CENTER FOR RETIREMENT RESEARCH AT BOSTON COLLEGE

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WHY DON'T SOME STATES AND LOCALITIES PAY THEIR REQUIRED PENSION CONTRIBUTIONS?

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INTRODUCTION

Plan sponsors in the public sector, like their counterparts in the private sector, have accumulated substantial assets to fund their defined benefit pension promises. A snapshot of funding shows that the ratio of assets to liabilities in the public sector is roughly equivalent to that in the private sector. All is not perfect, however. The level of funding among public plans does vary. An earlier *brief* explored the factors that contributed to this variation.[1] One important contributor was the failure of a plan sponsor to make the annual required contribution (ARC). This *brief* peels back one more layer of the onion and explores why some plan sponsors do not pay 100 percent of the ARC.

Section I sets the stage by describing the variation in funding status, the nature of the annual required contribution, and the extent to which plans satisfy this requirement, using a sample of 126 state and local plans from the *Public Fund Survey* and newly collected data. Section II explores possible reasons why some sponsors do not pay the full ARC. It turns out that two thirds of sponsors that fall short are constrained by law in what they can pay. For those not constrained, some of the factors that could be important include lack of funding discipline, governance issues, plan characteristics, and the fiscal pressures facing the state. Section III tests the importance of these factors on contributions.

The key conclusion from this review is the importance of legal restraints in preventing sponsors from making their ARC payments. Laws on the books in

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some places are fundamentally at odds with the financial requirements of funding pension commitments. Most states appear aware of this problem, however, and are in the process of gradually increasing their contribution rates. For those plans that are not constrained, sponsors that use a less rigorous actuarial cost method are less likely to make their annual required contributions. In terms of governance, the composition of the board appears to have no effect. But, at least in our sample, large plans are less likely to satisfy the annual requirement. Finally, plans in states facing fiscal stress are less likely to make their ARC payment.

Assessing Funding Efforts

A sponsor is acting responsibly with regard to funding its pension commitments if it has established an actuarially sound funding plan and is sticking to it. Funding efforts thus are typically assessed in two ways — by the ratio of assets to liabilities and by whether or not the sponsor is paying 100 percent of the annual required contribution (ARC).

Funding Levels

The ratio of assets to the actuarial accrued liability provides a snapshot of a plan's funding status. Figure 1 shows the distribution of funding ratios for the sample of plans included in this analysis. If a state or local government is following an actuarially sound funding plan, a funding ratio of 80 percent is considered adequate, as the funding plan in time should eliminate the shortfall.[2] While 62 percent of plans meet or exceed this 80 percent benchmark, the remaining 38 percent do not. It turns out that many of the plans with low levels of funding are small, so more than three-quarters of the assets in our sample are in plans that are at least 80 percent funded.

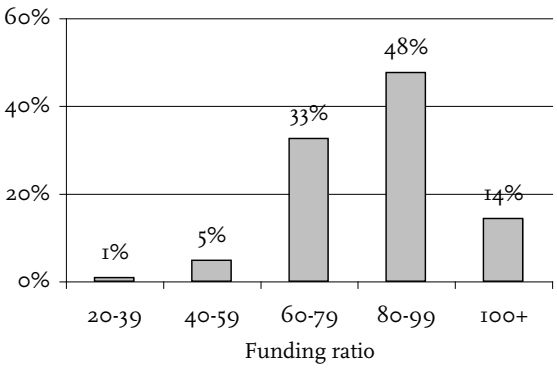
Making the ARC

Whether or not the sponsor is following a sound funding program, as indicated by making its ARC, is the second measure of funding success.[3]

In 1994, the Governmental Accounting Standards Board (GASB) issued Statements No. 25 and 27, which changed the way state and local governments account for pensions and report information and established the ARC as the annual funding target.[4] Employers that pay the full ARC put aside sufficient money to cover the cost of currently accruing benefits as well as a portion of the unfunded liability left over from previous years. Failing to pay the ARC by a material amount means the unfunded liability will likely grow. Comparing a government's actual contributions to the ARC can thus be used to assess the funding efforts of the plan sponsor.

