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THE MIRACLE OF FUNDING BY STATE AND LOCAL PENSION PLANS

By *Alicia H. Munnell, Kelly Haverstick, Steven A. Sass, and Jean-Pierre Aubry**

INTRODUCTION

It is generally agreed that each generation of taxpayers should pay the full cost of the public services it receives. If a public employee's compensation includes a defined benefit pension, the cost of the benefit earned in that year should be recognized, and funded, at the time the worker performs that service, not when the pension is paid in retirement. The discipline of making state and local governments pay the annual costs also discourages governments from awarding excessively generous pensions in lieu of current wages.¹ Many states and localities also have some unfunded pension obligations from the past, either because they did not put away money at the time the benefits were earned or because they provided benefits retroactively to some participants. The cost of these unfunded liabilities also needs to be distributed in some equitable fashion.

The question of funding has gained increased urgency as baby boomers are about to begin retiring in large numbers. To the extent that sponsors are paying less than required contributions today, taxpayers tomorrow will face rising benefit costs, in addition to the pay-as-you-go costs of retiree health benefits. Public sector workers also risk benefit cuts — primarily in discretionary improvements such as post-retirement cost-of-living adjustments. But the pension benefits earned by state and local government workers generally have strong legal protections. So most experts see future taxpayers bearing the primary burden resulting from current funding shortfalls.

This *brief* examines three aspects of the funding of state and local pension plans — the regulatory environment under which they operate, their costs and funding requirements, and their current funding status. Judging the adequacy of funding, however, requires more than a snapshot of the ratio of assets to

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liabilities. The key issue is whether the sponsor has a funding plan and is sticking to it. Therefore, the analysis considers funding programs based on several measures of funding adequacy. The conclusion that emerges is that, despite the absence of a federal mandate, state and local plans have generally made great strides towards funding and are about as well funded as plans in the private sector. This conclusion holds even though public plans pay larger benefits and use a more stringent funding yardstick.

THE REGULATORY ENVIRONMENT

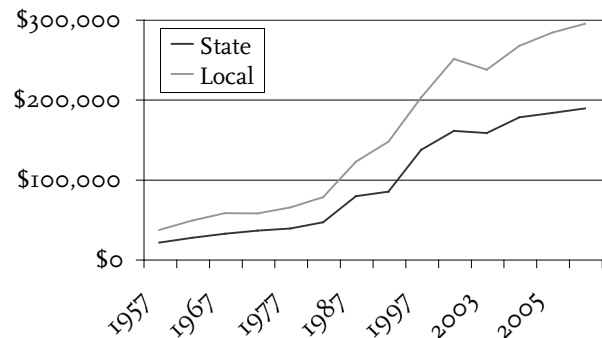
Public plans were not in very good shape in the late 1970s. State and local government employment had roughly doubled between the early 1960s and the mid-1970s, resulting in an enormous growth in workers participating in state and local pensions. Nevertheless, primarily for constitutional reasons, public plans were not covered by the Employee Retirement Income Security Act of 1974. This legislation for private plans introduced participation and vesting standards to make it easier for workers to establish legal claims to benefits, and funding and fiduciary standards to make sure that the money would be available to pay the legal benefit claims. To further protect participants against the possibility that some plans might terminate with inadequate assets, typically due to the failure of the sponsor, ERISA also established the Pension Benefit Guaranty Corporation.

While public plans were not covered by ERISA, the legislation did mandate a study of these plans, and the conclusions of the 1978 *Pension Task Force Report on Public Employee Retirement Systems* were not very flattering:

“In the vast majority of public employee pension systems, plan participants, plan sponsors, and the general public are kept in the dark with regard to a realistic assessment of true pension costs. The high degree of pension cost blindness is due to the lack of actuarial valuations, the use of unrealistic actuarial assumptions, and the general absence of actuarial standards.”

Perhaps at least partly in response to the *Task Force Report*, states and localities became increasingly aware of the importance of sound funding and began to undertake a variety of approaches to achieve that goal. As a result, assets per worker have increased markedly (see Figure 1). How did this all happen without ERISA?

