The Extent and Nature of State and Local Government Pension Problems and a Solution

Mark J. Warshawsky and Ross A. Marchand

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ABSTRACT

Some states and municipalities are in difficult financial straits. Many more have severely underfunded defined benefit pension plans for their past and current employees. At the intersection of these two sets, it is likely that the pension plans are not sustainable and cuts are inevitable, including to the benefits of current retirees. But in many of these states and municipalities, courts have not allowed changes to the pension plans. Therefore, we propose that all government pension plan participants be given accurate information about the funded status of their pensions. Furthermore, we propose that, at the discretion of the plan sponsor, retirees and older workers be given the voluntary option to take their pensions as a lump sum, discounted according to the funded status of the plan.

JEL codes: H75, H72, J33

Keywords: public pensions, public employee compensation, state law on employee pensions

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The severe underfunding problems with pensions promised by state and local governments to their employees and retirees are becoming increasingly apparent and immediate. The bankruptcies of Detroit and some California, Pennsylvania, and Rhode Island towns; the massive pension shortfalls in Illinois and New Jersey; and Chicago mayor Rahm Emanuel's recent call for municipal worker givebacks (such as increased pension contributions and health insurance premiums) are just the beginning of difficulties that will appear throughout the country. Asset returns have been less than what has been assumed, and generous unfunded retirement benefits were doled out to government workers years ago by politicians who are no longer around to be held responsible for their dereliction of prudence and duty to taxpayers.

There are actually two problems facing taxpayers: the legacy obligations promised to retirees and workers just about to retire, and the funding and nature of retirement benefits being accrued now and in the future by younger and future state and local government workers. Just switching from a defined benefit (DB) plan to a defined contribution (DC) plan for future government workers—as appropriate as that might be—does not solve the first problem at all, which is larger in size and of more concern than the second problem. Once the unsustainability of many government pension plans is apparent, those affected retirees and long-time workers will become legitimately worried that their retirement benefits are highly uncertain and likely subject to one-off arbitrary and chaotic cuts in the bankruptcy, insolvency, and political processes operating in a poor fiscal environment. Moreover, many of these retirees, again owing to poor past policy choices by their representatives and employers, are not even covered by Social Security; they are therefore particularly exposed to risks in retirement arising from local fiscal conditions.

When it becomes clear that many state and local governments cannot pay off their massive underfunded pension obligations—even with increased taxes—these retirees and older workers may be willing to accept a lump-sum

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payment that represents a significant, but not necessarily full, share of the actuarial value of their promised benefits. Government plan sponsors would also then make that deal, as it would remove large and fluctuating net liabilities from their balance sheets. This relief would enable them to move forward with lower borrowing costs on sorely needed projects for the social welfare, security, and productivity of their citizens. Proposals to pass the buck by moving these legacy liabilities to the federal government, either directly or through Social Security or the Pension Benefit Guaranty Corporation (PBGC), are political and economic nonstarters because of the already large and still growing shortfalls facing the federal government and these programs, and because of the unfairness of imposing the burden caused by imprudent behavior on those who responsibly limited and funded their retirement benefits.

A better option for retirees and older workers is to voluntarily take certain cash benefit payments, discounted according to plan funding (as explained further below). Moreover, solving the legacy problems with pensions would more easily allow governments to make the necessary changes to their ongoing retirement programs for current young and future workers.

This paper is organized as follows. We first present a general background about recent trends in retirement plans for both private-sector and government workers, mainly the movement from defined benefit plans to defined contribution plans and the relatively high compensation received by government workers. We next review recent adverse events affecting government plans, for example, municipal bankruptcy and financial shortfalls. We also present data found in the literature and from our own calculations on the poor financial status of many government plans, which, when correctly measured, indicate for many governments the unsustainability of their pension obligations. We then review the legal and economic literature on state law, which indicates the great difficulty facing many state and local government attempts to reform pension plan promises to current retirees and workers through legislation. Rather, for many states, reforms will have to be done on a voluntary, wholesale basis, which is the basis of our proposal. We propose speeding up the realization of the massive deficits facing government pension plans through the public disclosure of the correct measure of plan funding. Finally, we propose giving plan participants, including retirees, the choice to either keep their uncertain, poorly funded plan benefits or get a lump-sum benefit that represents a realistic valuation of what the plan can pay.

