
Article from

# In The Public Interest

July 2018
Issue 17

# Measuring Public Pension Liabilities: A Discussion in Response to ALEC's "Unaccountable and Unaffordable"

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Anyone familiar with the operation of public pension plans in the U.S. is likely aware of the ongoing controversies as to how to measure the unfunded liabilities of such plans. Most of the discussion centers on the "discount rate" used to determine the present values on which those actuarial liabilities are based. One common source of confusion in this important policy discussion is that there are actually two different controversies.

First, there are two very different ways to select the discount rate, one based on the expected investment return on plan assets, and one based on current market yields on fixed income securities. The "expected cost" approach is used by most actuaries advising U.S. public pension plans on ongoing funding, and depends critically on the asset allocation of the plan assets. The "market pricing" approach is advocated by financial economists and is independent of how plan assets are invested.[1]

The second area of discussion is, for plans that base their discount on expected returns, are those expected return assumptions too high, and should they be reduced to what some consider more realistic levels.

These are both legitimate areas for both disagreement and productive discussion. The first issue, the so-called "MVL debate," is now about 10 years old and has been thoroughly discussed by the Governmental Accounting Standards Board (GASB) and the Actuarial Standards Board (ASB).[2,3] Regarding the second discussion, public pension plans across the U.S. are reviewing and reducing the expected returns they use as their discount rates.[4]

However, it is essential to keep in mind that these are two very different issues that both involve the same valuation parameter: the discount rate. Specifically, if a critic of current public pension practice says that a plan should lower its discount rate, this should immediately invite the question: Why? Is it because the critic thinks the plan should abandon the expected cost approach (discount rate based on *assumed* or expected return on assets) and instead adopt the market pricing approach (discount rate based on *observed* bond yields)? Or is the critic willing to continue using an expected return discount rate, but arguing that the expected return should be substantially lower (say, 6.5 percent instead of 7.5 percent)?

These very different arguments require different justifications and are subject to different responses. For example, as noted above under the expected cost approach the discount rate is an actuarial **assumption,** based on plan assets while under the market pricing approach it is a market **observation,** independent of plan assets. Thus, the "MVL debate" is over which of these two entirely different types of measures is appropriate for public sector pension plans, whether as the basis for funding or only as an additional disclosure.

In contrast, discussions of expected return are about more or less conservative values for the same type of measure.

Unfortunately, some critics conflate these two different arguments for a lower discount rate in a way that is at best confusing and at worst deceptive. A notable example of this sort of approach is the December 2017 publication by the American Legislative Exchange Council (ALEC) titled "Unaccountable and Unaffordable." ALEC so confuses the two different types of discount rates as to reach conclusions that are inconsistent with both the expected cost approach and the market pricing approach.

## THE "RISK-FREE RATE"

Understanding discount rates is an admittedly technical issue where careful use of terminology can be essential to avoid confusion. Conversely, misuse of terminology can make weakly argued positions sound convincing. In discussing discount rates, by far the most misunderstood and misused term is the so-called "risk-free rate."

In financial economics, the theoretical market discount rate for any stream of payments is developed as follows. You assemble a "reference" bond portfolio that has the same cash flows *and the same default risk* as the payment stream you want to value. Then the market discount rate is the yield rate on that portfolio, as determined by its current market price. The key here is that the

market discount rate depends critically on the default risk of the payment stream being valued. If there is a high default risk then your reference portfolio might include some lower credit quality junk bonds with very high yield rates. However, if the payment stream is a public sector pension, the default risk, i.e., the chance that the benefits will not be paid, is generally considered so low as to be practically zero. That means the theoretical reference portfolio will include only bonds of similarly low default risk, i.e., U.S. Treasuries with very low yield rates.

So the financial economists' risk-free rate really means a "default-risk-free rate," the rate the market would use to price a stream of payments with no default risk. The confusion comes when this term is used in a discussion of investment risk. In that context, a reader might think that "risk-free" means free of investment risk, so that using a risk-free discount rate (with a plan invested in reasonably risky assets) will eliminate the investment risk of not earning the discount rate. It won't. The only way to do that would be to actually invest plan assets in the no-risk reference portfolio, which of course is an asset allocation decision, not a plan valuation decision.

Throughout their report, ALEC refers to the (default-) risk-free discount rate favored by financial economists as the "estimated risk-free rate of return." They then use that mischaracterization of the *market pricing discount rate* to argue for its use as the *expected return* even if the plan is not invested solely in risk-free assets. By blurring the distinction between discount rate and expected return, the report makes fallacious arguments for lower expected returns, including the use of the spurious concept of a "risk-free expected return."

The conflation of the discount rate and investment return concepts is most clearly seen in the definition of discount rate found in the report's glossary:

> **Discount rate—**An investment return, expressed as a percentage, that the retirement plan's managers hope to achieve. It may be tied to the yield of U.S. Treasury bills, a stock market index or other measure.