FIGURE 1. ASSETS PER ACTIVE WORKER BY LEVEL OF ADMINISTRATION, FISCAL YEARS 1957-2006 (2006 DOLLARS)



Note: Assets are at market value for 2002 and book value prior to 2002.

Source: Authors' calculations from U.S. Census Bureau, *Employee-Retirement Systems of State and Local Governments, 1957-2006*.

The accounting organizations played an important role. In 1980, the Financial Accounting Standards Board — the organization that provides accounting guidance for the private sector — issued Statement No. 35, *Accounting and Reporting by Defined Benefit Pension Plans*, which was intended to apply to state and local government plans as well as private plans. The National Council of Governmental Accounting, which provided guidance in the public sector argued that public sector plans were different from private sector plans, and was successful in delaying its application to public plans.²

In the early 1980s, the Government Accounting Standards Board (GASB) came into being, and in 1986 GASB issued Statement No. 5, *Disclosure of Pension Information by Public Employee Retirement Systems and State and Local Governmental Employers*. One important requirement was that plans report their benefit obligations and pension fund assets using uniform methods, to allow observers to make comparisons across plans. But the method that the accountants required for computing benefit obligations was very different than the approach most plan actuaries had adopted for establishing funding contributions. As a result, when users needed information about a plan's funded status and funding progress they used information based on the plan's funding methodology.³

Over the next few years, GASB undertook an extensive review of public sector accounting and disclosure that culminated with the issuance in 1994

of Statements No. 25 and 27.⁴ These statements changed the way state and local governments account for pensions and report information.⁵

GASB 25 addressed how funding information should be reported in the financial statement. Perhaps the most important innovation was that if sponsors satisfy certain “parameters” they can use the numbers that emerge from the actuary’s funding exercise for reporting purposes. This is very different from what occurs in the private sector, where the actuary is required to make a number of valuations for different purposes.⁶ The GASB parameters include:

- Actuarial valuations should be performed at least biennially.
- Actuarial present discounted value of future benefits should reflect all pension benefits, including ad hoc cost-of-living increases.
- The actuarial cost method selected must be from an approved list.⁷
- Actuarial assumptions should reflect actual experience and investment assumptions based on expected long-term yield of plan assets.
- Annual required contribution (ARC) should include the normal cost — the cost of benefits accruing in the current year — and a payment to amortize the plan’s unfunded actuarial liability.
- An acceptable amortization period, originally up to 40 years but reduced to 30 years in 2006.⁸

GASB 25 was also very explicit about the funding information to be included in the financial statement. The financial statement must include plan assets (fair value rather than cost), plan liabilities, and plan net assets, as well as the year-to-year changes in net assets. It must also include the required contributions by employers and employees, and the historical information about the ratio of employer contributions to the employer’s ARC. Paying the full ARC suggests that the employer has put aside sufficient money to cover currently accruing benefits as well as a portion of the unfunded liability left over from previous years. Not paying the full ARC means the unfunded liability will likely grow.

GASB 27 focused on defining the employer’s annual pension cost to be reported in the financial statement. The annual pension expense is the sponsor’s ARC plus interest on the Net Pension Obligation (NPO) less an adjustment to the UAL amortization because of the NPO.⁹

GASB provides the rules, but plans are not required to follow them. GASB, like its private sector counterpart FASB, is an independent organization and has no authority to enforce its recommendations.

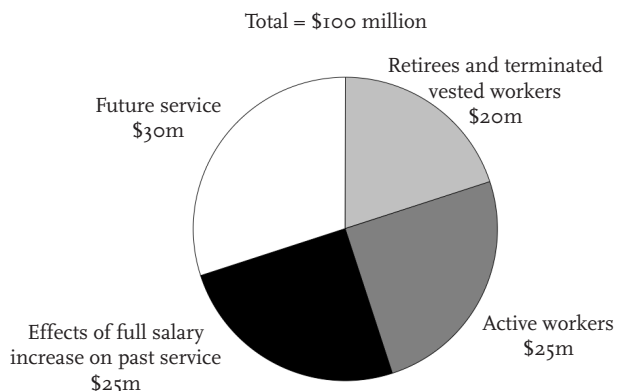
Many state laws, however, require that public plans comply with GASB standards, and auditors generally require state and local governments to comply with GASB standards to receive a “clean” audit opinion. And bond raters generally consider whether GASB standards are followed when assessing credit standing.¹⁰ Thus, financial reporting requirements have probably had considerable impact.

