State and Local Government Pension Funding on the Eve of the COVID-19 Recession

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Abstract
This article examines the funding of public pension plans through 2019. Particular attention is paid to the impact of the Governmental Accounting Standards Board’s Standard No. 68. It addressed (1) discount rates, (2) amortization periods, (3) asset valuation and smoothing, and (4) the actuarial cost method used. The combined effect of these measures has been to increase the amount of public pension underfunding significantly. The actuarial funded ratio of the 126 plans in the Public Plans Database went from 101.9 in 2001 to 71.9 in 2019, on the eve of the COVID-19 recession. It will no doubt continue to worsen in the years ahead. The extent of that likely worsening is also explored.

Keywords
public pensions, pension funding, Governmental Accounting Standards Board, amortization periods, COVID-19

This article examines how public pension plan funding works, with particular attention to the impact of the Governmental Accounting Standards Board (GASB) rules. It also examines the likely impact of the COVID-19 recession on state and local government pension funding.

Overview of Public Pensions
There are 6,276 state and local government pension plans in the United States: 299 are administered by states and 5,977 by local governments. At the end of FY 2019, state and local government pension plans had 26.9 million members; 13.3 million were active (working and contributing) participants, 10.0 million were beneficiaries (annuitants), and 4.0 million were inactive vested former employees. Once an inactive vested former employee starts collecting pension benefits, he or she becomes a beneficiary. The ratio of actives to beneficiaries was 1.3.1

State and local government employees make up 13.8% of the U.S. workforce. About 25% of them are not covered by Social Security, including nearly half of all teachers and two-thirds of public safety officers and firefighters.2

Pension Plan Accounting
Private-sector pension plans are subject to the accounting and reporting requirements of the

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Financial Accounting Standards Board (FASB) which must comply with the provisions of the Employee Retirement Income Security Act of 1974 (Pub. L. 93-406; ERISA), as amended, and other federal laws. ERISA also established the Pension Benefit Guaranty Corporation (PBGC) to insure the earned benefits of private-sector defined-benefit (DB) pension plans (within limits).

Public-sector pension plans are not subject to the ERISA, and thus, their benefits are not insured by the PBGC. When enacted in 1974, the ERISA required that existing private-sector DB pension plans would become fully funded over 40 years (a 40-year amortization period). New plans and improvements to existing plans had 30 years. In order to protect the PBGC from having to acquire the benefit obligations of seriously underfunded plans, the full funding requirement was strengthened a number of times, most recently by the Pension Protection Act of 2006 (Pub. L. 109-280). It is now 7 years. That is, private-sector employers are required to amortize their unfunded pension obligation over 7 years. The plan’s total unfunded liability is divided by seven to get the amount that, when added to the plan’s “normal cost” (annual benefit payments and administrative expenses), is the employer’s “annual required contribution” (ARC).

In 2015, the ARC was replaced with a new term, the “actuarially determined contribution” (ADC). This made sense. Employers were never really required to make their annual contributions, and they often contributed less; sometimes, much less. However, the two terms are essentially the same and are often used interchangeably. For the remainder of this article, we will use the combined ARC/ADC.

In 1984, the GASB was created to provide accounting and reporting standards for state and local governmental pension plans. FASB and GASB standards comprise the Generally Accepted Accounting Practices (GAAPs) for their respective sectors. It is generally required that financial statements comply with the GAAPs to gain a “clean audit.” The GASB has no enforcement powers. However, almost all states require that accounting and reporting by state and local governments and their pension plans be GAAP compliant.

Since public pension plans do not have PBGC-type benefit insurance, little attention was paid to their funding requirements until recently. GASB did not adopt a 40-year full funding requirement until the mid-1990s. It was reduced to 30 years in 2006. It was assumed that since governments are perpetual and since they have the power to tax, they do not need pension benefit insurance.

How Public Pension Funding Works

Unlike the private sector, almost all public-sector DB pension plans are “contributary.” Participants make an “elective deferral.” This allows them to make pension contributions with pretax dollars. The subsequent pension benefit payments are then taxed as ordinary income. Public employee contribution is typically set by state statute or local government ordinance as a fixed percentage of earnings.

Employer contributions vary with the “funded status” of the plan, as measured by the “funded ratio” (assets ÷ liabilities). This is often expressed as the “percent funded,” indicating the percent of promised benefits that can be paid for from accrued assets.

Employee and employer contributions go into trust fund that can only be used to pay retirement benefits and administrative expenses. The three-step funding process is as follows.

