CENTER FOR RETIREMENT RESEARCH AT BOSTON COLLEGE

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THE FUNDING STATUS OF LOCALLY ADMINISTERED PENSION PLANS

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

Introduction

Are big city pensions and other locally administered pension plans in trouble? While state-administered plans are about as well funded as private sector plans, stories circulate about the perils facing Philadelphia, Omaha, Atlanta, and other cities.[1] To answer the question about locally administered pensions, we collected data on 84 plans from 38 states. This *brief* describes the results of that survey, reporting the funding status of these locally administered plans and the extent to which their sponsors have a funding strategy and are sticking to it.

The first section describes the sample. The second section compares the funding status of local plans to that of state plans. The third section reports on the factors that affect the level of funding among localities. The fourth section concludes.

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The main finding is that the sample of locally administered plans, which includes plans from the problem cities previously cited, has funding strategies that are as good as or better than state plans.

Sample of Locally Administered Plans

This *brief* reports the results of a survey of the funding status of locally administered public pension plans, hereafter referred to as the *Local Pension Plan Survey* (LPPS). The survey data were collected from Actuarial Reports, Comprehensive Annual Financial Reports for the individual plans, Comprehensive Annual Financial Reports for the locality that administers the plan, and Municipal and Local Ordinances. The intent was to include the two largest plans from each state. Because of data availability issues, the

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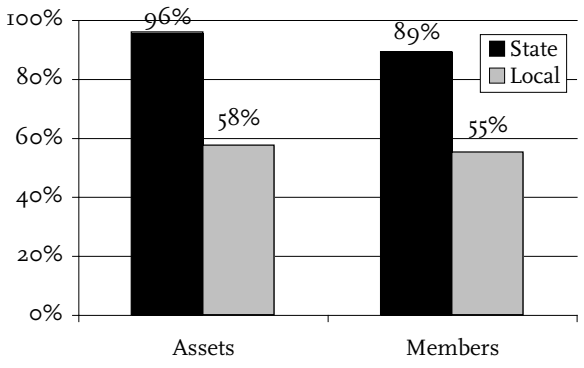
final sample consists of 84 local plans from 38 states (see Appendix A). The plans with the largest asset holdings, each with assets in excess of $32 billion, are the New York City Employee Retirement System, the New York City Teachers plan, and the Los Angeles County Employee Retirement System. The three smallest plans, each with assets under $20 million, are Dover (DE) General Employee Pension Plan, City of Spartanburg (SC) General Employees Retirement Plan, and Owensborough (KY) City Employees' Pension Funds.

The goal is to compare the status of these locally administered plans in the LPPS with that of state-administered plans as reported in the 2006 *Public Fund Survey* prepared by the National Association of State Retirement Administrators and the National Council on Teacher Retirement. Figure 1 shows the relative comprehensiveness of the two surveys. The LPPS includes $281 billion in assets at market value and 1.6 million local workers. This sample represents 58 percent of local plan assets and 55 percent of local workers relative to the totals reported by the U.S. Census Bureau in the *Employee-Retirement Systems of State and Local Governments*. The state sample covers about 96 percent of assets and 89 percent of workers. This outcome is to be expected given that state-administered plans are few and large, while locally administered plans are many and often small.[2]

It would be lovely to simply report the relative funding ratios for state versus locally administered plans. After all, these ratios simply compare assets to liabilities, and a ratio of 100 percent means that the plan has sufficient assets to cover liabilities. The difficulty is that the measurement of liabilities depends crucially on the costing method adopted by the actuaries.[3] The most common costing method used by both states and localities, entry age normal, is more stringent than the most common method used in the private sector, projected unit credit, because the projected unit credit method "back-loads" the employer's pension expense and thus results in a lower accrued liability at any point in time. Some state plans, and a slightly larger share of local plans, use other costing methods that can produce dramatically different measures of accrued liability. For example, the aggregate cost method, a common alternative, recognizes no unfunded liability.[4]

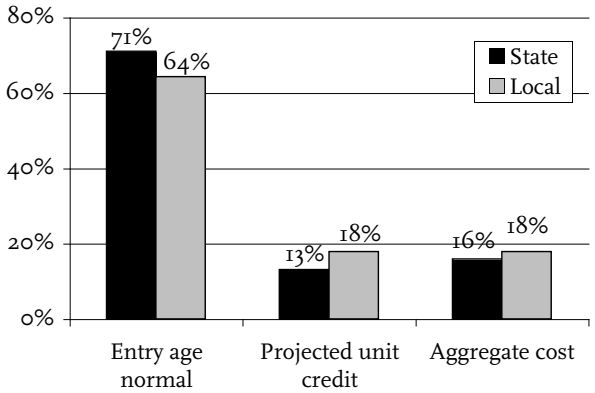
Figure 2 displays the type of cost methods used by state versus locally administered plans. Because local plans rely slightly more heavily on the aggregate cost and projected unit credit approaches compared to state plans, one would expect a more favorable picture at the local level even if the fundamentals were identical.[5]

FIGURE 1. SAMPLE PLANS AS A PERCENT OF TOTAL ASSETS AND MEMBERS, BY LEVEL OF ADMINISTRATION, 2006



Sources: Authors' calculations from U.S. Census Bureau (2006); National Association of State Retirement Administrators and National Council on Teacher Retirement, *Public Fund Survey* (PFS), 2006; and *Local Pension Plan Survey* (LPPS), 2006.

