outcomes in the economy. That is, taxpayers would be obliged to supplement pension funding at precisely the time they are least able to do so.

Using the Black–Scholes option pricing formula and assumptions regarding the volatility of the pension's investment portfolio, one can easily calculate the cost of a government's contingent pension liabilities. The plan's total liabilities equal the cost of this implicit put option added to the plan's liabilities for funded and unfunded benefits. And the total liabilities calculated in this manner will almost precisely equal the liabilities calculated by using the market valuation approach of a risk-adjusted discount rate. Technically speaking, the liability calculated by using a risk-adjusted discount rate is equivalent to assuming that plans both purchase a put option protecting against the risk of assets falling short of liabilities and sell a call option giving up the right to any assets in excess of those needed to meet liabilities.<sup>14</sup> But because the implicit put option is so far in the money, the value of the call option is negligible.<sup>15</sup>

In other words, plan actuaries need not calculate the value of the implicit put option because it is already embedded in the more straightforward market valuation approach of discounting with a risk-adjusted interest rate. Simply put, the GASB's plain-English description of plan liabilities is correct, but its proposed calculations fail to match that description. When the math is corrected to match the English, the end product is simply market valuation.

The GASB's proposed discounting rules also help illustrate a distinction that is sometimes drawn between actuarial valuation and market valuation. Actuarial valuation of plan liabilities is occasionally portrayed as a funding-based measure, whereas market valuation is a liability-based measure. That is, actuaries calculate liabilities as an intermediate step toward determining how much plan sponsors need to contribute to the plan each year, whereas economists are sometimes portrayed as being fixated on the liability itself with little to say regarding how best to fund it. If that is the case, the market valuation debate has been founded

largely on confusion regarding why actuaries and economists calculate plan liabilities.

How one values a liability is a different question from how the liability should be funded, which depends on an outside set of criteria that economists refer to as an *objective function*. For most public pensions, the goal is *interperiod equity*, which means, in the GASB's terms, that "taxpayers of today pay for the services that they receive and the burden of payment for services today is not shifted to taxpayers of the future."<sup>16</sup> The GASB illustrates this concept with such terms as "living within our means" and "fairness."

The question then becomes, Does actuarial accounting encourage interperiod equity, even as a pure *funding* measure? The answer is no, because neither current accounting rules nor the GASB's proposed revisions account for the imposition of contingent liabilities on future generations. A public pension that funds guaranteed benefit liabilities with risky assets requires future taxpayers to back those assets with an implicit put option, the cost of which is both large and undisclosed. Using the same standard of interperiod equity, most economists would argue that a public pension should hold a cash flow matching portfolio that guarantees the plan the ability to pay liabilities as they arise. Such a portfolio insulates future taxpayers from the risk of poor returns on assets accumulated by prior generations. Note that the interest rate on this matching portfolio would be the appropriate rate with which to discount future liabilities for purposes of market valuation. The use of Treasury or municipal bond rates is an approximation based on the risk of default but does not imply that funds should hold only those assets.<sup>17</sup>

One might argue that government regularly imposes costs on future generations, so why should contingent pension liabilities be accounted for differently from other government costs? A comparison with the U.S. Social Security program illustrates several distinctions. First, accrued pension liabilities have a binding legal status that Social Security and other government benefits do not. Although the U.S. Supreme Court ruled in the 1960 case of *Flemming v. Nestor* that Social Security benefits can be changed by legislation at any time, state constitutions and legal precedents often preclude changes to accrued pension benefits (and, in some cases, to the right to accrue future benefits under current terms). Second, Social Security and other government programs do not share the public pensions' goal that each generation fund its own benefits. When Social Security was introduced, the plan was understood to pay initial participants benefits

significantly in excess of their tax contributions, with the result that succeeding generations would receive less.<sup>18</sup> Recent government programs, such as the prescription drug benefit under Medicare, follow the same pattern.