BACKGROUND ON STATE EMPLOYEE RETIREMENT PLANS

There are two main types of retirement plans given by employers to workers: defined benefit pension plans and defined contribution investment plans. Broadly, defined benefit plans provide lifetime retirement income benefits to workers, with the amount depending on the number of years the worker was employed by the plan sponsor, the salary, and the generosity of the plan, usually denominated by a multiplier of between 1 and 2 percent times years of service times salary. The younger the normal retirement age (that is, if it is less than 65 years old) or the fewer the years of service required to get a full retirement benefit (say 25 or 30 years instead of 35 or 40 years), the more valuable the retirement benefits are because there will be more annual payouts for the remaining lifetime of the retired worker.

Yet another important element in plan generosity is how salary is defined in the benefit calculation—whether it is a career average, whether it is an average of just the last few years of work (generally higher than a career average, as wages rise with seniority or inflation), whether overtime is included, and so on. Also, the plan is more generous if retirement benefits are partially or fully indexed to inflation after retirement. Often, a worker must be employed a number of years (typically five) before that worker is vested in the retirement benefits—that is, if a worker leaves the employ of the plan sponsor before the vesting period has been completed, there will be no future retirement benefits from the defined benefit plan.

A defined contribution plan is somewhat simpler. The employer, often matching the employee, makes contributions as a percentage of the worker's salary, say 3 or 6 percent, to the individual worker's account, which the worker then invests in funds offered by the plan. Usually, these contributions vest immediately or after only a year or two. When the worker retires or leaves the employ of the plan sponsor, the account generally may be kept in the plan, emptied by the worker, or rolled over to an individual retirement account. At retirement, the worker is free to hold onto the account or take withdrawals or to buy an annuity as the worker deems appropriate, although there are tax considerations at older ages, essentially forcing minimum distributions.

In the private sector, defined benefit plans were once common at large corporations, sometimes supplemented by modest defined contribution plans. In the past 20 years or so, as the risks and costs of these plans became more obvious, and as it was thought that many employees preferred more flexible retirement benefits, corporate employers have curtailed and virtually eliminated defined benefit plans (including hybrid plans) from offerings to new employees or even as continued accruals to existing employees. Some have completely terminated such plans. The federal law governing private retirement plans given by employers, the Employee Retirement Income Security Act of 1974 (ERISA), maintains a fairly loose standard for required plan benefits, as long as already accrued benefits are paid as promised. The assurance of payment by the defined benefit plan is made through federal minimum funding requirements, liability of the plan sponsor for unfunded benefits, and, in cases of bankruptcy or liquidation, ultimately by the backstop of a government insurance agency, the PBGC.

According to the Department of Labor, in 2000, there were 41.6 million participants in private defined benefit plans, of whom 22.2 million were active workers, with the rest being retirees and vested ex-employees. By 2012, there were 39.8 million participants in private defined benefit plans and only 15.7 million of these were active workers. By contrast, in 2000, there were 61.7 million participants in private defined contribution plans, of whom 50.8 million were active workers. By 2012, the numbers of total and active worker participants had grown to 90.8 million and 75.4 million, respectively.[1]

By contrast, generous defined benefit pension plans are still common for state and local government employees, although their defined contribution plans sometimes include a discretionary supplement. Retirement plans of any type are not always given in the private sector (36 percent of workers do not have access to any retirement plan), especially by small firms employing lower-wage workers who are covered by Social Security. In the public sector, regardless of the size of the employer or wage level of the worker, retirement plans of the defined benefit type are nearly universal (83 percent). In fact, about a quarter of the public work force receives only the government defined benefit plan, with no Social Security coverage. Usually, the government pays the entire cost of the plan, even covering the nominally

1. US Department of Labor, Employee Benefits Security Administration, *Private Pension Plan Bulletin Historical Tables and Graphs*, December 2014.