FIGURE 2. DISTRIBUTION OF PLANS BY ACTUARIAL COST METHOD, BY LEVEL OF ADMINISTRATION, 2006



Sources: Authors' calculations from 2006 PFS; and 2006 LPPS.

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 portion of the plan's liabilities covered by assets; 2) whether the employer covers the Annual Required Contribution (ARC), which measures the extent to which the sponsor is keeping up with benefits as they accrue and paying down unfunded obligations; and 3) the increase required, as a percent of payroll, to pay 100 percent of the ARC which, over time, will eliminate the unfunded liability.

Funding ratio

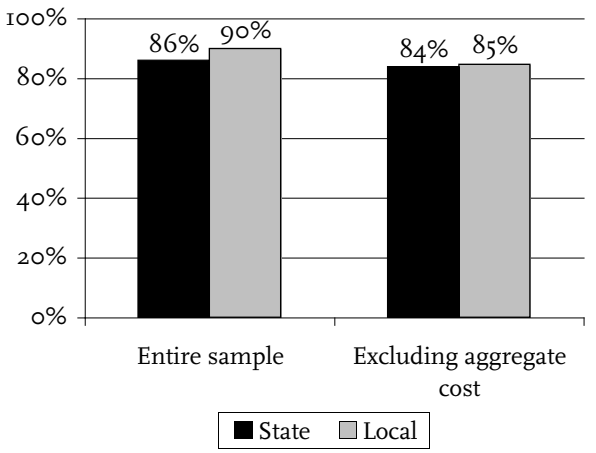
The funding ratio – plan assets divided by the actuarial accrued liability – is a snapshot of the plan's funding status at a given moment in time. As just discussed, these ratios are not really comparable across plans in that plans using the entry age normal cost approach – compared to the projected unit credit approach – will report a larger accrued liability and a lower funding ratio for any level of assets. And those using the aggregate cost method will always report a funding ratio of 100 percent. But the only funding information available for public sector plans is that based on each plan's actuarial costing method and assumptions.[6]

Figure 3 demonstrates how the assessment of state and local plans is affected by the actuarial cost method adopted. Including the full sample suggests that local plans are noticeably better funded than state plans. Excluding the plans that employ the aggregate cost approach, funding levels for states and localities are essentially the same. The rest of the analysis of funding ratios focuses on non-aggregate cost plans. These remaining plans use either the projected unit credit or entry age normal cost methods.

Neither localities nor states face the requirements Congress imposed on private sector employers to achieve 100 percent funding and to rectify underfunding problems within designated periods of time. Nevertheless, both have accumulated assets to cover about 85 percent of future benefit payments accrued, to this point, by present and past employees.[7]

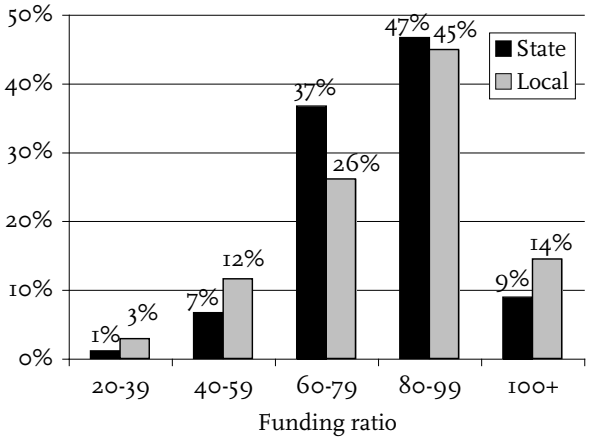
Problems do exist, of course, because funding status does vary (see Figure 4). Local plans have a greater percentage of plans that are fully funded and a greater percentage of plans with very low levels of funding. Among locally administered plans, 15 percent of plans have a funding ratio of less than 60 percent compared to 8 percent of state-administered plans. The plans with the lowest funding ratios in our sample are listed in Table 1 (on the next page). For both state and locally administered plans, poorly funded plans are generally smaller in terms of participants than the average for the sample.[8]

Figure 3. Aggregate Funding Ratio, Full Sample and Excluding Aggregate Cost Plans, by Level of Administration, 2006



Sources: Authors' calculations from 2006 PFS; and 2006 LPPS.