DETERMINING PENSION COSTS IN THE PUBLIC AND PRIVATE SECTORS

The precise amount of money that state and local plans need to put aside each year depends on how the actuaries allocate costs to a particular year — that is, it depends on the actuarial cost method adopted. In order to appreciate the differences between cost methods, a useful starting place is the total amount of benefits that the plan sponsor ultimately will have to pay for past and current employees.

Figure 2 shows the present value of projected benefits for a hypothetical entity. The total value of projected benefits of \$100 million consists of four major components. The first (\$20 million) is the value of benefits earned to date by retired employees, including employees who have left the company with vested pension rights and who have not yet begun to collect benefits. The second major component (\$25 million) is the value of pension obligations to active employees based on their current salaries and years of service. The next portion (\$25 million) represents the effect of future salary increases on the value of pension rights already earned by active workers.¹¹ The final portion (\$30 million) represents the benefits that will be earned by current employees over the remainder of their work lives.¹²

FIGURE 2. PRESENT VALUE OF PROJECTED BENEFITS



Source: Authors' illustration.

Under the projected unit credit approach, the dominant costing method in the private sector (see Table 1), the firm's total liability will be \$70 million. No account is taken of credits that current workers will gain through future service. The entity's normal cost in a given year is the value of additional pension benefits that each employee earned in that year based on his projected salary at retirement. If the benefit formula and salary projections remain unchanged, the additional pension benefits each employee earns in subsequent years will also remain unchanged. The cost of that benefit, however, will rise as workers approach retirement and annual pension contributions have less time to accumulate investment earnings. So employers with an aging workforce that use this costing method will see their annual pension expense rise over time.

TABLE 1. PERCENT OF LARGE PRIVATE SECTOR AND PUBLIC SECTOR PLANS USING ALTERNATIVE ACTUARIAL METHODS, 2006

Actuarial cost method	Private sector	Public sector
Projected unit credit	74 %	14 %
Entry age normal	19	70
Other	7	16

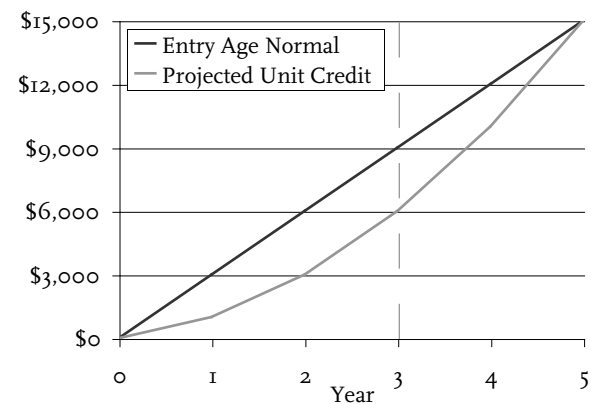
Sources: Watson Wyatt Worldwide (2006); and National Association of State Retirement Administrators, *Public Fund Survey (PFS)*, 2006.

The entry age normal costing method, which is the dominant method in state and local plans, smooths the employer's pension expense over time.¹³ Under this costing method, the actuary projects the future monthly pension benefits earned by the entity's active workforce. This projection includes credits that current workers will earn through future service as well as the effect of future salary increases on credits already earned. The actuary then sets the employer's annual normal cost equal to a level payment (typically a level percent of payroll) needed to fund that benefit obligation. Compared to the projected unit credit method, entry age normal "front-loads" the employer's pension expense by pre-paying a portion of pension benefits earned in the future. The entry age normal costing method thus reports a higher accrued liability at any point in time. In the example pre-

sented in Figure 2 on the previous page, the accrued liability would be greater than the \$70 million given by the projected unit credit approach, as a portion of the \$30 million workers are expected to earn in the future would also be included.