required employee contributions. The Bureau of Labor Statistics (BLS) collects these and related statistics.[2]

In addition to conducting surveys and gathering statistics on compensation and employee benefits, the BLS also employs economists who do comprehensive analytical studies of labor market conditions. In particular, BLS economists Maury Gittleman and Brooks Pierce have addressed a common claim about government pension plans—that they have to be more generous in order to make up for the overall lower level of compensation paid to government workers than to private-sector workers. Using BLS data, however, Gittleman and Pierce have come to the following contrary conclusion:

> After controlling for skill differences and incorporating employer costs for benefits packages, we find that, on average, public sector workers in state government have compensation costs 3–10 percent greater than those for workers in the private sector, while in local government the gap is 10–19 percent. We caution that this finding is somewhat dependent on the chosen sample and specification, that averages can obscure broader differences in distributions and that a host of worker and job attributes are not available to us in these data. Nonetheless, the data suggest that public sector workers, especially local government ones, on average, receive greater remuneration than observably similar private sector workers. Overturning this result would require, we think, strong arguments for particular model specifications, or different data.[3]

Furthermore, Gittleman and Pierce have found that this positive differential to government workers has generally increased over time, especially owing to the increasing value of benefit plans. This is an important set of empirical results because it weighs on the fairness and equity arguments used in favor of, or in opposition to, proposals for the federal government bailout of failing state and local government pension plans or other forms of assistance—or indeed our own proposal to give retirees and older workers voluntary access to discounted benefit payments.

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2. Bureau of Labor Statistics, National Compensation Survey, Employee Benefits in the United States, annual, http://www.bls.gov/ncs/ebs/#bulletin_coverage.
3. Maury Gittleman and Brooks Pierce, "Compensation for State and Local Government Workers," *Journal of Economic Perspectives* 26, no. 1 (February 2012): 217–41.

With the exception of some tax rules, public-sector plans are not subject to federal regulation under ERISA. Public plans do report on their financial status under the standards developed by the Governmental Accounting Standards Board (GASB), but these standards are much looser than federal and private accounting rules governing private defined benefit plans. In particular, GASB allows the use of expected investment returns in measuring plan liabilities and actuarially required contributions (thereby lowering these measures) compared to the federal rules, which demand the use of low-risk bond rates for private corporate pension plans. In this way, these GASB rules have obscured the true state of government pension funding, both to the public and to plan participants.[4]

RECENT EVENTS AFFECTING GOVERNMENT PENSION PLANS

While several states and local governments have reduced the generosity of their pension plans for new workers, until recently it was thought to be impossible to reduce the benefits of current workers and retirees, even in a municipal bankruptcy. In the recent cases of Central Falls, Rhode Island; Stockton, California; and Detroit, Michigan, however, the bankruptcy courts have indicated that such reductions are legally allowed. In fact, Central Falls and Detroit have both employed such pension cuts in their reorganizations.[5] Pritchard, Alabama, severely cut its pension payments to retirees in serial bankruptcies.[6] In addition, the states of Rhode Island and Illinois have passed legislation to reduce current benefit formulas and increase employee contributions, although there have been legal challenges to these actions.[7] In the case of Illinois, the state supreme court decided that the cuts were unconstitutional.[8] The significance of these situations, at least on the municipal side, is that they clearly lessen the notional legal protections given to government workers and increase the risks they face from underfunded pension plans. Even in Illinois, political efforts to cut current pension benefits continue.

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4. Eileen Norcross, "Getting an Accurate Picture of State Pension Liabilities" (Mercatus on Policy, Mercatus Center at George Mason University, Arlington, VA, December 2010).
5. Richard M. Hynes and Steven D. Walt, "Pensions and Property Rights in Municipal Bankruptcy," *Review of Banking and Finance Law* 33 (2014): 609–37.
6. Michael Cooper and Mary Williams Walsh, "Alabama Town's Failed Pension Is a Warning," *New York Times*, December 23, 2010.
7. Alicia H. Munnell, "States Cut COLAs for Public Pensions," *Encore* (MarketWatch), May 22, 2014, http://blogs.marketwatch.com/encore/2014/05/22/states-cut-colas-for-public-pensions/.
8. Rick Pearson and Kim Geiger, "Illinois Supreme Court Rules Landmark Pension Law Unconstitutional," *Chicago Tribune*, May 8, 2015.