This definition starts by saying that the discount rate is the expected ("hope to achieve") investment return on plan assets. It then says that investment return may be tied to a risk-free rate like US Treasury yields. This is false and misleading. If the discount rate is tied to U.S. Treasury yields then it is not based on the expected investment return. In other words, there is no risk-free expected return. If a plan uses U.S. Treasury yields as its discount rate that does *not* mean it is assuming a low expected investment return. It means it is setting its discount in a manner *unrelated* to its expected investment returns.

In effect, based on this faulty definition, the ALEC report is using the debate over which type of discount rate to use as an argument for lower expected returns. The central issue in the ongoing "MVL debate" is whether the discount rate should reflect the expected investment return on the fund's assets *or* reflect the current market yield of a security with a similar default risk as the projected benefit. In that debate, the market pricing proponents are not arguing that a balanced portfolio of stocks and bonds should be expected to earn the risk-free rate. And yet that is the entire basis of the ALEC report.[5]

Having muddled over a decade of serious professional debate by redefining key actuarial terminology in a manner inconsistent with both common technical usage and current actuarial standards, the report repeatedly claims that the yield on its synthetic Treasury bond represents "more reasonable long-term market performance expectations," "more realistic investment return assumptions," and "a more realistic estimate of each state's funding ratio," which "would protect taxpayers from having to bail out pension plans." Further extending this argument, the report accuses states of "flawed reporting," "faulty accounting," "work(ing) around these (accounting) requirements," and "overt mismanagement." This unwarranted criticism is based entirely on its misleading redefinition of key terminology and methodology in current actuarial and accounting standards set by the Actuarial Standards Board and the Governmental Accounting Standards Board.

The attached appendix presents a more complete list of errors and misstatements in the ALEC report.

## APPENDIX—ERRORS AND MISSTATEMENTS IN THE ALEC REPORT

### DISCOUNT RATE VS. ASSUMED INVESTMENT RETURN

As discussed, the report defines the discount rate to be equal to the assumed investment return and argues a synthetic Treasury yield is a reasonable assumed investment return. In contrast, the Actuarial Standards of Practice reflect the fact that the discount rate may be set equal to an assumed investment return, a rate approximated by market yields of a bond portfolio, or some other measure. Other than its faulty definition the ALEC report presents no arguments that the report's synthetic Treasury yield is a reasonable assumed investment return. The following misstatements are a result of the report's confusion between discount rate and assumed investment return:

P2 ¶2: "... alternative measures more consistent with prudent risk management and more reasonable long-term market performance expectations. This report clearly illuminates the pervasive pension underfunding across the nation and details the assumptions and trends contributing to this crisis."

P3 ¶1: "If net pension assets are determined using more realistic investment return assumptions, pension funding gaps are much wider than even the large sums reported in state financial documents."

P4, ¶3: "The Center for State Fiscal Reform at ALEC analyzes the annual official financial documents of more than 280 state-administered pension plans using more realistic investment return assumptions in order to gain a clearer picture of the pension problem. ... This year's study uses a risk-free rate of 2.142 percent, derived from an average of the 10- and 20-year U.S. Treasury bond yields over the course of 12 months spanning April 2016 to March 2017."

P4, ¶6: "Applying the estimated risk-free rate of return to the actuarial assets and actuarial liabilities reported by pension plans generates a more realistic estimate of each state's funding ratio."

P11, ¶5: "The public sector estimates of future returns are woefully delayed in responding to market reality. While 46 percent of pension funds reduced their discount rates to reflect poorer-than-expected returns over the past two decades, their reaction is too little too late. Even the lower rates adopted in 2016 are well above the risk-free rate that would protect taxpayers from having to bail out pension plans."

P16 ¶3: "Unlike GASB-directed CAFRs and Actuarial Valuation Reports, ALEC uses a more realistic valuation to determine the unfunded liabilities of public pension plans. ... ALEC uses a more prudent rate of return, based on the equivalent of a hypothetical 15-year U.S. Treasury bond yield. Since this is not presently offered as an investment instrument, the number is derived from an average of the 10- and 20-year bond yields. This year's number is averaged from the 12 months spanning April 2016 to March 2017. The resulting rate is 2.142 percent, a reduction of 0.202 percent compared to last year."

P24, ¶7 "**Discount rate**—An investment return, expressed as a percentage, that the retirement plan's managers hope to achieve. It may be tied to the yield of U.S. Treasury bills, a stock market index or other measure."

### STATES' REPORTING OF LIABILITIES IS FLAWED

Based on the conflated concepts of discount rate and investment returns, the report accuses states and public plans of flawed reporting and accounting practices when, in fact, states and plans are adhering to the standards promulgated by the Actuarial Standards Board and the Governmental Accounting Standards Board.

P2, ¶5: "... this report presents a more comprehensive picture of the problem, which is often obscured by the states' flawed reporting of liabilities."

P3, ¶4: "Faulty accounting and reporting methods obscure the magnitude of unfunded liabilities."

P3, ¶5: "Unfortunately, states have found ways to work around these (GASB) requirements. ..."