Figure 4. Distribution of Pension Plans, Excluding Aggregate Cost Plans, by Funding Ratio and Level of Administration, 2006



Sources: Authors' calculations from 2006 PFS; and 2006 LPPS.

Table 1. Sample Plans with the Lowest Funding Ratios, 2006

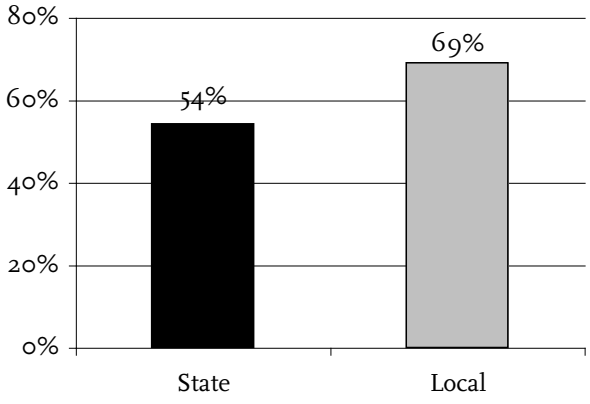
Plan	Funding ratio
Providence Employees Retirement System	37.4 %
Dover General Employees Pension Plan	38.2
Pittsburgh Municipal, Police, and Firemen Pension Funds	41.7
Little Rock City Police Pension and Relief Fund	50.2
Philadelphia Municipal Retirement System	51.6
Jersey City Municipal Employees Pension Fund	52.4
Atlanta General Employees Pension Fund	52.6
Wilmington Police Pension Fund	53.2
New Haven Police and Fireman's Retirement Fund	59.4
New Haven City Employee Retirement Fund	59.6

Source: 2006 LPPS.

Making the ARC

While the funding ratio provides a snapshot, the question remains whether the plan sponsor has a funding strategy and is sticking to it. One measure of funding discipline is whether the sponsor makes the ARC as specified by the Governmental Accounting Standards Board (GASB).[9] GASB defines the 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 percentage of the employer's actual contribution to the ARC. Figure 5 shows the percent of state and locally administered plans that contributed at least 100 percent of the ARC for the whole sample, including plans using the aggregate cost method.[10] Locally administered plans appear to be doing a better job than state-administered plans in terms of covering the ARC.

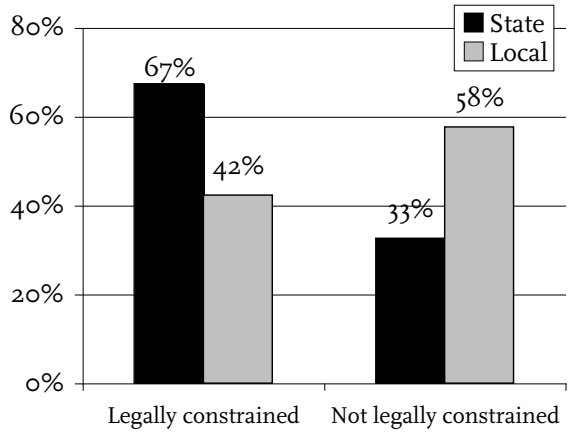
Figure 5. Percent of Plans Making Full ARC, by Level of Administration, 2006



Sources: Authors' calculations from 2006 PFS; and 2006 LPPS.

Since making the ARC is the key to a sound funding plan, it is useful to peel back another layer of the onion and see what factors affect ARC payment behavior. Some jurisdictions face legal constraints on their contribution rate, which may prevent them from making their full ARC.[11] As shown in Figure 6, of those localities that did not make their ARC, 42 percent were constrained by legal limitations.[12] Thus, 58 percent of localities not making their ARC were unconstrained, a higher share than the state-administered plans.

Figure 6. Distribution of Plans Not Making ARC Payment, by Legal Constraint and Level of Administration, 2006



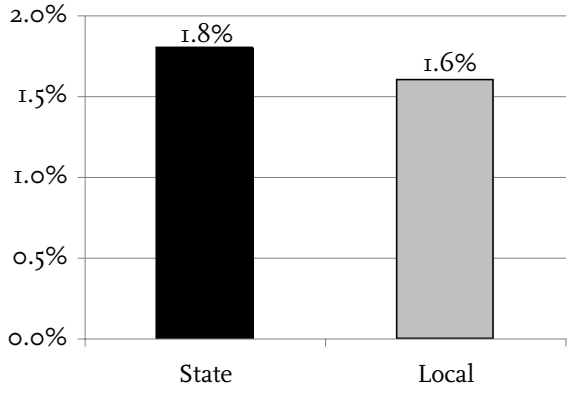
Sources: Authors' calculations from 2006 PFS; and 2006 LPPS.