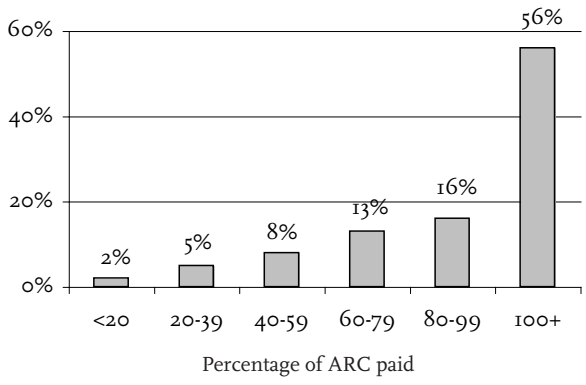
Figure 2 shows that, in 2006, state and local governments paid 100 percent of the ARC for only 56 percent of the plans in our sample. Employers that contribute less than the full ARC could still be setting aside enough money to cover currently accruing benefits. They could even be reducing the plan's unfund-

Figure 1. Distribution of State and Local Plans, by Funding Ratio, 2006



Note: Values do not sum to 100 percent due to rounding.
Source: National Association of State Retirement Administrators and National Council on Teacher Retirement, *Public Fund Survey*, 2006.

Figure 2. Distribution of State and Local Plans, by Percentage of ARC Paid, 2006



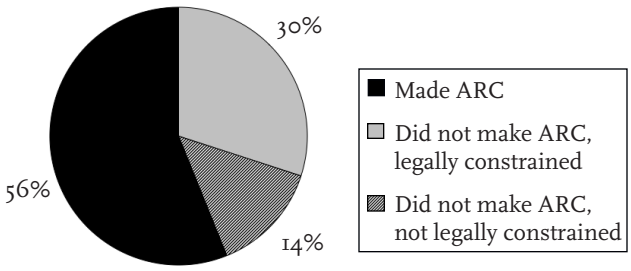
Note: Plans that used the aggregate cost method were coded with 100 percent of ARC paid.
Sources: Authors' calculations from the 2006 PFS and various annual reports.

ed liability from previous years, albeit at a slower pace than the actuary would like. Not making the full ARC payment nevertheless indicates a failure to follow GASB's suggested funding plan. (See Appendix A for a list of plans not making the ARC.) The question is why such a large percentage of plan sponsors are not making the full ARC.

Legal Constraints on Contributions

Experts to whom we spoke suggested that a major reason that some sponsors do not pay the full ARC is that they face legal limitations on how much they can contribute. Indeed, a careful review of the annual reports found that most of the 44 percent of sponsors that did not pay 100 percent of the ARC were legally constrained (see Figure 3).[5]

Figure 3. Distribution of Plans by ARC Payment and Legal Constraint, 2006

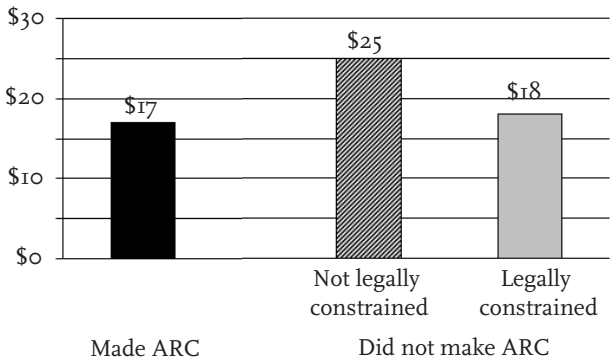


Sources: Authors' calculations from 2006 PFS and various annual reports.