The Funding Process

Step 1. Actuaries project the total future pension benefit payments for current and former vested employees (including retirees) based on the terms of the plan. The projection is based on a number of assumptions. They include (1) how long employees are expected to work for the employer (government), (2) what their salaries are expected to be, and (3) how long they (and usually their surviving spouse) are expected to live and, therefore, collect retirement benefits (life expectancies).
**Step 2.** The projected benefit payments are discounted to their value at the time of the measurement date (present value). Employers are required to use the long-term expected rate of return on invested assets in the pension plan or a single rate based on a combination of the long-term expected rate of return and a municipal bond index rate.

As long as the plan’s net position (assets) related to current employees and vested former employees exceeds the projected benefit payments for those participants, the long-term expected rate of return on investments will serve as the basis for discounting.

At present, only the long-term expected rate of return is used. If, however, at some point, the projected plan’s net position for those participants’ projected benefit payments exceeds projected plan assets (called the crossover point), the projected benefit payments from that point forward will be discounted using an interest rate for tax-exempt municipal bonds rated AA or higher. The pension liability would then resemble the public employer’s outstanding debt and other long-term liabilities.5

**Step 3.** Attribute the present value of projected benefit payments to the periods when they were or will be earned (past and future). Attribution of past and future periods of employee service is accomplished by using an actuarial cost method. GASB 68 requires that all public pension plans use the same “entry age normal” actuarial cost method and apply it only to a level percentage of payroll. The portion of the present value of projected benefit payments that is attributed to past periods of employee service is the “total pension liability” (TPL). The TPL minus the value of the assets equals the plan’s “net pension liability” (NPL).

### Public Pension Plan Funding

State and local government pension plan funding received little attention before 2000 for another reason. Due to the great bull market of the 1990s, most public pension plans were well funded. As reported in Table 1, the 126 public-sector pension plans in the Public Plan Database had a funded ratio of 101.9 in FY 2001 (when the data series began). Many employers had curtailed or even ceased making pension contributions, and some even enhanced benefits. The reasoning was that it was only fair since employee contributions had continued unabated at their fixed rates of payroll while employer contributions had declined or ceased. Both the contribution holidays and the benefit enhancements were shortsighted.

The high funded ratios ended with the “dot.com” recession of 2001. As equity values plummeted and the Federal Reserve lowered interest rates in an effort to stimulate the economy, public fund asset values declined and employer ARC/ADC skyrocketed. Meanwhile, state and local governments saw their tax revenues decline and recession-related costs increased.

#### Table 1. A Snapshot of Public-Sector Pension Plan Funding, Selected Years, 2001–2019.

| Year | Actuarial funded ratio (%) | ARC/ADC as a percent of payroll (%) | Percent of ARC/ADC paid (%) | Assets at end of year (Dollar trillion) | Assumed rate of return (%) |
|------|---------------------------|------------------------------------|-----------------------------|----------------------------------------|---------------------------|
| 2001 | 101.9                     | 5.3                                | 100.0                       | 2.1                                    | 8.04                      |
| 2005 | 85.5                      | 9.1                                | 87.9                        | 2.4                                    | 7.93                      |
| 2010 | 78.8                      | 11.8                               | 82.5                        | 2.4                                    | 7.80                      |
| 2015 | 73.3                      | 16.5                               | 92.1                        | 3.4                                    | 7.57                      |
| 2018 | 72.5                      | 17.4                               | 94.8                        | 3.9                                    | 7.25                      |
| 2019 | 71.9                      | 19.7                               | 99.4                        | 4.0                                    | 7.22                      |

*Note. ARC = annual required contribution; ADC = actuarially determined contribution.*

*Source. Center for Retirement Research at Boston College. Public Plans Database. Retrieved from [https://publicplansdata.org](https://publicplansdata.org).*
The 2001 recession was sharp, but relatively short. By 2007, most public pension funds had recovered. Then, in 2008, the financial markets crashed. The “real estate bubble” Great Recession was more severe and longer lasting than any since the Great Depression of the 1930s.

While the financial markets had largely recovered by 2012, the impact of the recession on state and local government finances had not. Most had made cuts in education and other services. This resulted in increased criticism and scrutiny of the growing cost of funding public pensions.

As public pension plan funded ratios declined from 101.9 in 2001 to 71.9 in 2019, employer ARC/ADC increased from 5.3% of payroll to 19.7% (Table 1). By 2019, on the eve of the COVID-19 recession, the economy and the financial markets were strong. Yet, funded ratios continued to decline and employer ARC/ADC soar. Why? In an effort to strengthen public pension plans and protect their benefits, the rules of the game were changed.

**GASB 68**

Much of the informed criticism of state and local government pensions was directly or indirectly aimed at the GASB. Its rules allowed the understatement of the true extent of public pension underfunding.

The GASB was aware that the accounting and reporting standards promulgated by the FASB, and other national and international organizations had been substantially strengthened over the years. Also, in the course of developing GASB 45, pertaining to other post-retirement employee benefits in 2004, it became obvious that the standards of the existing GASB 25 and 27, pertaining to public-sector pension plans (in force since 1994), were too lenient.