Increase Required to Eliminate the Unfunded Liability

So far, the efforts of locally administered plans look either as good as or better than those of plans administered by the state. Yet stories appear repeatedly about the burden of plans at the local level and the financial problems associated with these plans. One problem may be that, even if funding levels and ARC payments are similar among state and locally administered plans, troubled localities do not have the resources to work their way out. But, again, that does

not seem to be the case. Eliminating the unfunded liability requires making the full ARC, since the ARC includes a component to pay off the liability generally over 30 years. (Plans with even very large liabilities that are making their full ARC will automatically pay off their unfunded liabilities without any change.) To bring all locally administered plans in the sample up to a 100 percent ARC payment would require an increase equal to 1.6 percent of payroll.[13] This increase is lower than that required for state-administered plans (see Figure 7). The goal should be reasonably achievable given that the current contribution level for locally administered plans is 16.7 percent of payrolls.

Figure 7. Required Contribution Increase to Make 100 Percent of Annual Required Contribution, as a Percent of Payroll



Sources: Authors' calculations from 2006 PFS; and 2006 LPPS.

Of course, averages do not tell the whole story. For cities like Chicago, Omaha, St. Louis, and others where the sponsor is paying only a fraction of the ARC, the required increase in contribution rates is large (see Table 2). But the challenge is equally large for state-administered plans that are failing to make their ARC, such as Illinois Universities, which would require an increased contribution rate of 15.8 percent of payroll to make its ARC, Alaska Teachers – 13.6 percent, Illinois State Employee Retirement System – 12.9 percent, and Oklahoma Public Employee Retirement System – 8.8 percent.

Table 2. Required Contribution Increase to Make 100 Percent of Annual Required Contribution, as a Percent of Payroll

Plan	Required contribution increase
Chicago Teachers	14.3
Omaha Police and Fire	11.5
Chicago Municipal	11.4
St. Louis Police	10.6
St. Paul Teachers	8.7
Newport News Employees	7.7
Philadelphia Municipal	4.8
Jersey City Municipal	4.1

Sources: Authors' calculations from 2006 PFS; and 2006 LPPS.

The conclusion so far is that, in the aggregate, locally administered plans look very similar to state-administered plans. Both groups of plans show substantial variation, however, so the final question is what factors explain the variation in funding activity.

Factors that Affect Funding Status of Locally Administered Plans

The following analysis seeks to determine whether there are systematic relationships between the nature of the locally administered plans and their funding success. One would expect the funding status of pension plans to depend on their funding strategy, governance arrangements, and plan characteristics.

Funding Strategy. How long the plan has been at the funding effort, the actuarial cost method adopted, and whether or not the sponsor made the ARC would all be expected to affect the level of funding.

- *Length of funding effort*. All else equal, a sponsor that has been making funding contributions for, say, ten years would be expected to have more assets than one just beginning such a program. Combining data on the plan's total scheduled

amortization period and the years left to achieve full funding, it is possible to estimate how long the sponsor has been engaged in the funding effort. A longer funding effort would be expected to lead to a higher ratio of assets to accrued liability.

- *Actuarial method*. By definition, plans using the aggregate cost method are fully funded, so these plans are omitted from the analysis. An earlier study of state plans showed that those using the projected unit credit method reported lower funding ratios than those using the more stringent entry age normal method.[14]

- *Making ARC payment*. The other consideration, regardless of the actuarial method selected, is whether sponsors are actually making the ARC. Sponsors that make the ARC should have plans that are better funded than those that fail to make the ARC.[15]

Governance. Several studies have explored the effect of having retirees and workers on the board.[16] One view is that boards with a lot of participants could be more interested in benefit expansion or greater cost-of-living adjustments than in funding benefit promises. Also, to the extent that plan beneficiaries are not financial experts, plan assets may not be well invested. An alternative view is that workers and retirees have more of a stake in the plan's success than outside board members and, therefore, their presence on a board would tend to have a positive impact on a plan's funding status. Earlier studies have shown mixed results.[17] In the following analysis, board composition is represented by the percent of board seats occupied by retirees and employees.

