

Concerned Actuaries

“EVERYONE IS ENTITLED TO HIS OWN OPINION, BUT NOT HIS OWN FACTS.”

Daniel Patrick Moynihan, U.S. Senator, NY, 1977-2001

CAN WE AGREE ON THESE FACTS THE PUBLIC SHOULD KNOW ABOUT PUBLIC PENSION PLANS?

Basics

The term Public Pension Plans (PPPs), as used in this overview, refers to defined benefit (DB) pension plans that cover employees of state and local governments. DB pension plans typically provide monthly benefits starting immediately when employees retire or become disabled while working. They also provide deferred benefits to former employees who leave employment before retirement age, and benefits to spouses of deceased employees. PPPs cover over 30 million participants in the US, including nearly 15 million current employees, 10 million retirees currently receiving benefit payments, and 6 million terminated vested employees whose benefits have not yet commenced.¹ This summary focuses on state and local plans, but some plans covering Federal employees may also be described as PPPs. Social Security is not a public pension plan for purposes of this analysis; its issues are addressed in the Concerned Actuaries' "Social Security Fact Sheet."

Benefit Amounts and Eligibility

PPP benefit amounts vary widely, but are typically defined by multiplying (a) years of service times (b) an annual accrual rate (e.g., 2%) times (c) the average of pay earned during a few years prior to retirement. Such formulas are called "final average pay" formulas. Full benefit formula amounts commence at a Normal Retirement Age ("NRA") based on age and/or service (for example, age 62, or age 55 with 25 years of service, or - for some uniformed employees - as few as 20 years of service regardless of age). Benefits may commence before NRA in reduced amounts (or after NRA in increased amounts). Often, benefits are increased by cost-of-living-adjustments.

Contributions and Financing Structure

Contributions to PPPs are made by employers and usually by employees as well. Contributions are held in a trust, and invested – typically in a mix of asset types composed primarily of stocks and bonds. Benefits and administrative expenses are paid from the trust as they fall due.

Solvency and Funded Status

The funded status of PPPs is measured by comparing benefit liabilities against plan assets. The excess of a plan's liabilities over its assets is referred to as the "unfunded liability". The ratio of a plan's assets to its liabilities is referred to as the "funded ratio", and is usually expressed as a percentage.

Public pension plans in the U.S. are severely underfunded at the present time, despite the fact that they were relatively well funded at the beginning of this century. When PPP accrued benefit liabilities² are valued using risk-free (US Treasury) rates to discount future benefit payments – a solvency measure preferred by financial economists to determine the security of benefits earned to date - the estimated underfunding as of June 30, 2016 was over \$5 trillion, and the estimated funded ratio was approximately 40%.³ Due to rising interest rates and stock market gains during the second half of 2016, the estimated underfunding has fallen below \$5 trillion, and the estimated funded ratio has increased to approximately 50%. While improved, a 50% funded ratio is still extremely problematic, and the 10% change in the funded ratio over such a short time period reflects the lack of correlation between PPP benefit liabilities and the assets that back up PPP benefit promises.

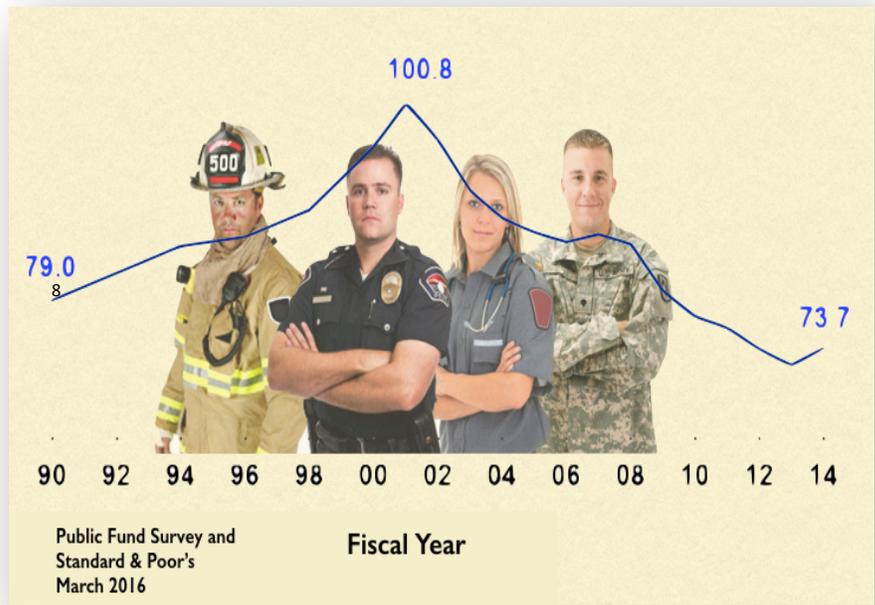
However, neither actuaries (in developing recommended contribution levels for PPPs acceptable under actuarial standards) nor accountants (in reporting annual costs and balance sheet liabilities associated with PPPs based on GASB accounting standards) use the model preferred by financial economists. Instead, their measurements are based on actuarial liabilities⁴, which discount future benefit payments based on expected returns on plan assets. Such expected returns are much higher than ⁵present risk free rates, resulting in higher reported PPP funded ratios and lower reported PPP underfunding.