The case of Detroit in particular has attracted much attention because of its size and regional significance. The ultimate outcome was a relatively modest cut in retirement benefits, but the decision set an important legal precedent.[9] In particular, retirees covered under the general retirement system will take a 4.5 percent cut to their monthly pension checks and also see the elimination of cost-of-living adjustments and a complex clawback involving an annuity savings plan. Police and firefighter pensioners are to see their 2.25 percent annual cost-of-living adjustments reduced to about 1 percent. Of course, there is no assurance that these cuts will be the only ones for Detroit municipal retirees in the future, given the still precarious state of finances for both Detroit and the pension plans. Steven Rhodes, the federal bankruptcy court judge, expressed some uncertainty about whether the cuts were sufficient in his decision approving the city's reorganization.

Judge Rhodes decided that the decision by the Detroit city manager to cut pensions to retirees and current workers as part of its Chapter 9 bankruptcy process was legally permissible. He said that the city's claims that it would be unable to manage its $18 billion debt and $3.5 billion in unfunded pension liabilities stand up to reasonable scrutiny, given actuarial estimates put forward by the city and state. There were many objections filed against Detroit's actions, including objections concerning (a) the constitutionality of Detroit's shedding of pension obligations, (b) the ability of Detroit under its current executive structure (i.e., emergency manager control) to file for bankruptcy, and (c) the authority of the bankruptcy court to uphold the constitutionality of Chapter 9. However, the judge declared that these claims did not stand up to scrutiny. In particular, he said that the shredding of obligations was permissible because it was conducted through a federal process (bankruptcy) and not through "state law." The constitutionality of this practice was well established by *United States v. Bekins*

"Judge Rhodes decided that the decision by the Detroit city manager to cut pensions to retirees and current workers as part of its Chapter 9 bankruptcy process was legally permissible."

9. In re City of Detroit, Mich., 504 B.R. 191 (Bankr. E.D. Mich. 2013).

(1938).[10] Furthermore, there is judicial precedent for it in cases involving pension management in Stockton, California, and Harrisburg, Pennsylvania.

FINANCIAL CONDITIONS OF PENSION PLANS AND GOVERNMENT SPONSORS

To assess whether state and local government pension plans are sustainable, one needs a good measure of the extent of the underfunding of these plans across states and municipalities, both at the plan level and in comparison with other government debt and revenues. Indeed, funding may be so poor that it would be unrealistic or destructive to raise taxes on citizens or cut other government spending to fill in the pension holes in a reasonable time frame. In this section, we review the evidence presented by professors Robert Novy-Marx and Joshua Rauh on state plan funding and required contributions under a more accurate method of calculating plan liabilities. Their findings show a massive shortfall, particularly in certain states. In the next section, we summarize the research by professor Alicia Munnell and her associates, using more traditional measurements of liabilities to estimate the exhaustion dates of state pension plans. Depending on the assumptions used, many plans will be exhausted within a decade. Finally, in the section following, we present our own more current measures, using traditional measurements of liabilities but also placing plan funding in a broader context of general state government finances. Here too the evidence shows that the situation for some states is not sustainable.

Presently, states calculate their pension liabilities by assuming that discount rates reflect expected returns on plan assets, in accordance with GASB Statement Number 25 and Actuarial Standards of Practice (ASOP) Number 27.[11] Novy-Marx and Rauh challenge this rule; instead, they use a more accurate discounting methodology and find much higher liability totals for state pension plans.[12] In calculating the value of what has been promised to retirees and

10. United States v. Bekins, 304 U.S. 27, 58 S. Ct. 811, 82 L. Ed. 1137 (1938).

11. In 2014, states began reporting on pension liabilities for government statement purposes under GASB rule 67, forcing some states to lower their discount rate; for funding purposes, however, GASB rule 25 still applies. For ASOP No. 27, see "Actuarial Standard of Practice No. 27, Revised Edition: Selection of Economic Assumptions for Measuring Pension Obligations," Actuarial Standards Board, Doc. No. 172 (September 2013). For GASB Statement No. 25, see "Statement No. 25 of the Governmental Accounting Standards Board: Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans," Governmental Accounting Standards Series No. 116-A (November 1994).