In 2012, the GASB approved Statements No. 67, Financial Reporting for Pension Plans and Statement No. 68, Accounting and Financial Reporting for Pensions. Statements 67 and 68 replaced Statements 25 and 27. GASB 68 is most relevant for this discussion. It became effective for plan years beginning after June 15, 2014. Earlier application was encouraged.

GASB 68 addressed four main issues: (1) the appropriate discount rate, (2) amortization periods, (3) asset valuation (smoothing), and (4) the actuarial cost method. They will be discussed in turn.

**Discount Rates**

Public pension plans had traditionally based their assumed expected rate of return on invested assets (discount rate) on past experience, typically over the past 20 years. Until recently, most plans used discount rates from 7.5% to 8.5%, with 8.0% being the most common. The higher the discount rate, the lower the employer’s ARC/ADC, other things being equal.

After rejecting the arguments of a number of financial economists who proposed a “riskless discount rate” based on U.S. Treasury Bonds and those who proposed leaving things as they were, the GASB adopted a single blended discount rate. The expected long-term rate of return on invested assets may continue to be used to the extent that the plan’s assets are sufficient to pay for the accrued benefits of current employees (participants) and retirees (beneficiaries). For obligations not covered by assets (unfunded liabilities), the yield or index rate on 20-year, tax-exempt municipal bonds must be used. That rate declined from 3.62% on 30 June 2018 to 2.75% on 31 December 2019 and then to 1.81% on 28 February 2020.6

The larger a plan’s unfunded liabilities, the lower its blended discount rate will be. And, the lower the discount rate, the higher the public employer’s ARC/ADC.

The average discount rate of the 126 plans in the Public Plans Database (PPD) declined from 8.04% in 2001 to 7.22% in 2019. This added significantly to the employers’ annual contributions, ARC/ADC.

**Amortization Periods**

It will be recalled that the GASB adopted a fixed 30-year amortization standard in 2006. The longer the amortization period, the less
impact the unfunded liabilities have on the funded ratio and, therefore, on the employer’s ARC/ADC.

GASB 68 further reduced the amortization period from 30 years to the average remaining service lives of the plan participants (including retirees). That will vary by plan demographics but is typically 12–15 years. This was a major change that significantly increased unfunded liabilities, reduced funded ratios, and increased employer ARC/ADC.

Asset Valuation and Smoothing

Pension asset values fluctuate from year to year in response to the state of the economy and the financial markets. That can raise havoc for government planning and budgeting, especially during recessions. The solution has been to smooth (average) pension asset values and gains and losses over a number of years, typically three to five. This was reasonable for pension funding and government budgeting purposes. However, reporting the smoothed “actuarial value of assets” rather than the “market value of assets” (MVA) tended to mask the true extent of underfunding (and, at times, overfunding).

GASB 68 requires that pension asset values be “priced to market” as of the valuation date. That is, for accounting and reporting purposes, no smoothing is allowed. This too will likely reduce current funded ratios and add to employer ARC/ADC.

Actuarial Cost Method

GASB 68 also requires that all public-sector pension plans use the same actuarial cost method, called “entry age normal,” and apply it as a level percentage of payroll. Previously, plans could choose from among six actuarial cost methods, each of which could be applied in one of two ways, as a level dollar amount or as a level percentage of payroll. That seriously reduced the comparability of the information that governments reported about their pension obligations and costs.

The impact of this change on employer ARC/ADC would depend on which actuarial cost method the plan used before the change. Most public pension plans already used the entry-age actuarial cost method. However, some or all plans in Arizona, Connecticut, Illinois, and New Jersey used the “projected unit credit” method. And, some or all plans in the states of New York and Washington used the “aggregate cost” method.7

The Combined Effect

The combination of the GASB’s new blended discount rate, curtailed amortization period, elimination of asset smoothing, and a common actuarial cost method for accounting and reporting purposes has had a major impact on the funded status of most public pension plans. Well-funded plans saw little change. Seriously underfunded plans saw their NPL soar. GASB 68 had replaced “unfunded actuarial accrued liability” with the NPL as a measure of underfunding.

The NPL is the present value of projected retirement benefit payments to employees and annuitants (retirees) based on past service and the fair MVAs held in the pension trust fund. GASB 68 calls for the immediate recognition of annual service costs and interest on pension liability and on the effect on the NPL of changes in benefit terms. Other components of pension expenses (changes in economic and demographic assumptions and the difference between those assumptions and actual return on investment experience) are to be recognized over a period determined by the average remaining service years of active plan members. The effects on the NPL of the difference between the expected and actual return on investment are to be recognized over a closed 5-year period.