For example, the Kansas public employees' retirement system made only 63.4 percent of its ARC. The reason is that the employer contribution rate is determined by statute and is smaller than the rate recommended by the plan's actuaries. In the case of Kansas, the state legislature is aware of the inadequacy of the statutory contribution rate and has been steadily increasing the legislated rate in an attempt to catch up to the actuarially required contribution level.[6] In fact, most states where funding is legally constrained appear aware of this problem and are in the process of gradually increasing their contribution rates.

In terms of size, the plans of the legally constrained sponsors look like those that paid 100 percent of the ARC. Those that were not legally constrained but still failed to pay the full ARC are noticeably larger (see Figure 4). The question is why these large unconstrained plan sponsors failed to make the full contribution.

Figure 4. Average Assets of State and Local Plans, Billions, 2006



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

Why Unconstrained Plans May Fail to Make the ARC

Four types of factors might account for the failure of unconstrained plan sponsors to pay 100 percent of the ARC: the sponsor simply lacks the discipline required to stick to a funding regime; the people involved in the governance of the plan could care more about benefit enhancements than funding; the characteristics of the plan make funding difficult; or the state is under fiscal pressure.[7]

Lack of Funding Discipline

Two characteristics would signal that a plan sponsor is not disciplined in its funding effort. The first is that it is new to the game; the second is that it uses a less stringent actuarial costing method, such as the projected unit credit.

Length of funding effort. All else equal, if a sponsor has been making funding contributions for, say, ten years, it indicates a stronger commitment to funding than a sponsor just beginning such a program. Combin-

ing data on the normal funding period and the years left to achieve full funding, both of which appear in the annual reports of public sector pension plans, it is possible to estimate how long the sponsor has been engaged in the funding effort. Our hypothesis is that the newer the sponsor to a funding regime, the less committed and the less likely to pay 100 percent of the ARC.

Actuarial method. The choice of actuarial cost method may also indicate the strength of the sponsor's funding commitment. The vast majority of state and local plans uses the entry-age method, but a significant minority uses the Projected Unit Credit (PUC) method. Up to the point of retirement, the entry age method recognizes a larger accumulated pension obligation for active employees than the projected unit credit and generally requires larger annual contributions. Our hypothesis is that sponsors that opt for the cheaper funding regime — namely, the projected unit credit — may be less committed to funding their plans and therefore less likely to make the full annual required contribution.

Governance: Employees/Retirees on the Board

Pension boards can influence a plan's actuarial method and its investment policy, which in turn could affect funding status. The composition of the board may be important. One view is that boards with a lot of workers and retirees could be more interested in benefit expansion or greater cost-of-living adjustments than in funding benefit promises, which could lead to less asset accumulation. 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.[8] In the following analysis, board composition is represented by the percent of board seats occupied by employees and retirees.

Characteristics of the plan

Three characteristics of the plan would be expected to affect the likelihood that the sponsor failed to make 100 percent of the ARC — plan size, whether the plan is administered at the state or local level, and the level of employee contributions.

Plan size. As discussed earlier, plans that are unconstrained and not making the full funding contribution are larger than either those that are constrained or those that made 100 percent of their ARC payment. It is unclear why this is the case, but plan size and not making the ARC appear to be positively related.

State administered. One would think state-administered plans would demonstrate better funding discipline and therefore be more likely to make the ARC than locally-administered plans because of access to better management. Therefore, the relationship between failure and state-administration would be negative.

Level of employee contributions. The employee contribution rate could be expected to affect employer contributions for two reasons. The first is that the more paid by the employee, at a given level of benefits, the less required by the employer. So it would be easier for the sponsor to make the required contribution. The second avenue is that high employee contributions are related to not being covered by Social Security, so government employers might feel an increased responsibility to fund their employees' only source of retirement income. Thus, high employee contributions would reduce the likelihood that a sponsor would fail to pay 100 percent of the ARC.

