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COMMENT

COMMENT FOR ACTUARIAL STANDARDS BOARD HEARING ON PUBLIC PENSION ISSUES

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Should an alternative liability measurement be required and should this requirement be extended to pension plans beyond the public pension plan?

INTRODUCTION

Thank you for the opportunity to comment on public pension issues. My research as part of the State and Local Policy Project at the Mercatus Center at George Mason University has focused heavily on pension finance and the fiscal stress many state and local governments face due to the rising cost of funding plans and making benefit payments. I have undertaken analyses of the pension systems of New Jersey, Illinois, Rhode Island, Pennsylvania, and Alabama.

In this brief comment, I will focus on the correct framework to use in selecting the appropriate interest rate when valuing public pension sector liabilities. A framework based on economic principles will accurately measure the market value of these liabilities and is superior to the actuarial approach.

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THE ACTUARIAL VS. ECONOMIC FRAMEWORKS

A pension liability is deferred compensation based on a formula that generates a replacement salary in retirement, which comes with a legal guarantee of payment. An accurately computed annual contribution needs to be set aside to fund the pension plan. This contribution amount is derived from an accurate valuation of the liability based on the certainty and timing of payment. The controversy over what interest rate to select when valuing public sector pension liabilities is due to two different conceptual frameworks: the actuarial and the economic.

The actuarial framework begins with methods developed by actuarial science to calculate and fund pension benefits. As M. Barton Waring and others have documented, initially this science was focused on a practical and particular question: what funding policy will ensure benefits will be paid?[1]

The economic framework considers the pension liability separately from the assets used to pay benefits. Though the liability and assets bear a relationship to one another in the plan, they are independent in terms of their value. This approach flows from the insights of the Modigliani-Miller theorem, which states that a liability—a stream of future cash flows—is independent in value from the assets that are accumulated to pay for it.

It may appear counterintuitive, but when pension liabilities and assets are valued independently and according to the principles developed in financial economics, the result is a "pension plan in sync." The value and funding of the liability is no longer tied to market volatility or the vagaries of politicians seeking to minimize or defer annual contributions for short-term budgetary relief. This is expressed by the idea that the high expected asset returns permit the sponsor to take contribution holidays.

Under the actuarial approach, assets and liabilities are improperly linked together. Much like "crossed wires," the result is a pension plan that can short-circuit under certain circumstances, such as those culminating in the market crash of 2008. Crossing wires—or generating a present value for a riskless, legally guaranteed pension based on uncertain and risky asset returns—mismatches the value of assets and liabilities *and* generates a flawed logic that a bull stock market, or the ability to beat the market, is needed for a pension plan to properly function.

I recommend the actuarial profession adopt economic valuation of public pension liabilities. This is the same principle used to value US private pension plans, and public and private pensions internationally.

1. M. Barton Waring, *Pension Finance: Putting the Risks and Costs of Defined Benefit Plans Back under Your Control* (Hoboken, NJ: Wiley Finance, 2012).

INVESTING ASSETS

The question of how to invest the assets of the pension—how to fund the plan—is a separate one guided by another set of principles.[2] As Waring notes, "a sponsor cannot change the economic present value of the full economic liability, of future benefit payments, or of the accrued liability, through investment strategy decisions."[3]

While the wires have been crossed for decades, these systems have avoided malfunction by accident: portfolios were largely invested in low-risk bonds, and those bonds generated higher returns than in today's environment. In other words, while pensions were still being valued based on the expected return on assets—the wrong principle—the assets were low-risk or riskless, thus matching the nature of the liability more closely.

But as public plans, in search of higher yields, shifted more of their investment portfolios to equities, the flaw in this approach was revealed. More risk was introduced to the balance sheet and the discount rate used to value riskless pension liabilities (the actual number was not much different) was generated from higher-risk and uncertain asset returns. It is this mismatch, pairing riskless liabilities with risky assets, that leads to swings in funding and introduces volatility to what should be a steady and predictable system.

CHOICE OF RATE

To calculate the present value of that stream of future payments, the interest rate assumed (the discount rate) must match the riskiness and the timing of the payments. Since a public sector pension is a statutorily (and in some cases constitutionally) guaranteed payment to an employee, it follows that it carries the same amount of default risk as a government-guaranteed bond. The appropriate discount rate to select when determining the present value of a public pension is one that matches the return on a government bond.

The literature provides guidance on which low-risk or riskless rate to choose. Robert Novy-Marx and Joshua Rauh use unadjusted Treasury rates to value state pension plans and they also discuss the use of state-specific taxable municipal bonds in order to match the pension liability with other state debts.[4] The latter implies that a state may default or reduce a pension obligation under default conditions. A variation to this approach has been adopted by credit ratings agency Moody's Investors Service, which measures public pension liabilities based on a high-grade, long-term taxable bond index.[5] Another way of thinking about this is to ask what price an insurance company would pay to purchase pension liabilities from a government, a

2. One such approach is the Liability Matching Asset Portfolio developed by Waring, *Pension Finance*, in which the assets invested to hedge against the liability changing in value due to fluctuations in wages, interest rates, or inflation. This portfolio carries less risk than the portfolios as currently invested by US public pension plans.
3. Ibid., 47.
4. Robert Novy-Marx and Joshua Rauh, "The Liabilities and Risks of State Sponsored Pension Plans," *Journal of Economic Perspectives* 23, no. 4 (2009): 191–210.
5. Jennifer DePaul, "Moody's Changes Pension Analysis: 29 Face Possible Downgrade," *Bond Buyer*, April 17, 2013, http://www.bondbuyer.com/issues/122_74/moody-s-changes-pension-analysis-downgrades-possible-1050780-1.html.

concept developed more fully by Andrew Biggs in an options-pricing model,[6] and discussed by Jeremy Gold and Lawrence N. Bader in their critique of the actuarial approach.[7]

CONCLUSION

The current actuarial approach produces a skewed picture and encourages underfunding and risk taking. The result is the basis for the structural imbalance of pension plans that are currently under tremendous fiscal stress in the Illinois, New Jersey, and Pennsylvania state governments and many municipal governments. Economic valuation, which provides a true market value of the plan, is the only basis upon which these pension plans can operate with structural integrity and internal consistency to meet the obligations governments have promised to workers.

6. Andrew Biggs, "Understanding the True Cost of State and Local Pensions," *State Tax Notes, Tax Analysts*, February 13, 2012, https://www.aei.org/publication/understanding-the-true-cost-of-state-and-local-pensions/; Andrew Biggs, "An Options Pricing Method for Calculating the Market Price of Public Sector Pension Liabilities" (AEI Working Paper No. 164, American Enterprise Institute, Washington, DC, March 18, 2010), https://www.aei.org/publication/an-options-pricing-method-for-calculating-the-market-price-of-public-sector-pension-liabilities/.
7. Lawrence N. Bader and Jeremy Gold, "Reinventing Pension Actuarial Science," *Pension Forum* 15, no. 1 (2003), https://www.soa.org/Professional-Interests/Pension/Research-Thinking-Ahead/pen-joint-tf-library-pf.aspx.