Even when measured using the higher discount rates used by actuaries and accountants, however, PPP liabilities are badly underfunded. Based on the latest fiscal reports from state and local government sponsors⁵ and on Milliman's 2016 Public Pension Funding Study, we estimate that unfunded actuarial liabilities for PPPs in the US were almost \$2 trillion as of June 30, 2016,

Solvency and Funded Status (continued)

reflecting assets at market value and using discount rates averaging approximately 7% per year to measure such actuarial liabilities.⁶ Funded ratios for actuarial liabilities rose sharply in the 1990's (from roughly 80% to 100%) because of the stock market boom, but have fallen dramatically since 2000 (to just over 73% based on the most recent values reported by plan sponsors, but only 67% when updated to June 30, 2016 under the 7% discount rate assumption noted above). As shown in the graph to the right, funded ratios are now well below their 1990 levels, as this century's poor asset performance – together with the failure of many PPP sponsors to make full recommended contributions over the past 25 years - have reversed all of the asset gains of the 1990s and then some.⁷

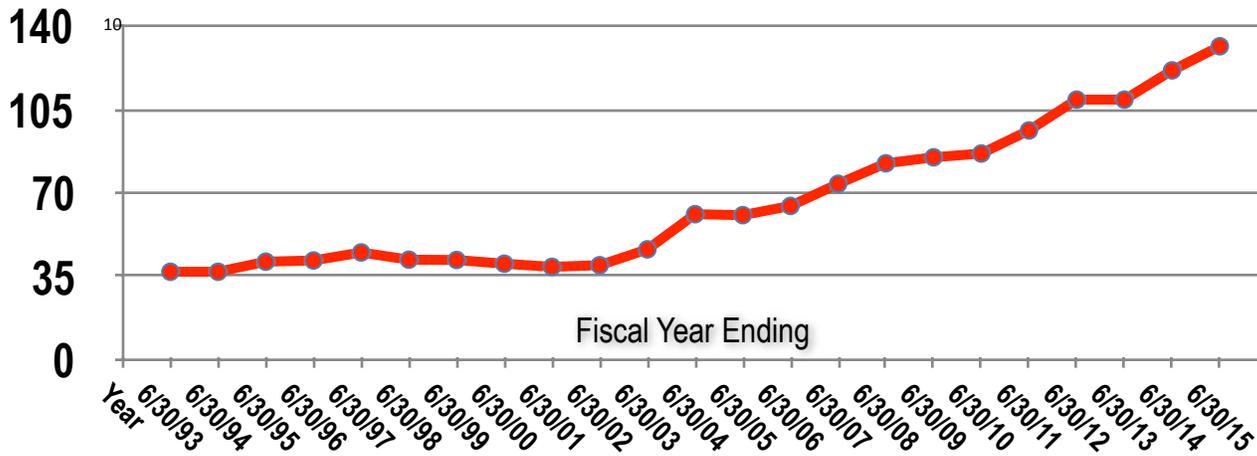
PPP Funded Ratio (%'s)



Sustainability

During the 1990's, employer contributions remained relatively flat. The stock market boom enabled PPPs to become fully funded without increasing contribution levels. Between June 30, 1992 and June 30, 2000, the S&P500 rose 244%, for an average annual return of 13%. However, so far this century, stock market performance has been weak. Between June 30, 2000 and June 30, 2016, the S&P 500 rose only 51%, for an average annual return of only 2.6%. As a result, employer contributions to PPPs have increased dramatically. Sponsor contributions rose from \$39.5 billion in 2002 to \$131.7 billion in 2015.⁸ This represents an average increase of 9.7% per year over 13 years, despite the fact that many PPP sponsors have actually contributed less than the full recommended contribution increases. In the New York City retirement system, where the law requires that full recommended contributions be made, contribution increases have been even more dramatic.⁹

PPP Employer Contributions: 1993-2015 (\$ Billions)



It is worth noting that employer contributions increased by 52% (from \$86.5 billion to \$131.7 billion) between 2010 and 2015, even though stock prices doubled in value during that period. Those increases were largely the result of actuarial asset and direct contribution smoothing techniques that delayed recognition of 2008's heavy investment losses. If assumed discount rates (which fell from 8.00% to 7.65% during that period, and to 7.50% for 2016) continue to decline, contributions may continue to rise.