A numerical example may help clarify a key practical difference between the two methods. Suppose a plan sponsor needs to contribute \$15,000 for a particular employee who will retire in five years, and that the sponsor fully funds the cost specified by either method. Under projected unit credit, the sponsor recognizes and funds, say, \$1,000 in the first year, \$2,000 in the second year, \$3,000 in the third year, \$4,000 in the fourth year, and \$5,000 in the fifth year. Under entry age normal, the actuary would level the contributions over the five-year period so that the sponsor would recognize and pay a normal cost of \$3,000 per year. Had the sponsor used entry age normal, after three years the plan would have an actuarial accumulated liability of \$9,000 and assets of \$9,000 (see Figure 3). Had the sponsor used projected unit credit, the plan would have a cumulative liability of \$6,000 and assets of \$6,000.

FIGURE 3. ACCRUED LIABILITY BY METHOD, BY YEAR

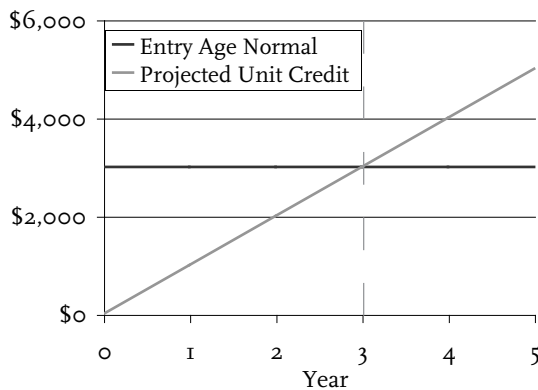


Source: Authors' illustration.

The two approaches thus have different patterns of asset accumulation and liability recognition over time. Up to the point of retirement, the entry age method would recognize a larger accumulated pension obligation for active employees. Thus, given comparable funding ratios, state and local plans would have accumulated more assets than private sector plans.

The other relevant issue is the contribution rate. The private sector’s shift in actuarial methods reduced pension expense (and thereby contributions) during the 1980s and 1990s when the baby boom generation (those born between 1946 and 1964) were young workers (age 20 to 50) and shifted pension expense (and contributions) for this very large cohort to later in their careers.¹⁴ Now that the baby boomers are approaching retirement, funding requirements will be higher than they would have been under the entry age normal cost method. The public sector, in contrast, faces a steady contribution rate (see Figure 4).

FIGURE 4. COST/LIABILITY BY ACTUARIAL COST METHOD, BY YEAR



Source: Authors’ illustration.

HOW STATE AND LOCAL PLANS MEASURE UP

In determining the financial health of public plans, it is useful to look at three measures: 1) the funding ratio, which measures the percentage of the plan’s liabilities covered by assets; 2) the dollar amount of unfunded liabilities, which provides an indication of how much contribution rates would have to be raised to close the gap in the aggregate; and 3) the ratio of employer contributions to the ARC, which measures the extent to which the sponsor is keeping up with benefits as they accrue and paying down unfunded obligations. The sample consists of 109 state administered plans and 17 administered at the local level.¹⁵

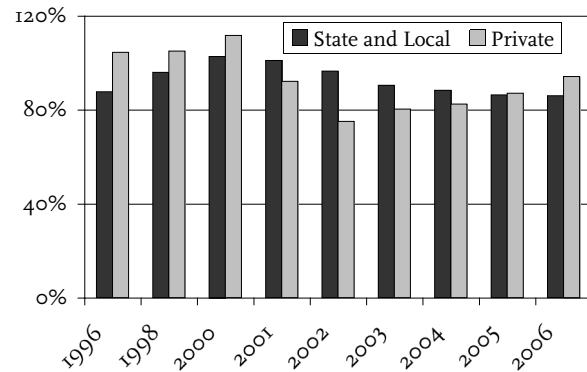
FUNDING RATIO

The funding ratio — plan assets divided by the actuarial accrued liability — is a snapshot of the plan’s funding status at a given moment in time. As just

discussed, these ratios are not really comparable across plans in that plans using the entry age normal cost approach will report a larger accrued liability and a lower funding ratio for any level of assets. The comparison of funding levels in public and private plans could also be distorted by their use of different discount rates when valuing plan liabilities. But the only funding information available for public sector plans is that based on each plan’s actuarial costing method and assumptions.¹⁶

