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Dear Actuarial Standards Board Members:

I am grateful for the opportunity to comment on the Proposed Revision of ASOP No. 4 – Measuring Pension Obligations and Determining Pension Plan Costs or Contributions.

I am not an actuary and so on certain aspects of the Exposure Draft I lack the expertise to provide useful comments. I have, however, written extensively on public pension funding and risk-taking, including serving as co-vice chair of the Society of Actuaries Blue Ribbon Panel on Public Pension Funding. I currently have been given primary responsibility for public pensions in my role as a member of the federal government's Financial Oversight and Management Board for Puerto Rico. With that background, I hope the following comments may be helpful.

In my view, an Investment Risk Defeasement Measure (IRDM) constitutes an important addition to actuarial output that provides a more comprehensive measure of the economic costs of providing what most pensions promise: a benefit that will be paid to retirees without regard to the returns earned by the plan's investments. The present value of such a liability is most accurately measured using a discount rate matched to the risk of the benefit itself, as a risk-adjusted discount rate captures the cost of the implicit guarantee from the plan sponsor to make additional future contributions should plan returns fall below the assumed rate.[1]

My preference would be for an IRDM to be calculated as similarly as possible to the standard liability measure used by the actuary, with the exception of using a discount rate calibrated to the risk and duration of liabilities rather than the assumed return on a portfolio of risky assets. Changing only the discount rate isolates the degree to which the stated funding of the plan depends upon the realization of an investment risk premium that, by definition, cannot be counted upon with certainty.

An IRDM provides information that can be useful to pension sponsors as they make funding and investment decisions. As the Exposure Draft notes, one of the considerations facing a plan actuary is the "stability or predictability of periodic costs or actuarially determined contributions." When plan investment returns vary, this variation is carried through to volatility of required contributions from the sponsor. As I have shown in published work, required contributions can vary significantly from year to year even with the application of standard actuarial smoothing techniques.[2]

In this context, the difference between the standard liability measure and the IRDM represents the degree to which the sponsor has traded contribution volatility for a lower expected average level of contributions. Yet, as we have seen in the past decade, when a period of poor investment returns pushes required contributions too high, many sponsors cannot or will not make them in full. Even

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in 2017, a decade past the onset of the Great Recession, nearly one-fifth of plans listed in the Public Plans Database did not receive their full required contribution. Plan sponsors who learn that nearly half their purported funding is in fact based on assuming the receipt of an uncertain risk premium may instead choose to increase true funding and reduce excessive risk-taking. Doing so would likely lead to more stable system financing, more secure benefits for participants and less destabilization of sponsor budgets during an economic downturn.

Similarly, the Exposure Draft notes that a plan actuary must be concerned with intergenerational equity. Public plan funding adequacy measured relative to the IRDM indicates the degree to which taxpayers to date have *truly* fully funded the pension benefits accrued by the public employees who provided services to those taxpayers. The incremental plan funding measured relative to liabilities discounted at the expected return on risky assets indicates costs, in the form of investment risk, that will be borne by future generations of taxpayers who did not receive services from those groups of public employees. The application of standard options pricing techniques to pension financing shows that funding guaranteed benefits using the discount rate on risky investments unequivocally imposes net costs on future generations of taxpayers.

It is worth noting that the IRDM would provide a measure of pension liabilities at the plan level that is at least conceptually similar to aggregated measures of pension liabilities in the National Income and Product Accounts of the United States, generated by the Bureau of Economic Analysis. These IRDM-like pension liability figures also are published in the Federal Reserve's Financial Accounts of the United States. It seems appropriate that pensions report liabilities figures that are consistent with those published at the national level and, indeed, in other countries.

While the IRDM for system-wide liabilities is a very useful addition, it would also be helpful to policymakers for actuaries to publish the normal costs of plans calculated using the discount rate chosen for the IRDM. As pension costs have increased, policymakers have been forced to make decisions that reduce the value of future pension benefits. In making such decisions, and in comparing the value of pension benefits offered by a public sector plan to those offered to employees in the private sector, the normal cost calculated using a risk-appropriate discount rate provides the best measure of the value of benefits accruing to employees in coming years.[3]

On a technical level, the IRDM as described in the Exposure Draft does not work well as a sponsor liability measure for plans in which investment risk is shared with participants, although it does show the total value of risk borne by all plan stakeholders. A more sophisticated and flexible technique, such as a risk neutral stochastic simulation, could provide an IRDM-like measure for these hybrid plans.[4]

These caveats aside, the IRDM constitutes an important step in the direction of accurate and comprehensive measurement of the economic costs of the promises made by pension plans. Those costs are substantial and in some cases threaten to destabilize state or local government budgets. The Exposure Draft, if approved in similar form, would provide plan sponsors with additional useful information in making funding and investment decisions.

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Finally, I feel obliged to comment on accusations of a personal nature that the National Education Association levied in its July 26 letter to the Board regarding the Exposure Draft. The NEA cites a December 2015 *Forbes* article written by me that reported on a then-recent Congressional Budget Office analysis of Social Security replacement rates. Due to a programming error, the CBO analysis that I relied upon produced erroneous results. The CBO corrected these figures, and in a subsequent author's note to my *Forbes* article I noted that "the figures illustrated below are incorrect and should not be relied upon." Indeed, one reason the CBO realized their error was that, after failed attempt to replicate their figures, I raised the issue with CBO staff.

However, the NEA's July 26 letter accuses me of attempting to mislead the public:

> One might assume this was an error, but Mr. Biggs had served as principal deputy commissioner of the Social Security Administration and has even weighed in on technical matters regarding how to accurately measure Social Security's pay replacement levels as far back as 2005. Given that, he undoubtedly knows that Social Security only replaces about 40% of pre-retirement income.

In fact, I have long argued that the SSA actuaries' calculation of Social Security replacement rates – which produce the common 40% figure – differs meaningfully from replacement rates as calculated by financial planners or by most actuaries.[5] It was due to criticisms such as my own that in 2014 the Social Security Trustees removed measures of replacement rates from their annual report. The NEA's false accusations bear no relevance to their technical comments regarding the ASB Exposure Draft. However, the NEA's personal aspersions cast doubt on the degree of good faith with which it has chosen to conduct itself in an important public policy discussion.

Sincerely yours,

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[1] On pricing the implicit put option embedded in pension sponsorship see Biggs, Andrew G. "An options pricing method for calculating the market price of public sector pension liabilities." *Public Budgeting & Finance 31*, no. 3 (2011): 94-118.
[2] See Biggs, Andrew G. "The public pension quadrilemma: the intersection of investment risk and contribution risk." *The Journal of Retirement 2*, no. 1 (2014): 115-127.
[3] See Congressional Budget Office. "Comparing the Compensation of Federal and Private-Sector Employees, 2011 to 2015." April 25, 2017.
[4] Such an approach is outlined in Biggs, Andrew, Clark Burdick, and Kent Smetters. "Pricing personal account benefit guarantees: A simplified approach." In *Social Security Policy in a Changing Environment*, pp. 229-249. University of Chicago Press, 2009.
[5] While replacement rates commonly compare retirement benefits to final earnings immediately prior to retirement, the SSA instead measures benefits as a percentage of the average of the highest 35 years of pre-retirement earnings, where earnings are first adjusted upward at the rate of growth of national average wages. This approach, in particular the wage-indexed of past earnings, increases the denominator of the calculation and produces a lower average replacement rate figure. For a recent analysis see Biggs, Andrew George. "The Life Cycle Model, Replacement Rates, and Retirement Income Adequacy." *The Journal of Retirement Winter 2017*, 4 (3) 96-110.