12. Robert Novy-Marx and Joshua Rauh, "Public Pension Promises: How Big Are They and What Are They Worth?," *Journal of Finance* 66, no. 4 (August 2011): 1211–49.

workers, the widespread consensus in the economics and finance literature is that it is inappropriate to consider the expected rate of return on underlying risky investments used to fund the liability. Rather, it is appropriate to assume that the notional risk of default of promised payments is low, as presented to and understood by workers and retirees, and to use this consideration in the choice of the discount rate. Therefore, Novy-Marx and Rauh discount state pension liabilities using two approaches: zero-coupon Treasury yields and zero-coupon state general obligation (GO) bond yields.[13]

Novy-Marx and Rauh create an estimation model for state-by-state accrued liabilities. They consider a range of accounting methods in their analysis, reflecting the fact that different approaches treat future wages differently. Under the accumulated benefit obligation (ABO), future wages and future years of service are not considered at all; only current salary data and past years are relevant. Thus, the ABO accrued liability for a 25-year-old government worker is a percentage of the worker's *current* salary multiplied by years on the job. As Novy-Marx and Rauh point out, however, this understates significantly the present value of the liability as an ongoing pension plan. The actual obligation to the worker will reflect the higher wages that the worker is likely to earn through career end, as well as the additional years of work accrued through the benefit formula.

But even assuming plan termination, Novy-Marx and Rauh's ABO estimates give a picture of worse financing than liabilities stated under standard government accounting rules, as seen in table 1. Here, state-by-state liabilities, discounted by the conventional method of expected returns and the EAN (entry age normal) actuarial method, are compared to ABO liabilities, discounted respectively by GO (muni) bond yields and US Treasury yields. Using the Treasury rate, aggregate-accrued state pension liability totals $4.4 trillion. Under municipal-rate discounting and standard discounting, the aggregate liability totals approximately $3.2 trillion and $3.1 trillion, respectively. The pension liabilities are several times the outstanding state debt and larger than pension assets, at nearly $2 trillion.

13. Both approaches used by Novy-Marx and Rauh have their advantages and disadvantages. Using the state government bond rate for discounting seems intuitive because the liabilities under discussion are accrued at the state level, but in a state failure, pension liabilities may have a greater recovery rate than state GO debt. US Treasuries more closely mirror the promise of low default risk of state pension liabilities. But the widespread liquidity of US Treasuries results in a decrease in yield that may overstate the value of state pension plans whose benefits are not liquid; that is, they cannot be bought and sold in the market. However, there is also an inflation risk premium built into US Treasuries, raising the yields; this runs counter to the liquidity premium, which lowers the yield, and thus it is possible these two premiums will balance out in a rough way, so that using US Treasuries may be the right approach.

TABLE 1. STATE PENSION DATA FOR JUNE 2009 ($ BILLIONS)