Figure 5 shows the aggregate funding ratios for the private and public sector. Funding levels were higher in both sectors at the turn of the century before the “perfect storm” produced a declining stock market and very low interest rates. As assets in the pension funds plummeted and the present discounted value of projected liabilities increased, funding levels in both the public and private sector declined. Over the period 2003-2006, however, funding levels have averaged about 88 percent for the public sector and 86 percent for the private sector. Again, the fact that the public sector primarily uses entry age normal means that these plans recognize larger liabilities because this approach brings forward a portion of the liability that will come from future service.

FIGURE 5. FUNDING RATIOS OF PENSION FUNDS, STATE/LOCAL AND PRIVATE SECTOR, 1996-2006



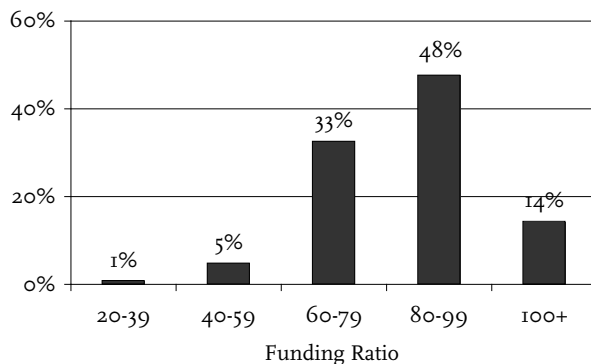
Sources: Authors’ calculations from Zorn (1996-2000); 2001-2006 PFS; and Standard and Poor’s (1996-2006).

Thus, even though states and localities do not face requirements like those in the private sector to achieve 100 percent funding or to rectify underfunding problems within designated periods of time, public sector sponsors have accumulated substantial assets covering approximately 88 percent of future benefit payments accrued to this point by present and past employees.¹⁷

The situation is not perfect, of course, because funding status does vary. Before looking at the variation in funding status, it is useful to consider what might be an acceptable level of funding for state and local plans. On the one hand, it is unlikely that states and localities will go bankrupt, as can happen to sponsors of private sector plans, so there is less need for 100 percent funding. In addition, while all entities should be covering normal cost, GASB allows these plans up to thirty years to pay off unfunded liabilities. As states and localities are only about one-third of the way through the amortization process begun in the mid-1990s, they would not be expected to be fully funded. The finance literature also suggests that full funding may not always be optimal.¹⁸ On the other hand, GASB has established standards that will ultimately result in 100 percent funding, and rating agencies consider the funding status of pensions when rating public sector bonds. Consistent with all these arguments, the U.S. Government Accountability Office (2008) reports that many of the experts and government officials to whom they spoke considered 80 percent funding to be acceptable for public plans.¹⁹

Figure 6 shows the distribution of funding ratios in 2006 for the 126 plans in our sample. Of the total, 39 percent had funding ratios below the acceptable 80-percent level. The bulk of these, however, were in the 60-79 percent range. Only 6 percent of plans had funding ratios below 60 percent. Most of the poorly-funded plans are relatively small.

FIGURE 6. DISTRIBUTION OF FUNDING RATIOS FOR PUBLIC PLANS, 2006



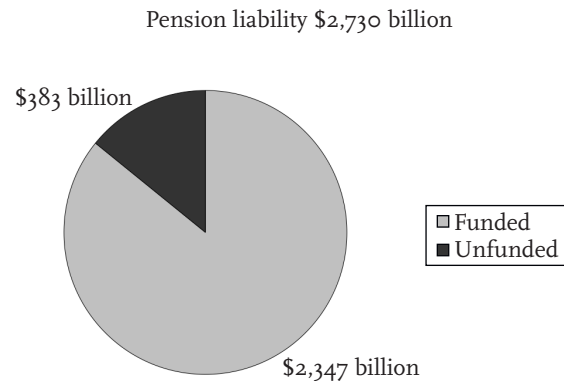
Note: Plans that use the aggregate cost method were coded with 100 percent of ARC paid.