Fiscal Pressure

The final factor that may influence the funding of a public pension plan is the fiscal health of the state. The notion here is that if a state is having fiscal problems, it may meet current non-pension obligations by not making the annual contribution to the pension plan.[9] The measure of fiscal distress in the following analysis is the ratio of a state's debt to its Gross State Product (GSP), which is expected to increase the probability that the sponsor fails to make the full ARC.[10]

The Results

A probit regression was used to estimate the impact of each of the variables discussed above on the probability of a sponsor failing to pay 100 percent of the ARC. Plans that were constrained by legal funding limitations were excluded from the analysis, which reduced the sample size from 126 to 88. The results of the regression are shown in Figure 5 and details are presented in Appendix B. Most of the variables have the expected effect on failing to make the ARC, but many are only marginally significant.

In terms of funding discipline, plans using the projected unit credit costing method are a whopping 35 percentage points more likely to miss their ARC payment. The funding period did not prove to be statistically significant.

With regard to governance, having a large share of the seats held by employees/retirees does not have a statistically significant effect on ARC payments.

Of plan characteristics, only size (measured as being in the top third in terms of assets) has a statistically significant effect. The larger the plan, the more likely it is to fail to meet its ARC payment. State administration and the employee contribution rate appear to have no significant effect on paying the ARC.

Finally, the regression confirms that the fiscal health of the state plays an important role. States with high levels of debt to GSP are more likely to miss their ARC payment than states with less debt. The results show that a one-standard-deviation change in the debt-to-GSP ratio increases the probability of failure by nine percentage points.

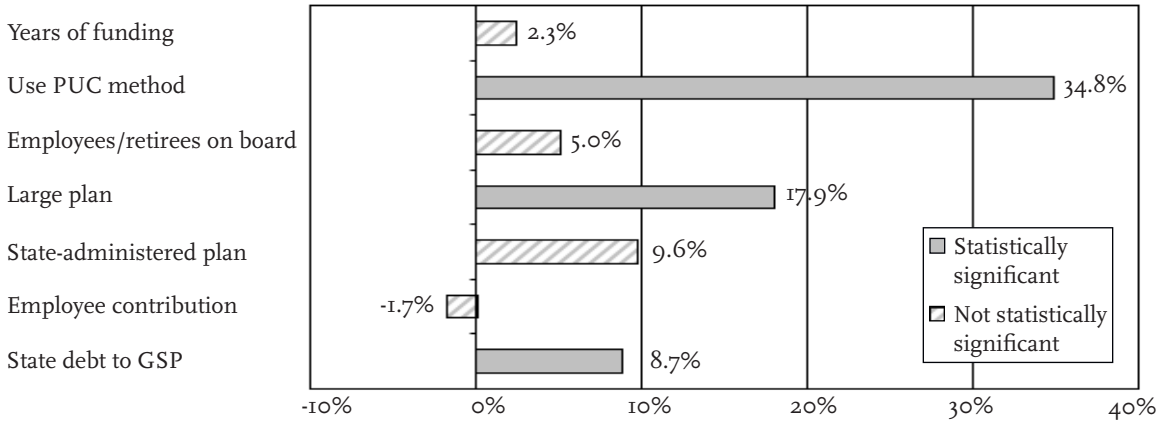
Conclusion

One important factor affecting the funding status of state and local plans is whether the sponsor makes the ARC defined by GASB. Paying the full ARC means that the sponsor is putting aside funds to cover benefits earned in that year plus amortizing any unfunded liability. Plans that fail by a material amount to make their ARC payments will likely see the funding status of their plans deteriorate.

In our sample of 126 plans, an alarming proportion — 44 percent — did not make 100 percent of their ARC in 2006. As it turns out, two thirds of plans failing to meet their ARC were constrained by state legislated contribution limits. Our sense is that states recognize this constraint, and many are trying to raise their contribution limits.

For those not constrained, the failure to cover 100 percent of the ARC is related to a lack of funding discipline, plan size, and the fiscal pressure on state government. The fact that the unconstrained plans that fail to make the ARC are large means that getting them on track is important.

Figure 5. Effect on the Probability of Not Making the ARC, 2006



Note: The results shown are the change in probability of not making the ARC for a one-standard-deviation change from the mean for continuous variables. For dummy variables, the results shown are the change in probability of not making the ARC for a change from 0 to 1.