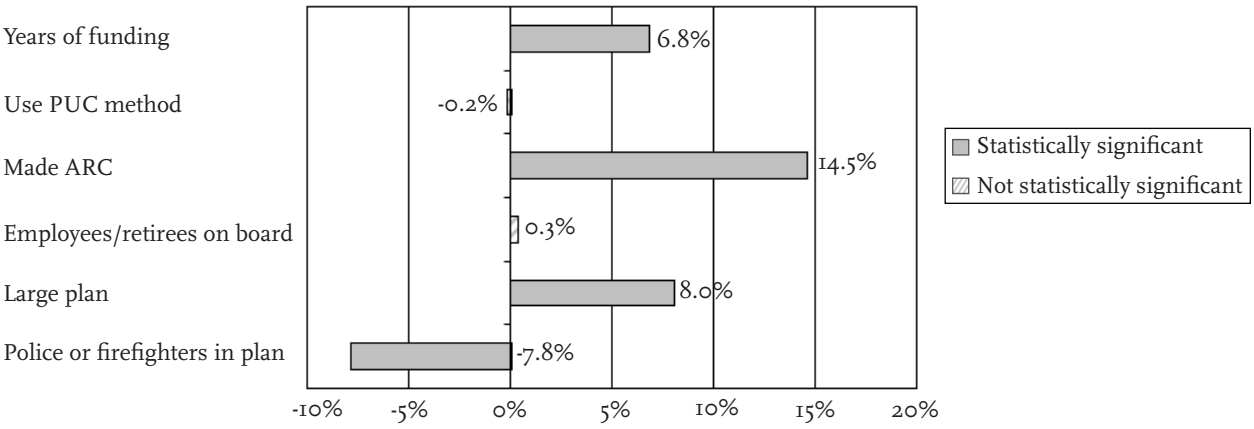
Plan characteristics. Two plan characteristics might affect the funding status of locally administered plans – plan size and the generosity of benefits.

- *Size of the plan*. Previous studies have shown a positive relationship between the size of the plan, as measured by the number of participants, and the funding ratio. Possible explanations for such a relationship include economies of scale in running the plan and greater scrutiny.

- *Generosity of benefits*. Larger benefits translate into higher liabilities, which are more difficult to fund. Plans for police and firefighters tend to provide benefits early and therefore are used as a proxy for generosity. These plans with greater benefits are expected to have lower funding ratios.

The effect of each of these variables on the funding ratio is shown in Figure 8. (Complete regression results are shown in Appendix B). All the variables have the expected signs and the coefficients are statistically significant, with two exceptions. Plans using the projected unit credit method are not less well funded than those using the entry age normal. Second, having workers and retirees on the board does not have a statistically significant effect on funding.

Figure 8. Effect on the Funding Ratio of Locally Administered Pension Plans, 2006



Note: The effect for the variables "Years of funding," and "Employees/retirees on board" is for a one-standard-deviation change in the value.
Sources: Authors' calculations from 2006 PFS; and 2006 LPPS.

Conclusion

The results presented in this *brief* are surprising. Based on press accounts, our expectation was that locally administered plans would be significantly less well funded than those administered by the state. This expectation did not prove to be correct. Based on our sample of 84 plans from 38 states, as of 2006, locally administered plans have funding strategies that are as good as or better than state plans.

It would be a mistake to be too sanguine, however, for three reasons. First, about one fifth of the plans in our sample used the aggregate cost method, where they do not report the unfunded liability. For this reason, GASB has mandated that plans also provide information using the entry age normal approach in the future, which will be helpful.[18] In addition, a number of city plans are significantly underfunded and require substantial increases in their contribution rates to eliminate the unfunded liability within 30 years. Finally, the economy is significantly worse and state and local governments are under greater pressure in 2008 than in 2006, so funding levels may have deteriorated.

Nevertheless, the positive aggregate picture of locally administered plans as of 2006 is consistent with our assessment of state plans. And these results are fully consistent with those of the U.S. Government Accountability Office, the Pew Center on the States, and Wilshire Consulting. These studies report substantial funding of state and local pension plans.[19] The disconnect between these findings 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, as a rule, prefunded these costs as they have employee pensions. Researchers estimate that the total unfunded liability for retiree health benefits lies between $600 billion and $1.6 trillion, far larger than the unfunded liability for state and local pensions. Funding and managing these obligations is the real retirement challenge that states and localities face.

Endnotes

1 Barrett and Greene (2008); Crowley (2006); Lord (2008); Opdyke (2008); Sloan (2008); and Tucker (2008).

2 According to the U.S. Census Bureau (2006), state-administered plans account for only 8 percent of total plans but 88 percent of active members and 82 percent of assets. The Census reports a total of 221 state-administered and 2,433 locally administered systems in 2006, as compared to 107 and 84 in our samples, respectively. Although some experts point out that, for example, Pennsylvania alone has more than 3,000 plans, the Census data on state and local retirement systems cover about 99 percent of the total asssets held by state and local retirement plans combined.

3 Though the liabilities also depend on actuarial assumptions such as the discount rate, this analysis does not address the current debate about the appropriate discount rate to use (see Gold 2003). For a general discussion on how to deal with the risk associated with equity investments when evaluating the financial health of retirement systems, see Munnell, Sass, and Soto (2005).