Sources: Authors' calculations from the 2006 PFS and various annual reports.

UNFUNDED LIABILITY

The second measure of funding adequacy is the dollar amount of unfunded liability. The current unfunded liability for the sample of 126 plans is about \$380 billion (see Figure 7). This sum is hardly trivial. But to pay off that amount over 30 years, states and localities would have to raise their contribution rate by an amount equal to about 0.7 percent of payrolls.²⁰ This increase is relatively modest compared to an average ARC of about 10 percent of payrolls. Thus, solvency appears to be fully achievable if states follow a disciplined approach to funding. The question is whether public plan sponsors are being disciplined.

FIGURE 7. FUNDING OF AGGREGATE PENSION LIABILITY, 2006

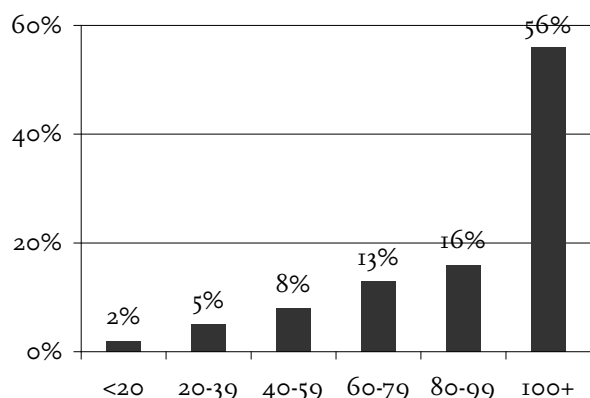


Sources: Authors' calculations from the 2006 PFS and various annual reports.

RATIO OF EMPLOYER CONTRIBUTIONS TO ARC

As discussed above, GASB defines the annual required contribution (ARC) to equal normal cost plus a payment to amortize the unfunded liability, generally over a 30-year period. Each year plan sponsors report the ratio of the employer's actual contribution to the ARC. Figure 8 on the next page shows the distribution of this ratio for the plans in our sample. More than 55 percent of plans made the full contribution; another 17 percent paid more than 80 percent of the ARC. That still leaves almost a quarter of plans making less than 80 percent of the ARC. If this pattern persists, some plans could see their funding ratios deteriorate in the future.

FIGURE 8. DISTRIBUTION OF STATE AND LOCAL PLANS, BY PERCENTAGE OF ARC PAID, 2006



Note: Plans that used the aggregate cost method were coded with 100 percent of ARC paid.

Sources: Authors' calculations from the 2006 PFS and various annual reports.

CONCLUSION

The results of this survey are fully consistent with those of the U. S. Government Accountability Office (2008) and the PEW Center on the States (2008). Both of these studies find that substantial funding of pensions has occurred at the state and local level. The first “Key Finding” in the Pew Report is “From a national perspective, states’ pension plans seem to be in reasonable shape. The GAO report concludes: “The funded status of state and local pensions is reasonably sound...”

Press accounts surrounding the earlier studies, however, have been almost uniformly negative. The *New York Times* headline for the GAO study was: “Report to Senator Says Many States Are Lax in Funding Their Pension Plans.” And the headline for the report from the Pew Center read “Pension Fund Shortages Create Hard Choices.”²¹ Headlines in other papers mirrored those in the *Times*. The disconnect between the study conclusions and the press stories is that the positive news about the level of pension funding is overwhelmed by the lack of funding for state and local government retiree health care promises. States and localities have not been required to fund these costs, and researchers estimate that the total unfunded actuarial liability for retiree health benefits lies between \$600 billion and \$1.6 trillion, much larger than the \$383 billion unfunded liability for state and local pensions.