Realistic rather than optimistic contribution levels are needed to restore PPPs to sound funded status. But higher PPP contribution levels will place increased pressure on budgets. In typical cases, they will result in some combination of reduced compensation and pension benefit accruals, increased taxes and borrowing, and/or cutbacks in public services. In severe cases (e.g., Detroit, Stockton, Puerto Rico, etc.) bondholders will also be forced to absorb losses via bankruptcy or similar proceedings. If even bankruptcy fails to resolve the funding problems, participants may see cuts in the benefits they have earned, and/or taxpayers of other governmental units (including, perhaps, other states) might be asked to help bail out PPP participants

Facts of Concern Complicating PPP Funding Problems

- Most PPPs are the product of decades of negotiation between employee representatives (unions) and taxpayer representatives (elected officials). Benefit and employee contribution levels are set via negotiations, while employer contribution levels are not.
- Most PPPs are the product of decades of negotiation between employee representatives (unions) and taxpayer representatives (elected officials). Benefit and employee contribution levels are set via negotiations, while employer contribution levels are not. PPP stakeholders may face competing interests, and often have interests that conflict with those of other stakeholders. For example:
 - PPP participants want high benefit and low employee contribution levels, while taxpayers want high quality services for a low cost.
 - Government bondholders want PPPs to be well funded, to minimize risk to them; but elected officials face pressure to lower plan contributions, so funds can be freed up for other purposes.
 - Elected officials negotiating benefit levels represent taxpayers (who want labor costs controlled) but also seek support from the unions with whom they are negotiating (and the employees they represent).
 - Trustees (and the investment professionals and actuaries who are hired and retained by them) owe a duty to participants to ensure that PPPs are soundly funded, but often face political pressure to make recommended employer contribution levels appear low.
- For example, the median discount rate reported by sponsors of the 100 largest PPPs in Milliman's 2016 PPP Funding Study was 7.50%. When Milliman recalibrated rate was only 6.99%, which suggests that government sponsors may be using overly optimistic discount rates by applying its own capital market real return assumptions to each PPP's asset mix and inflation assumption, the median recalibrated discount rates even within the context of their "expected return" models.
- PPP's also face competing public finance principles and objectives. Chief among them are:
 - **Intergenerational Equity:** "It is widely agreed that each generation of taxpayers should pay the full cost of the public services it elects to receive."¹⁰ PPP underfunding means that costs incurred in the past have been transferred to future generations of taxpayers. This suggests that PPPs should be kept fully funded.
 - **Solvency:** In order for benefits *earned to date* to be fully secure, there must be underlying assets invested in risk-free investments (i.e., US treasuries) with cash flows that match the expected amounts and timing of the future payments associated with such accrued benefits.
 - **Adequate Funding Levels:** If assets are accumulated to full solvency levels, but are invested in non-risk free assets that ultimately do not earn more than risk free rates, past years' taxpayers may turn out to have paid more than necessary to fund the PPP's benefits, to the benefit of future years' taxpayers (who will pay less, as such investment gains emerge). On the other hand, if assets are accumulated to lesser levels, and investments fail to earn the optimistic assumed rates of return, the reverse will occur – as the charts on page 2 indicate. Both scenarios can result in an imbalance in intergenerational equity. This raises public issues both as to how plan assets should be invested, and what level of funding should be considered "adequate" (and targeted accordingly).
 - **Contribution Stability:** Plan sponsors prefer stable costs from year to year. If costs for services go up in one area, other services may have to be curtailed or postponed. But DB plans carry inherent cost risks for employers. As a result, employer PPP contribution levels can vary significantly from year to year. In the past, when PPP costs have risen (e.g., due to stock market declines), employers have often contributed less in subsequent years than the full increases called for. Such budget-driven underpayments transfer the PPP's costs from current year taxpayers to future years' taxpayers, in opposition to the notion of intergenerational equity.
- In the private sector, corporations have been engaged in DB pension plan cost control for decades. Measures have included:
 - Converting final average pay DB plans to Cash Balance plans;
 - Closing DB plans to new hires ("soft freezes");
 - Freezing DB benefit accruals ("hard freezes");
 - Providing future accruals under Defined Contribution (DC) plans, such as 401(k) plans; and
 - Plan terminations and risk transfers (lump sums or insurance company annuities).
- PPP members and their unions have resisted changes such as those adopted by the private sector. In many states, constitutional and contractual terms make it nearly impossible to curtail benefits for current employees. In the face of mounting public concern regarding increasing pension costs, the PPP community has banded together. Unions and their allies among elected officials are frequently joined by trade organizations and retiree interest groups (e.g., NASRA, NCPERS, NCTR, AARP, etc.) as well as by asset management firms in defending the status quo. Transparent disclosure has been resisted by such vested interests. For example, four times in the last six years, the Public Employee Pension Transparency Act (PEPTA) has been introduced in Congress. Such groups have successfully opposed efforts by the bill's sponsors to advance it.