4 The aggregate cost method defines the employer's normal cost, or current obligation, as the amount needed to pay down over time the difference between the present value of future benefits and the assets held. Thus, plans using the aggregate cost method by definition have funding ratios of 100 percent.

5 A small number of plans use the Frozen Initial Liability cost method (FIL), occasionally referred to as Frozen Entry Age, and are grouped with the aggregate cost plans. In general, plans that use FIL calculate an unfunded liability at the inception of the plan, or the point of switching actuarial cost method. The unfunded liability is amortized over a fixed period. After calculating this initial unfunded liability, it uses the aggregate cost method.

6 Comparisons of funding levels could also be affected by the use of different assumptions, the most important of which are the rate of wage growth used to project future liabilities and the discount rate used to value those liabilities. 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 gaug-

ing 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. Some experts suggest that local plans are more aggressive in their discount rate assumptions, but our samples show the wage growth and discount rate assumptions for state and locally administered plans are quite comparable.

7 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 had allowed sponsors to smooth asset values, and tightened the use of credit balances – notional balances accumulated from previous years that could be used in lieu of cash contributions. These changes made funding ratios more volatile and the timing of contributions less predictable.

8 The average number of members in our full sample of local plans, excluding aggregate cost plans, is about 14,000, while those local plans with funding ratios below 60 percent have an average of 7,550 members. The average number of members in our full sample of state plans, excluding aggregate cost plans, is 196,000, while those state plans with funding ratios below 60 percent have an average of 77,000 members.

9 See Governmental Accounting Standards Board (1994a, 1994b).

10 The ARC for aggregate cost plans is conceptually the same as for other cost methods. It is an annual required contribution to fund accrued liabilities. The only difference is that aggregate cost plans do not separate the ARC into normal cost and a portion for amortizing past unfunded liabilities.

11 Others have legal limitations that currently *exceed* their ARC and, therefore, are not binding at this time.

12 One example is the City of Austin Employees Retirement System. Their employer contribution rate for fiscal year 2006 was statutorily set at 8 percent, well below the GASB ARC of 13.34 percent.

13 For this calculation, we first determined the aggregate ARC as a percentage of payroll (11.3 percent for state-administered plans and 18.3 percent for locally administered plans). We compared this to the aggregate employer contributions as a percentage of payroll (9.5 percent for state-administered plans and 16.7 percent for locally administered plans). The difference of these two equals the percentage-point increase to employer contributions necessary to pay the full ARC, which would be sufficient to pay off unfunded liabilities within 30 years. Our calculations produce numbers consistent with the U.S. Government Accountability Office (2007), which concludes that the contribution rate would need to rise by 0.3 percent of payroll to pay off the unfunded liability over 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.

14 See Munnell, Haverstick, and Aubry (2008). If plans are following their funding schedule, the choice of cost method should not matter – both would have a ratio of assets to liabilities of 100 percent. But the earlier evidence suggests that sponsors that opt for the cheaper funding regime – namely, the projected unit credit – may be less committed to funding their plans and therefore will have lower funding ratios – all else equal.

15 This dummy variable indicates whether a plan is following the GASB prescribed funding schedule. When using the continuous percentage of the ARC paid, the meaning of making payments considerably greater than 100 percent of the ARC is unclear. Excluding the three plans that report paying more than 120 percent of the ARC (the 95th percentile), a regression including the continuous percentage of the ARC paid provides similar overall results.

16 Carmichael and Palacios (2003); Mitchell and Hsin (1997); Schneider and Damanpour (2002); and Yang and Mitchell (2005).

17 Romano (1993); Coronado, Engen, and Knight (2003); Munnell and Sundén (2001); Harper (2008); Yang and Mitchell (2005); and Hess (2005).

18 GASB statement No. 50 (2007) requires that plans using the aggregate actuarial cost method disclose a schedule of funding progress using the entry age actuarial cost method. This requirement is effective for any financial statements containing information resulting from actuarial valuations as of June 15, 2007, or later.

19 U.S. Government Accountability Office (2008); Pew Center on the States(2007); and Bonafede, Foresti, and Dashtara (2007). 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..." Wilshire Consulting reports an aggregate funding ratio of about 90 percent for its sample of local plans.