The miraculous aspect of the funding of state and local pensions is that it occurred without any national legislation. Public plans were not in very good shape in the late 1970s. The 1978 *Pension Task Force Report on Public Employee Retirement Systems* noted a “high degree of pension cost blindness.” But public officials responded and took action to manage their pensions on a business-like basis. Assets per worker increased markedly by the mid-1990s when GASB issued Statements No. 25 and No. 27. Since then, the funding status of public plans has looked very much like that of their private sector counterparts.

Considerable variation in funding, however, still exists at the state and local level. So the next *brief* will explore the factors that affect whether or not a plan is well funded. A number of plans are also not making their ARC payments, and a future *brief* will explore reasons for these shortfalls.

ENDNOTES

- 1 Johnson (1997) found that the relative generosity of pensions among state and local government workers is directly related to the ability to underfund their plans.
- 2 For example, the Council argued that benefits in public plans cannot be “settled” at any point in time by the sponsor and that state and local governments have a much lower risk of bankruptcy than private plan sponsors, so the FASB provisions, designed to provide a snapshot of the plan’s finances at a given point in time, have much less relevance in the public sector.
- 3 GASB Statement No. 25 (1994).
- 4 Statement 25 is entitled “Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans. Statement 27 is entitled “Accounting for Pensions by State and Local Governmental Employers.”
- 5 The requirements became effective June 15, 1996.
- 6 In the private sector, the actuary must produce
 1) a traditional actuarial valuation to determine funding, which presents the actuary’s best estimate of the plan’s liabilities, assets, the annual contribution required to cover benefits accrued that year (the normal cost), and the amortization of any unfunded obligations, all assuming the plan will continue indefinitely;
 2) a valuation as stipulated by the accounting profession for reporting purposes, that again determines assets, liabilities, and the sponsor’s annual pension expense, to be reported on the financial statements of the sponsor and the plan; and 3) a determination of the plan’s “current” funding status for compliance purposes to determine minimum and maximum contributions and Pension Benefit Guaranty Corporation insurance premiums. While actuaries attempt to keep assumptions as consistent as possible across these valuations, the discount rates used to value future obligations, a critical variable, can differ considerably (Hustead 2003).
- 7 The acceptable actuarial cost methods include entry age, frozen entry age, attained age, frozen attained age, projected unit credit, and a specified aggregate cost method.
- 8 This amortization period applied to both the plan’s “initial” underfunding and any subsequent underfunding created by benefit increases attributed to “past service.”
- 9 The NPO includes the employer’s transitional liability for any underfunding between the effective dates of Statement no. 5 (1987) and Statement no. 27 (1994) and, after the latter effective date, the cumulative difference between the required contributions and the employer’s actual contributions. If a plan has no NPO, its sponsor’s annual pension cost (APC) is equal to the ARC. If a plan has an NPO, the annual pension cost is the ARC plus interest on the NPO less an adjustment to the required UAL amortization because of the NPO.
 With a little algebra, it can be shown that this is equal to the normal cost plus the interest on the NPO.

$$\text{ARC} = \text{normal cost (NC)} + \text{required amortization payment (AMORT)}$$
 rearranging the terms yields:

$$\text{NC} = \text{ARC} - \text{AMORT}$$

$$\text{APC} = \text{ARC} + i\text{NPO} - \text{AMORT}$$

$$\text{APC} = \text{ARC} - \text{AMORT} + i\text{NPO}$$

$$\text{APC} = \text{NC} + i\text{NPO}.$$
- 10 U.S. Government Accountability Office (2008).
- 11 For example, suppose that the plan provides 1.5 percent of final salary for each year of service. In this case, an employee with 10 years of service, who currently earns \$40,000, would currently have a vested benefit of \$6,000 per year. But, by retirement, this employee is projected to have a final salary of \$60,000, and the 15 percent benefit already earned will apply to the \$60,000 rather than the \$40,000. Thus, the pension associated with the employee’s 10 years of service will be \$9,000 annually payable at 65, not \$6,000. In Figure 2, the \$6,000 is included in the component pertaining to active employees’ accrued benefits and the extra \$3,000 is included in the component representing the effect of future salary increases on benefit rights earned to date.
- 12 In the example used above, this component constitutes the additional 1.5 percent of final salary that the employee will earn each year to retirement.