Technically speaking, the GASB's proposed revisions to its rules for discounting pension liabilities are a step in the right direction, in that they require plans to discount unfunded liabilities at a somewhat more appropriate interest rate. But the GASB's proposed changes do damage to financial analysis by continuing to ignore the value of con-

tingent pension liabilities and the value that financial markets place on them. These contingent liabilities are real, their value can be calculated, and this value should be put on the books so that policymakers and the public can debate how large they should be and how they might be funded. The GASB's proposed rules inadvertently illustrate why only a full market valuation approach can accomplish these goals.

*This article qualifies for 0.5 CE credit.*

## Notes

1. Pew Center on the States (2010). Unfunded liabilities for other postemployment benefits (OPEB)—principally, health coverage for retirees—make up the remainder of the \$1 trillion gap. OPEB are generally unfunded and, on the basis of the GASB rules, are discounted at a government bond interest rate. Thus, they do not figure in this discussion.
2. See Novy-Marx and Rauh (2010).
3. For example, see Novy-Marx and Rauh (2009); Biggs (2010).
4. For details on the progress of this evaluation, see [www.gasb.org/jsp/GASB/GASBContent\\_C/ProjectPage&cid=1176156645919](http://www.gasb.org/jsp/GASB/GASBContent_C/ProjectPage&cid=1176156645919).
5. GASB (2010a, 2010b).
6. GASB (1997).
7. Kohn (2008).
8. Brown and Wilcox (2009, p. 538).
9. Although economists almost universally agree that discounting liabilities at the expected return on assets is incorrect, analysts continue to debate what the correct discount rate should be. Brown and Wilcox (2009) have proposed a Treasury rate based on the risk of default. Others have argued that the Treasury rate includes a liquidity premium that may be omitted in discounting illiquid pension liabilities, thereby increasing the discount rate by approximately 1 percentage point; see Munnell, Aubrey, and Quinby (2010). And other researchers have argued that owing to long-term correlations between wage growth and equity returns, the optimal pension portfolio would include some stocks and the appropriate discount rate would incorporate some small risk premium, although nothing close to the full use of the expected return as under current practice; see Lucas and Zeldes (2009). Moreover, a subtle distinction exists between the market value of the liability, which can depend on the default risk of the sponsoring government entity, and the cost of financing the liability through market instruments with different (or at least diversified) default risks. Most analysts seem to oppose discounting pension liabilities at the interest rate on debt issued by the pension sponsor because of potential interactions. For instance, as a government entity becomes more indebted, overall interest rates on its debt will rise, reducing the present value of pension liabilities even if the probability of default on those liabilities does not increase.
10. Although states can and do make their own funding decisions, the GASB guidelines recommend an Annual Required Contribution to pension plans that would fund benefit liabilities accruing in that year, as well as amortize past unfunded liabilities over 30 years or so.
11. For example, see National Association of State Retirement Administrators (2007), which states that “the National Association of State Retirement Administrators believes the government financial reporting model should not be altered simply to appeal to the misguided perception of the need for public sector/private sector symmetry.”
12. GASB (2010b).
13. Here, I ignore questions about the proper risk-adjusted discount rate, accepting for the moment that a municipal bond interest rate would be appropriate. Using examples, Brown and Wilcox (2009), however, argued that the risk of default for an accrued public pension benefit is lower than that for explicit government debt, thereby justifying a lower discount rate. The experiences of such states as Colorado in their current attempts to reduce cost-of-living adjustments to public pension benefits will provide additional information pertinent to this issue.
14. See Biggs (2010).
15. Analytically speaking, whether the sale of a call option should be incorporated into such calculations is uncertain, given that both formal and informal mechanisms exist whereby strong asset returns tend to lead to benefit increases. For instance, Arizona's pensions have a provision whereby a portion of asset returns in excess of the projected average is set aside in a fund used to increase benefits rather than meet existing liabilities. Such provisions are described in Aronson, Dearden, and Munley (2009).
16. GASB (2009).
17. For more discussion, see Brown and Wilcox (2009).
18. See, for example, Schieber and Shoven (1999).

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