PUBLIC PENSION PLAN QUESTIONS FOR THE PUBLIC

The poor funded status and high contribution levels of PPPs raise issues for the public, including:

- Should pension promises made to PPP participants be inviolable? Or, if PPP sponsors fail financially, should participant benefits be at risk to the extent not funded?
- Should benefit changes of the type that have been implemented in the private sector be introduced for public sector employees, as well?
- Should sponsor contributions to PPPs be prioritized by law? Or should employer practices of contributing less than full recommended contributions be allowed to continue?
- Should PPP assets continue to be heavily invested in risky asset classes, in the hope that higher yields will lower costs over the long term? Even for retirees?

PUBLIC PENSION PLAN QUESTIONS FOR THE ACTUARIAL COMMUNITY

In the PPP arena, actuaries are relied upon by stakeholders to provide skilled, objective, unbiased professional services. At the same time, there may be real and/or perceived pressure on actuaries:

- to present stable recommended contribution levels, even during volatile financial periods;
- to understate liabilities and recommended current year contribution levels;
- to not emphasize or disclose expected future contribution patterns; and
- to not disclose solvency measures of funded status and current year costs.

In order both to inform the public and to protect actuaries from even the appearance of impropriety, should the actuarial profession demand – via Actuarial Standards of Practice – certain types of disclosures in the interest of transparency, even if such disclosures would not necessarily be welcomed by some of the PPP’s principals? For example:

- Disclosure of accrued liabilities and costs on a risk-free (solvency) basis?
- Expanded disclosures regarding the expected return / discount rate assumption, along with plan-specific rationales as to how the selected assumption falls within a reasonable range?
- Disclosure of projected future contributions, benefits and plan compensation, for the participants included in the valuation, assuming all actuarial assumptions are exactly met:
 - Under the PPP’s actual actuarial cost method; and
 - Under a “standard” actuarial cost method, reflecting market value assets?
- Disclosure of historical PPP contribution and compensation levels under the following bases:
 - Recommended contributions under the PPP’s actual actuarial cost method;
 - Recommended contributions under the “standard” actuarial cost method;
 - Actual historical contributions?

ENDNOTES

1. US Census Bureau: 2015 Survey of Public Pensions – State and Locally Administered - Summary Data <https://www.census.gov/govs/retire/>
2. See endnote 5, below.
3. Relatively few PPPs report solvency liabilities, but until recently the New York City retirement plans did. In 2013, NYC Retirement System Plans (excluding Board of Education) reported market value assets amounting to only 37% of accrued benefit liabilities as of June 30, 2012 based on risk free rates (which averaged 2.4% at that time).
4. The term “actuarial liabilities” refers to liabilities calculated in accordance with GASB Statements No. 67 and 68, which call for use of the Individual Entry Age actuarial cost method. The “actuarial liability” calculated under this method is greater than the “accrued benefit liability” (which reflects pay and service earned to date) when the same assumptions are used. However, if a lower discount rate is used to measure the accrued benefit liability, it can exceed the actuarial liability measured at a higher discount rate.
5. Milliman: 2016 Public Pension Funding Study. Reported unfunded actuarial liabilities totaled \$1.2 trillion for the 100 largest PPPs, based on a median discount rate of 7.5%. When recalibrated based on a median discount rate of 6.99%, reflecting Milliman’s capital market expectations, and rolled forward to June 30, 2016, the unfunded actuarial liability increased to \$1.6 trillion. But the 100 largest PPPs accounted for only 85% of all PPP assets, suggesting estimated unfunded actuarial liabilities for all PPPs might approximate \$1.9 trillion as of June 30, 2016, reflecting assets of approximately \$3.8 trillion and actuarial liabilities of \$5.7 trillion.
6. Ibid.
7. NASRA Public Fund Survey – March 2016 – Summary of Findings for FY 2014, and Ibid.
8. US Census Bureau: 2011 and 2015 Surveys of Public Pensions – State and Locally Administered
9. 2015 Comprehensive Annual Reports of NYC Retirement Systems. Contributions to NYC Retirement System Plans (excluding Board of Education) increased from \$0.7 billion in 2000 to \$9.7 billion in 2015 – an average increase of 19.4% per year - and represented 38.9% of covered payroll in 2015, compared to only 4.6% of covered payroll in 2000.
10. Munnell, Alicia H. 2012. *State and Local Pensions What Now?* The Brookings Institution. Chapter 3 (opening sentence).