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APPENDICES

Appendix A. Sample Plan List

Table ai. Sample of Locally Administered Plans with Actuarial Assets, Funding Ratio, and Actuarial Valuation Method, 2006

Plan name	Actuarial value of assets (thousands)	Funding ratio	Actuarial valuation method*
New York City Employee Retirement System	$39,692,426	99.7 %	FIL
New York City Teachers	32,865,126	100.0	FIL
LA County Employee Retirement System	32,819,725	90.5	EAN
New York City Police Pension Fund	18,767,256	100.0	FIL
San Francisco City & County	13,597,646	109.0	EAN
Los Angeles City Fire and Police Pension System	12,121,403	94.6	EAN
Chicago Teachers	10,947,998	78.0	PUC
Los Angeles City Employees Retirement System	7,674,999	77.8	PUC
Chicago Municipal Employees Annuity Benefit Fund	6,509,146	67.2	EAN
Orange County Employees Retirement System	6,466,085	73.8	EAN
San Diego County	6,263,019	83.6	EAN
New York City Fire Dept Pension Fund	6,169,209	99.0	FIL
Milwaukee Employees Retirement System	4,556,371	122.9	PUC
Contra Costa County	4,460,871	84.3	EAN
Philadelphia Municipal Retirement System	4,168,500	51.6	EAN
Boston Retirement Board	4,138,146	66.5	EAN
City of Detroit Policemen and Firemen Retirement System	3,987,461	104.7	EAN
Detroit Employees General Retirement System	3,373,688	98.2	EAN
Dallas Employees Retirement Fund	2,998,000	109.0	EAN
Denver Schools	2,798,981	87.6	EAN
Houston Police Officers Pension System	2,508,794	74.0	EAN
Baltimore Fire-Police Employees Retirement System	2,505,471	92.5	PUC
Fairfax County Supplemental Retirement System	2,363,844	82.0	EAN
Houston Firefighters	2,324,999	87.0	EAN
DC Police & Fire	2,252,600	100.0	AGG
Montgomery County Employees Retirement System	2,222,724	76.2	PUC
Retirement System of The City of Memphis	2,056,080	100.0	FIL
Denver Employees	1,837,476	97.3	PUC
Fairfax County Schools	1,818,930	86.4	EAN
Seattle City Employees Retirement System	1,791,800	88.8	EAN
City of Cincinnati Retirement System	1,720,978	87.4	EAN
Nashville-Davidson Metropolitan Employees Benefit Trust Fund	1,706,677	87.1	EAN
City of Jacksonville Retirement System	1,662,087	87.4	EAN
Phoenix Employee Retirement System	1,626,741	81.3	EAN

Plan name	Actuarial value of assets (thousands)	Funding ratio	Actuarial valuation method*
City of Austin Employee Retirement System	1,497,784	75.9 %	EAN
Minneapolis Employee Retirement Fund	1,490,280	92.1	EAN
Employees Retirement System of Baltimore City	1,411,166	92.2	PUC
DC Teachers	1,230,000	100.0	AGG
Marin County Employees' Retirement Association	1,210,942	80.6	EAN
City of Miami Firefighters & Police Officers Retirement Trust	1,147,900	100.0	AGG
Hartford Municipal Employee Retirement Fund	1,021,491	100.0	AGG
St. Louis School Employees	1,003,400	87.2	FIL
Baton-Rouge City Parish Retirement System	979,598	84.2	EAN
Omaha School Employee Retirement System	948,938	79.4	EAN
St. Paul Teachers	938,919	69.1	EAN
Tallahassee Retirement System	916,306	108.8	EAN
Birmingham Retirement & Relief System	898,671	94.9	EAN
Norfolk Employees Retirement System	881,000	93.8	PUC
St. Louis Police Retirement System	709,291	100.0	AGG
Atlanta General Employees Pension Fund	702,178	52.6	EAN
Newport News Employees Retirement Fund	682,000	76.0	EAN
St Louis City Retirement System	554,066	79.6	PUC
Omaha Police and Fire Pension Fund-New	507,600	63.4	EAN
Wichita Employees Retirement System	505,756	110.2	EAN
City of Richmond Retirement System	497,450	69.5	PUC
City of Oklahoma City Employees Retirement Fund	476,913	104.0	EAN
Anchorage Police and Firemen Retirement Plan	419,854	112.0	AGG
Providence Employees Retirement System	393,768	37.4	EAN
New Castle County Employees Retirement System	387,717	91.1	EAN
Minneapolis Police Relief Association	377,013	85.7	EAN
Pittsburgh Municipal, Police, and Firemen Pension Funds	375,368	41.7	EAN
Lexington-Fayette County Police & Firemen Retirement Fund	373,314	62.8	EAN
Tulsa City Employees Retirement Fund	370,778	96.5	EAN
Cobb County Government Employees' Pension Plan	323,041	67.6	PUC
Greenwich Town Retirement System	315,460	101.0	EAN
Charlotte Firefighters Retirement System	309,859	97.8	EAN
Omaha Employees Retirement System	292,000	80.7	EAN
Duluth Teachers	270,926	84.1	EAN
New Haven Police and Fireman's Retirement Fund	267,477	59.4	PUC
Sioux Falls Employees Retirement System	213,015	95.8	EAN
New Haven City Employee Retirement Fund	188,229	59.6	PUC
Burlington Employees Retirement System	108,344	77.1	PUC
Knox County Teachers' Defined Benefit Plan	84,154	99.8	EAN