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

APPENDICES

Appendix A. ARCs and Statutory Constraints

Table A1. Plans Statutorily Constrained from Making Their ARC, 2006

Plan name	Employer contribution rate*	Percent ARC made
California TRS	8.25 %	64.00 %
Colorado school employees	10.65	62.00
Colorado municipal	10.50	85.00
Colorado ERS	10.65	58.00
Denver schools	9.48	73.27
Denver ERS	8.50	92.20
Illinois universities	5.90	27.20
Illinois SERS	16.11	31.30
Illinois TRS	7.06	35.80
Iowa PERS	5.75	83.80
Kansas PERS	6.07	63.40
Kentucky ERS	5.89	47.80
Minnesota SERS	4.00	64.88
Maryland PERS	13.01	59.59
Maryland TRS	11.17	91.33
Minnesota PERF	6.00	78.08
St. Paul teachers	8.33	51.06
Duluth TRS	5.79	72.00
Missouri PEERS	5.25	77.50
Missouri TRS	11.50	77.50
Montana PERS	6.90	91.54
Nevada regular employees	10.31	97.00
Nevada police and fire	16.44	91.00
New Mexico TRS	10.15	75.50
North Dakota PERS	4.12	69.00
North Dakota TRS	7.75	63.90
Ohio police and fire	21.75	73.00
Ohio TRS	13.00	88.00
Ohio school employees	14.00	87.00
Oklahoma PERS	10.00	55.30
Oklahoma TRS	13.43	85.80
Oregon PERS	15.20	55.80
City of Austin ERS	9.00	61.80
Texas ERS	6.00	87.20
Texas TRS	5.91	83.00
Vermont SERS	6.48	96.50
Vermont TRS	4.81	44.10
Virginia retirement system	5.27	89.51

* For some plans, there are multiple contribution rates for different employee types within a single plan. An arithmetic average was used when a weighted average based on total employer contributions was incalculable.
Sources: 2006 PFS, various annual reports, and Pew Center on the States (2007).

Table A2. Plans Failing to Make Their ARC That Were Not Statutorily Constrained, 2006

Plan name	Employer contribution rate*	Percent ARC made
Alaska TRS	16.77 %	54.00%
Alaska PERS	21.00	65.40
Florida RS	6.28	96.00
Chicago TRS	1.86	46.77
Indiana PERF	4.60	92.00
Louisiana SERS	19.10	93.10
Massachusetts SERS	10.60	95.56
Massachusetts TRS	16.17	93.31
Michigan SERS	13.60	73.80
Michigan public schools	7.60	85.72
New Jersey TRS	1.00	8.00
New Jersey PERS	6.00	55.50
New Jersey police and fire	0.20	49.43
Pennsylvania SERS	3.52	35.60
Pennsylvania school employees	3.52	34.00
Washington PERS Plan 1**	1.38	7.00
Washington TRS Plan 1**	2.92	5.00

* For some plans, there are multiple contribution rates for different employee types within a single plan. An arithmetic average was used when a weighted average based on total employer contributions was incalculable.
** Washington PERS and TRS plan 1 were closed to new members as of September 30, 1977.
Sources: 2006 PFS and various annual reports.

Appendix B. Data and Methodology

The sample includes data from the 2006 *Public Fund Survey*, augmented with data from annual reports. For ten plans — Connecticut SERS, Massachusetts SERS, Rhode Island ERS, Wisconsin WRS, Massachusetts Teachers, Minneapolis ERS, New York City Teachers, Ohio Police & Fire, Rhode Island Municipal, and University of California — all the data used in the regression come from annual or actuarial reports. Additionally, for all plans, the percent of ARC paid, total years to amortize unfunded liability, the years remaining to amortize any unfunded liability, and active and retired participants on the board are also from the plans' annual or actuarial reports.[11] Any other plan data missing from the *Public Fund Survey* are also taken from annual or actuarial reports. The state debt is from the U.S. Census Bureau's *State and Local Government Finances: 2004-05* and *2005 State Government Finance Data*. Finally, the data for GSP is from the Bureau of Economic Analysis' *2005 Gross Domestic Product by State*.[12] The summary statistics of these variables are listed in Table B1.