P11, ¶1: "The current pension crisis stems from overt mismanagement, failures to meet the actuarially required contribution, and subtle mismanagement, such as outdated mortality tables and unrealistic actuarial assumptions."

### PENSION PROTECTION ACT

The ALEC report compares the funding regulations applicable to private sector plans under the Pension Protection Act (PPA), but ignores that (1) private sector plan funding is based on a different funding method and (2) the rates applicable to private sector plan funding under PPA have been granted relief because of historically low fixed-income rates since they became effective. The discussions imply that private sector plan funding is based on risk-free rates when they are based on high-quality

corporate bond yields that produce higher rates than the ALEC report is advocating for use by public sector plans. In addition, the private sector discussion reflects the report's confusion between the concepts of discount rate and assumed investment return.

P5, ¶2: "If the Pension Protection Act were applied to the public sector, every single state would be considered at risk of defaulting on their pension obligations assuming a risk-free rate of return."

P11, ¶1: "Federal regulators require private sector pension managers to use a discount rate of approximately 4.5 percent, but turn a blind eye to the 7 or 8 percent assumed rates used by public sector managers."

P11, ¶3: "As a result, private sector pension funds usually have more conservative assumed rates of return, which increase their annual required contributions and diminish the risk of insolvency."

### INVESTMENT RETURN ASSUMPTION SETTING

The ALEC report states public sector assumed investment returns are based on historical rates whereas they are required to be estimates of future experience (that may consider historical data) or observations of estimates in market data. The report also quotes the Society of Actuaries Blue Ribbon Panel as supporting a risk-free rate of return assumption, using a quote that only supports such a rate if the second part of the quote is ignored.

P11, ¶3: "Generally, private sector pensions must base theirs (discount rates) on trends in the bond market whereas public sector pensions use their historic rates of return."

P11, ¶5: "... 46 percent of pension funds reduced their discount rates to reflect poorer-than-expected returns over the past two decades. ..."

P16, ¶4 "As the Society of Actuaries' Blue Ribbon Panel on Public Pension Plan Funding recommends, 'the rate of return assumption should be based primarily on the current risk-free rate **plus explicit risk premium** or on other similar forward-looking techniques.' " [emphasis added]

P24, ¶7 "**Discount rate**—An investment return, expressed as a percentage, that the retirement plan's managers hope to achieve. It may be tied to the yield of U.S. Treasury bills, a stock market index or other measure."

## CONCLUSION

The actuarial and accounting standards applicable to pension plan funding are re-evaluated and revised as necessary to provide accurate and complete information to stakeholders. Public pension plans and the actuaries consulting to them strive to adhere to both the letter and the spirit of those standards. The ALEC report authors' approach of redefining the terms used in these standards loses the clarity and precision needed for a robust professional debate on this important but technical issue. Specifically, for plans invested in reasonably risky assets, basing their argument for lower expected returns on an ill-defined and unavailable risk-free rate of return serves only to provide inaccurate but controversial talking points. State and local governments, public pension plans, government employees and the public deserve better information than the faulty conclusions based on misleading terminology found in the ALEC report.

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### ENDNOTES

1 For further discussion of the "expected cost" versus "market pricing" approaches to discount rate selection, including recent developments in both actuarial and accounting standards, see "Understanding the Valuation of Public Pension Liabilities, In the Public Interest" (Newsletter of the Society of Actuaries' Social Insurance & Public Finance Section), Jan. 12, 2016. *https://www.soa.org/Library/Newsletters/In-Public-Interest/2016/january/ipi-2016-iss12.pdf*.

2 The ongoing debate between (most) financial economists and public pension actuaries involves not only the type of discount rate but also the "cost method." Financial economists use an "accrued benefit" method based on benefits for current service and salary. Public pension actuaries use a "level cost" method based on an allocation of the expected cost of projected benefit, based on service and salary at retirement. The ALEC report does not address the use of different cost methods, so we will not either. See the reference in note 1 for more details.

3 The Actuarial Standards of Practice (ASOPs) state clearly that "the purpose of the measurement [is] a primary factor in selecting a discount rate." Examples of such purposes include funding, financial disclosure, settlement, and market valuation. See ASOP No. 27, Section 3.9 (ASB Doc. No. 172, September 2013). Similarly, ASOP N0. 4 emphasizes the purpose of the measurement when selecting the cost method described in note 2.

4 See for example the February 2018 Issue Brief on "Public Pension Plan Investment Return Assumptions" at Issue Briefs & Analysis @NASRA.org. *https://www.nasra.org/files/Issue%20Briefs/NASRAInvReturnAssumptBrief.pdf*.

5 The report's definition of discount rate also directly conflicts with ASOP 27 which, as noted earlier, states that the selection of the discount rate should consider the purpose of the measurement. In that context, the ASOP clearly distinguishes a discount rate based on "anticipated investment return" from discount rates "approximated by market yields for a hypothetical bond portfolio."