April 2019

MPERS
Defined Benefit Funding

Each year the retained actuary completes a valuation report that identifies, among many other things, the contribution rate necessary to fund the benefits MPERS administers. The report is produced in September so the employer contribution rate can be certified and shared with each covered employer by October 1. The timing is intended to support effective planning for budget purposes. The aforementioned contribution rate is identified as a percentage of covered employee payroll. It is important to recognize that investment income is a critical component to the cost of a pension plan. Historically, the investment income from MPERS' assets covers approximately half of the benefits that are paid to benefit recipients. There are many terms specific to the industry and questions associated with the funding process. Below are the more common components of the process.

What is a defined benefit (DB) pension plan? A DB plan is a pension plan that makes a promise to pay specific benefits to eligible plan members upon retirement for life. A typical benefit formula for a DB plan defines the annual pension benefit as some specific percentage of final average compensation multiplied by years of service. Most importantly, a defined benefit annuity does not end during the member's lifetime no matter how long the member lives.

What is an actuary? An actuary is a person trained to evaluate financial risks, usually related to the probability and timing of certain events occurring. The actuary helps to predict the cost of future pension benefits by studying a wide range of factors. Then, by applying well-established principles, the actuary uses these factors to evaluate uncertain future events so that plan sponsors can plan (and begin to pay) for those events now.

What is an actuarial valuation? An actuarial valuation is a study performed periodically (annually for MPERS) by an actuary to evaluate the adequacy of the contributions made to a defined benefit plan to ensure the sustainability of the benefits offered. This evaluation considers many factors including the age, mortality and other demographic factors of the membership, member terminations and turnover, and pension fund investment performance. This is the first step in developing a funding roadmap for the plan and is designed to produce a stable and predictable pattern of funding.

What is the role of the actuary in a DB plan? In the world of public pensions, perhaps the most important role of the actuary is to calculate the level of contributions, when combined with expected investment income, to provide the promised retirement benefits over the long term. The process of making contributions over a period of time to allow accumulated assets to grow along with investment income to help pay the benefits is generally referred to as prefunding.

What are actuarial assumptions and how are they used? Actuarial assumptions are factors which actuaries use in estimating the cost of funding a defined benefit pension plan. Examples include: the rate of return on plan investments; mortality rates; and the rates at which plan participants are expected to leave the system because of retirement, disability, termination, etc. A summary of the MPERS economic assumptions is included at the end of this paper.

Why is prefunding preferable to a pay-as-you-go funding arrangement? The concept of prefunding involves collecting contributions on a level percent of payroll in the early years so as to exceed benefit payments, in other words, to build up a balance in order to pay benefits in the future for future retirees. Because contributions exceed benefits with prefunding, the excess funds are used to create an investment fund. Contribution income and a portion of the return on invested assets are expected to provide benefits during the later years of the system when benefits will exceed contributions. The plan puts aside money (and invests it) for each year of a member's service, thereby allowing it to benefit from investment income earned during the member's working career. This approach helps "smooth" pension costs over many decades, provides the most flexibility to deal with unknown factors, and thereby proves to be the most equitable and cost-efficient approach to retirement funding.

How are the costs of the plan determined? The cost of the plan is based upon the provisions (retirement eligibility, benefit formulas, cost-of-living adjustments, etc.) that make up the plan. The actuary considers the plan provisions and determines the anticipated cost of the plan.

The MPERS statutes require the use of an entry age normal cost method. What is that? The entry age normal cost method is a standard actuarial funding method. The annual cost of benefits under this method is comprised of two components: 1) normal cost and 2) amortization of the unfunded liability. The normal cost is determined on an individual basis, from a member's age at plan entry, and is designed to be a level percentage of pay throughout a member's career.

What makes up the liabilities of a defined benefit plan? The liabilities of a DB plan are the values of the benefit promises made to all plan members. If plan assets are insufficient to cover all plan liabilities, the plan is said to have an **unfunded liability**.

What is an unfunded liability? The term unfunded pension liability is often misunderstood by those outside of the pension industry. Some people believe that a plan with an unfunded liability does not have the assets required to pay current benefits. Another misconception is that the employers have not made the actuarially determined contributions. Because pension funding is a long-term arrangement intended to be carried out over a long period of time, it is often compared to a home mortgage. It is not necessarily a bad thing to have a mortgage; however, what is important is whether or not there is a sound plan for paying off the mortgage over a reasonable period of time. Unfunded liabilities accompanied by a sound plan for paying them off do not present a cause for concern.

What is the normal cost? A plan's normal cost generally represents benefits and expenses that have accrued on behalf of the member during a given year and that are expected to be accrued annually in the future. Another way to think of normal cost is the projected ongoing cost of your retirement program, assuming that everything goes as the actuary has assumed and no future changes are made to already-promised benefits. The normal cost is the value of the benefits accruing in a given year based on the cost method, i.e., the entry age cost method for MPERS.

What is the accrued liability? A plan's accrued liability is the amount of money needed to pay the benefits that arise from participants' past service accumulated as of the valuation date. It can also be thought of as the expected present value of all past normal costs.

What is a plan's funded ratio? This number is the ratio of the actuarial value of plan assets to the actuarial accrued liabilities and is determined by dividing the value of the assets by the liabilities.

What is the actuarially determined contribution? The actuarially determined contribution is the level of contributions, often expressed as a percentage of covered salary, determined by the actuary to be necessary to fully fund a pension plan by the full funding date. The full funding date coincides with the end of the amortization period in the funding policy.

Summary of Actuarial Assumptions and Methods

Valuation Date	June 30, annually
Actuarial Cost Method	Entry age normal
Amortization Method	Level percent of payroll, closed
Remaining Amortization Period	*14 years
Asset Valuation Method	3 year smoothing
Actuarial Assumptions:	
Investment Rate of Return	7.0%
Projected Salary Increase	3.0% to 12.45%
Cost-of-Living Adjustments	1.8% compound
Price Inflation	3.0%

*Permanent funding policy: The total contribution will be based on normal cost plus a 29-year amortization of unfunded actuarial accrued liabilities as of July 1, 2007. As of July 1, 2019, the amortization period is 17 years.

Temporary accelerated policy: The total contribution is based on normal cost plus a 6-year amortization period for unfunded retiree liabilities and a 21-year amortization period for other unfunded liabilities. Both amortization periods are closed periods starting July 1, 2019.

The temporary accelerated policy was adopted by the Board on September 17, 2009, and will remain in effect until such time as the retiree liability becomes 100% funded or the permanent policy produces a higher contribution rate.