The regression is a probit regression on not making 100 percent of the ARC in 2006. The marginal effect estimates on the probability of not making the ARC are shown in Table B2. One difference between these marginal effects and the effects in the text is that for the four continuous variables — years of funding, percent of the board who are employees or retirees, employee contribution rate and state debt as a percentage of GSP, 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 B1. Summary Statistics of Variables Included in the Regression, 2006

Variable	Mean	Standard deviation	Median
Did not make ARC	0.19	0.40	0
Years of funding	5.82	9.38	0
Use PUC method	0.15	0.36	0
Employees/retirees on board	54.13	24.78	53.59
Large plan	0.34	0.48	0
State-administered plan	0.86	0.35	1
Employee contribution	5.43	2.77	6.00
State debt to GSP	7.27	3.61	6.64

Source: Authors' calculations.

Table B2. Regression Results on Not Making the ARC for State and Local Pension Plans, 2006

Variable	Marginal effect
Years of funding	0.002
	(0.00)
Use PUC method	0.348 **
	(0.16)
Employees/retirees on board	0.002
	(0.00)
Large plan	0.179 *
	(0.09)
State-administered plan	0.096
	(0.08)
Employee contribution	-0.006
	(0.02)
State debt to GSP	0.024 **
	(0.01)
Pseudo R-squared	0.223
Number of observations	88

Notes: Robust standard errors are in parentheses. The marginal effects are significant at the five percent level (**) or ten percent level (*). For continuous variables, the marginal effect is for a one-unit change from the mean. For dummy variables, the marginal effect is for a change from 0 to 1.
Source: Authors' calculations.

Endnotes

1 Munnell, Haverstick, and Aubry (2008).

2 The U.S. GAO (2008) reports that many experts feel that plans that are at least 80 percent funded are healthy.

3 One reviewer argued that the ARC should not be construed as a benchmark, but we believe that GASB guidelines are a reasonable standard against which to judge performance.

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." References to the ARC in this *brief* refer to the employer's portion of the annual required contribution — the portion not covered by employee contributions.

5 Other entities also faced legal limitations but they were not binding at this time.

6 In addition to raising the employer contribution rate, Kansas plans on issuing pension obligation bonds, making actuarial changes, and reviewing possible plan design changes in an attempt to fix its underfunding. See Kansas Public Employees Retirement System (2006).

7 One reviewer suggested that the diversion of employer contributions to cover health care costs may explain why some states have failed to pay 100 percent of their ARC.

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

9 The U.S. GAO (1993, 1985) provides examples of states that closed budget gaps by reducing the pension contribution while Chaney, Copley, and Stone (2002) and Bohn and Inman (1996) consider the general effects of balanced budget requirements in states. Since almost all states have some type of balanced budget requirement, this variable was not included in this analysis.

10 The concept of the debt to GSP is similar to the leverage variable used in Davis, Grob, and de Haan (2007) for private employers. This variable is for 2005, as the debt for the District of Columbia in 2006 was not available at the time of the analysis.

11 Since most plans using the aggregate cost actuarial valuation method do not report any amortization period or percentage of ARC paid, plans using this method are assigned a total amortization period of 30 years, the maximum time specified in GASB 27, a remaining amortization period of one year, and 100 percent of ARC paid. This is due to the fact that the annual contribution is calculated as the difference between the present value of future benefits and assets for this actuarial valuation method. For participants on the board, the numbers were separated by active and retired participants where data were available. Otherwise, participants were coded as active.

12 The regression was also run using the 2006 debt to GSP percentages for all states and the 2005 debt to GSP percentage for the District of Columbia, which yielded similar results.

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