Plan name	Actuarial value of assets (thousands)	Funding ratio	Actuarial valuation method*
Little Rock City Firemen's Relief and Pension Fund	84,065	71.4%	EAN
Knox County Defined Benefit Plan	82,094	100.0	AGG
Jersey City Municipal Employees Pension Fund	69,885	52.4	PUC
Wilmington Police Pension Fund	63,439	53.2	EAN
Little Rock City Police Pension and Relief Fund	59,958	50.2	EAN
Bismarck City Employees' Pension Plan	49,154	96.7	EAN
Fargo Police Pension System	31,171	100.0	AGG
Wheeling City Employees' Retirement Funds	27,482	100.0	EAN
Dover General Employee Pension Plan	15,713	38.2	EAN
City of Spartanburg General Employees Retirement Plan	14,854	87.2	AGG
Owensborough City Employees' Pension Funds	5,468	134.1	EAN

* Acronym Key: AGG = Aggregate Cost; EAN = Entry Age Normal; FIL = Frozen Initial Liability; and PUC = Projected Unit Credit.
Sources: 2006 PFS; and 2006 LPPS.

Appendix B. Data and Methodology

In selecting our sample for the *Local Public Pension Survey* (LPPS), we focused on the largest locally administered plans within each state based on plans included in the U.S. Census Bureau's *State and Local Government Employee-Retirement Systems*. This approach resulted in a database of 84 plans from mostly state capitals and other large metropolitan areas. We included plans with recent press coverage, such as those in Orange County, Atlanta, Omaha, and Philadelphia. Data for the 84 locally administered plans were gathered mainly from Actuarial Reports, Comprehensive Annual Financial Reports for the individual plans, Comprehensive Annual Financial Reports for the locality which administers the plan, and Municipal and Local Ordinances. These data are from the fiscal year ending in 2006 for most plans. However, some plans had actuarial valuations conducted in 2005 or 2007 or otherwise did not have 2006 data available. Plan data were also obtained from the 2006 *Public Fund Survey* prepared by the National Association of State Retirement Administrators and the National Council on Teacher Retirement, and the U.S. Census Bureau's *State and Local Government Employee-Retirement Systems*. Data on retirement board composition were collected primarily from municipal and local ordinances. The summary statistics of the variables used in the regression excluding the plans using the aggregate cost method are listed in Table B1.

Table B1. Summary Statistics of Variables Included in the Regression, 2006

Variable	Mean	Standard deviation	Median	Minimum	Maximum
Funding ratio	82.8	19.7	84.2	37	134
Years of funding	8.23	10.97	2.5	-10*	30
Use PUC method	0.22	0.42	0	0	1
Made ARC	0.67	0.47	1	0	1
Employees/retirees on board	47.84	18.48	44.4	0	100
Large plan	0.35	0.48	0	0	1
Police or firefighters in plan	0.51	0.50	1	0	1

* The variable "Years of funding" is equal to the total number of years over which a plan amortizes its unfunded liability less the years remaining in the amortization period. For plans that are fully funded, the years remaining are always zero since there is no unfunded liability to amortize. GASB 25 sets the maximum acceptable amortization period to 30 years, effective 10 years from its inception in 1996. Thus, plans that do not report the total number of years to amortize their unfunded liability were assigned a value of 30. A few plans report 40 years as the remaining amortization period, so these plans have a value of -10 for "Years of funding."
Source: Authors' calculations.

The regression is a linear regression on the percentage of actuarial assets to accrued liability in 2006. The board composition for Wheeling City Employees' Retirement Funds could not be obtained, so the plan was included in the regression with the employees/retirees as a percent of board members set at the mean. The regression estimates are shown in Table B2. One difference between these coefficients and the effects in the text is that for the two continuous variables, years of funding and employees/retirees on board, the text shows the effect of a one-standard-deviation (shown in Table B1) change in the variable while the table below is the effect for a one-unit change in the variable.

Table B2. Regression Results on the Funding Ratio of State and Local Pension Plans, 2006

Variable	Coefficient
Years of funding	0.567 **
	(0.21)
Use PUC method	-0.186
	(5.18)
Made ARC	14.505 ***
	(4.64)
Employees/retirees on board	0.017
	(0.10)
Large plan	8.002 *
	(4.11)
Police or firefighters in plan	-7.815 *
	(4.46)
Constant	68.855 ***
	(7.58)
R-squared	0.288
Number of observations	69

Note: Robust standard errors are in parentheses. Coefficients are significant at the one percent level (***), five percent level (**), or ten percent level (*).
Source: Authors' calculations.

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