13 The other major cost method used by public plans is aggregate cost. This approach allocates the value of future benefits in excess of assets over the earnings or service of the entire group between the valuation date and the exit date. The normal cost in any particular year is the result of this cost allocation. Thus, unfunded liabilities are allocated as future normal costs instead of being separately identified, amortized, and added to normal cost. As a result, a plan using the aggregate cost method shows no unfunded liabilities and a 100-percent funding ratio. GASB has recently begun to require governments that use this funding method to report the funding ratio using the entry age normal method as well.

14 Both public and private sector employers had traditionally used the entry age normal actuarial costing method. The reason for the shift in the private sector is that, in 1985, FASB issued rules requiring sponsors to account for accruing pension liabilities by a uniform method, which was the projected unit credit actuarial cost method. Technically, FASB mandated the projected unit credit method only for reporting purposes, and firms could continue to use any of the six actuarial methods authorized under ERISA for funding. Sponsors, however, appear to have either interpreted the FASB standard as an endorsement of the projected unit credit for funding as well as reporting or simply found it more convenient to use the same method for funding and reporting. As a result, a major shift occurred from entry age normal to projected unit credit for funding purposes.

15 The sample is basically the *Public Fund Survey* (PFS) plus the University of California Retirement System. The funding data are taken from the PFS, but the authors collected data directly for the percent of ARC contributed, which is discussed below. The sample represents 90.5 percent of the assets in state-administered plans and 31.1 percent of those in plans administered at the local level.

16 A higher discount rate reduces the present value of plan obligations while higher projected wage growth raises the present value of plan obligations. The standard yardstick for gauging these offsetting effects is the difference between the two assumptions — the discount rate less projected wage growth. The greater the difference, the smaller would be the reported value of pension liabilities. As reported in Munnell and Soto (2007), the difference between the discount rate and projected wage growth was larger

in private plan valuations from 1996 through 2002, and now the reverse is true. Over the entire period 1996-2006, the spread is about the same for private and public plans.

17 The Pension Protection Act of 2006 dramatically shortened the period over which private sector plan sponsors must eliminate funding shortfalls from 30 years to 7 years. The legislation also imposed more of a ‘mark-to-market’ framework than the previous set of rules, which allowed sponsors to smooth asset values. The ‘mark-to-market’ approach makes funding ratios more volatile, which generally makes the timing of contributions less predictable. The Pension Protection Act of 2006 also tightened the use of credit balances — notional balances accumulated from previous years that could be used in lieu of cash contributions.

18 D’Arcy, Dulebohn, and Oh (1999) calculate optimal funding levels for selected states that, depending on the relative growth rates of pension obligations and the tax base, may be greater or less than one. Mumy (1978) also explored optimal funding in state and local pensions. Full funding of public sector pensions may result in variations in state tax rates over time, and, if taxpayer utility is maximized at a constant tax rate, this may not be optimal.

19 Some of these experts also suggested that it might be unwise politically for a plan to be overfunded — that is, have a ratio of assets to liabilities in excess of 120 percent — because the excess funding could become appropriated by politicians for other purposes or used as an excuse to increase benefits.

20 For this calculation, the current state and local payroll — about \$60 billion — is assumed to grow at 1.5 percent per year; the assumed real return on assets is 5 percent; and the real discount rate is 3 percent. This finding is consistent with the U.S. Government Accountability Office (GAO) (2007), which concludes that the contribution rate would need to rise by 0.3 percent of payroll. The GAO uses similar assumptions but a much longer horizon (50 years). These findings are also consistent with Giertz and Papke (2007), who conclude that solvency over the long term is achievable if states follow a disciplined approach to funding.

21 Walsh (2008) and Walsh (2007).

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