As indicated in Table 1, among the plans in the Public Plans Database, the funded ratio declined from 85.5 in 2005 to 71.9 in 2019 and the ARC/ADC as a percent of pay increased from 9.1 to 19.7.

Reporting

GASB 68 revised pension accounting and reporting requirements, not funding requirements.
GASB cannot require state and local governments to fully fund their pension plans. Although some public-sector plans, such as the California Public Employees Retirement System, are required to pay 100% of their ARC/ADC, many, including the California State Teachers Retirement System, are not.

GASB 68 classifies public employer plans as “single employer,” “agent multiple employer,” or “cost-sharing multiple employer.” In “agent plans,” assets are pooled for investment purposes, but separate accounts are maintained for each participating employer. Each employer’s account is charged only for the benefits paid to its own retirees. In “cost-sharing plans,” assets are also pooled for investment purposes and for benefit payments as well. Benefits paid are not specific to any particular public employer (sponsor).

In agent plans, the NPL is reported in each participating employer’s financial statements. Until 2013, the NPL of cost-sharing plans was reported only by the overall plan. GASB 68 requires that the proportionate share of the cumulative NPL must also be reported by each of the participating cost-sharing employers in their financial statements.8 This came as a bit of a shock to many plan administrators and elected officials who thought that their pension plan obligations had been satisfied when they made their contribution to the pension plan.

Experience

As reported in Table 1, assets in the 126 pension funds in the Pension Plans Database increased from $2.1 trillion in 2001 to $4.0 trillion in 2019, up from $3.9 trillion in 2018. The ARC/ADC as a percent of payroll increased from 5.3 in 2001 to 19.7 in 2019, up from 17.4 in 2018. The percent of ARC/ADC paid declined from 100.0% in 2001 to 82.5% in 2010 due to the Great Recession of 2008. It then increased to 99.4% in 2019, up from 94.8% in 2018.

The COVID-19 Recession

The world changed in March of 2020 when the COVID-19 virus hit the United States with full force. Businesses shut down, unemployment soared, and the financial markets collapsed. Already-low bond yields (treasury, municipal, and corporate) declined significantly. It now appears that public-sector pension plans will have negative annual investment returns, reduced asset values, lower funded ratios, and higher actuarial costs in 2020. This is happening while state- and local-government revenues are dramatically reduced and recession-related costs are increased. The percent of ARC/ADC paid will decline. The big question now for public-sector pension plans (and everything else) is how long it will take the economy to recover.

As reported in Table 2, the Center for Retirement Research (CRR) at Boston College estimates that the funded ratio for state and local pension plans will be 69.5% for 2020 (down from 71.0% in 2019 and 72.8% in 2018). The CRR projects ARC/ADC for 2020 to be 19.7%, percent of payroll (up from

| 2025 | Faster recovery (%) | Slower recovery (%) |
|------|---------------------|---------------------|
| Funded ratio | 69.5 | 62.7 | 55.5 |
| ARC/ADC (required contribution rate) | 19.7 | 25.1 | 29.1 |
| Asset-to-benefit ratio | 11.6 | 9.4 | 7.9 |
| Ratio of cash flow to assets | −2.8 | −3.8 | −4.5 |
| Plans that will have exhausted benefits by 2025 | 0 | 0 | 0 |

Note. ARC = annual required contribution; ADC = actuarially determined contribution. 
Source. Aubry, Munnell, & Wandrei (2020, May). 2020 update: Market decline worsens the outlook for public plans. Table 1, p. 3. Retrieved from https://publicplansdata.org/wp-content/uploads/2020/05/Markets-decline_May-2020.pdf.
18.8% in 2019). What happens after that will depend on how fast the economy and the financial markets recover.

The CRR developed projections for a “faster recovery” and a “slower recovery” by FY 2025. If there is a faster recovery, the projected funded ratio by 2025 is projected to be 62.7% (down from 69.5% in 2020) and the ARC/ADC to be 25.1% of pay. If we have a “slower recovery,” the projected funded ratio for 2025 is estimated to be 55.5% and ARC/ADC to be 29.1% of pay.

These numbers are staggering. Yet, they do not forecast that any of the PPD pension plans will fail by 2025. After that, some of the worst-funded plans may fail.

The 20 worst-funded plans in the PPD are projected to have an average funded ratio of 38.5% in 2020 and 31.5% in 2025. The “worst of the worst” is the Chicago municipal plan. Its projected funded ratio for 2025 is a dismal 3.6%, down from 21.0% in 2020. The “best of the worst” is the Philadelphia municipal plan with a funded ratio of 58.8% in 2025, up from 49.7% in 2020. The chances of all of these plans surviving intact—without massive help from somewhere—are pretty low.

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**Notes**

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