State name and number of plans	Liabilities, stated	ABO, taxable muni rate	ABO, Treasury rate	Pension assets	State debt (2008)	Tax revenues (2008)	Gross state product (2008)	S&P GO rating
Alabama (3)	42.0	45.2	61.8	21.4	8.5	9.1	170.0	AA
Alaska (2)	15.3	16.2	21.7	12.4	6.5	8.4	47.9	AA+
Arizona (3)	43.6	50.1	73.5	24.8	10.5	13.7	248.9	NR
Arkansas (3)	21.5	21.9	30.4	14.6	4.3	7.5	98.3	AA
California (3)	518.1	425.9	699.7	329.6	121.9	117.4	1,846.8	A
Colorado (1)	57.3	62.0	86.2	28.8	15.9	9.6	248.6	NR
Connecticut (3)	45.3	53.7	69.1	20.1	27.6	13.4	216.2	AA
Delaware (1)	7.6	8.8	10.9	5.8	5.7	2.9	61.8	AAA
Florida (1)	136.4	136.8	186.3	96.5	42.3	35.8	744.1	AAA
Georgia (2)	75.8	84.3	110.1	53.1	13.1	18.2	397.8	AAA
Hawaii (1)	17.5	17.8	24.2	8.1	6.0	5.1	63.8	AA
Idaho (1)	11.7	11.7	16.6	8.7	3.4	3.7	52.7	NR
Illinois (4)	151.0	160.7	233.0	65.7	58.4	31.9	633.7	AA−
Indiana (2)	37.3	36.4	49.8	19.6	19.9	14.9	254.9	NR
Iowa (1)	26.0	25.4	35.0	18.0	7.2	6.9	135.7	NR
Kansas (1)	21.3	22.3	30.3	10.2	5.8	7.2	122.7	NR
Kentucky (3)	45.2	47.9	63.4	21.1	12.2	10.1	156.4	NR
Louisiana (2)	36.8	40.4	54.8	18.4	16.4	11.0	222.2	A+
Maine (1)	14.4	14.5	20.1	8.3	5.3	3.7	49.7	AA
Maryland (1)	52.7	55.5	72.1	28.6	23.1	15.7	273.3	AAA
Massachusetts (2)	59.7	67.4	86.9	32.7	71.9	21.9	365.0	AA
Michigan (4)	73.2	75.4	103.1	39.5	29.1	24.8	382.5	AA−
Minnesota (4)	60.6	69.7	91.0	35.9	9.5	18.3	262.8	AAA
Mississippi (3)	31.4	32.5	44.2	15.5	6.3	6.8	91.8	AA
Missouri (3)	53.5	58.7	75.2	33.1	19.7	11.0	237.8	AAA
Montana (2)	9.1	9.1	12.4	5.3	4.9	2.5	35.9	AA
Nebraska (2)	8.4	8.2	11.6	5.5	2.7	4.2	83.3	NR
Nevada (1)	25.4	25.9	36.3	18.8	4.2	6.1	131.2	AA+
New Hampshire (1)	8.5	9.2	12.5	4.3	7.9	2.3	60.0	AA
New Jersey (4)	132.8	147.0	191.2	67.2	52.8	30.6	474.9	AA
New Mexico (2)	28.8	29.1	39.8	15.9	7.8	5.6	79.9	AA+
New York (3)	239.8	247.2	325.7	192.8	114.2	65.4	1,144.5	AA
North Carolina (2)	74.9	79.8	101.8	64.0	19.6	22.8	400.2	AAA
North Dakota (2)	4.4	4.5	6.3	2.7	2.0	2.3	31.2	NR
Ohio (5)	197.5	208.2	281.4	114.7	26.9	26.4	471.5	AA+
Oklahoma (4)	33.6	33.8	45.9	15.8	9.1	8.5	146.4	AA+
Oregon (1)	57.5	59.9	80.7	42.9	11.6	7.3	161.6	AA
Pennsylvania (2)	110.6	124.2	164.5	64.3	40.7	32.1	553.3	AA
Rhode Island (1)	13.9	14.9	20.5	6.6	8.9	2.8	47.4	AA

State name and number of plans	Liabilities, stated	ABO, taxable muni rate	ABO, Treasury rate	Pension assets	State debt (2008)	Tax revenues (2008)	Gross state product (2008)	S&P GO rating
South Carolina (2)	42.4	48.6	63.5	20.3	15.2	8.5	156.4	AA+
South Dakota (1)	7.4	7.4	10.3	5.6	3.4	1.3	37.0	NR
Tennessee (1)	36.7	38.6	49.6	26.4	4.4	11.5	252.1	AA+
Texas (4)	191.2	196.3	268.4	126.1	33.3	44.7	1,223.5	AA
Utah (3)	22.6	23.6	31.2	14.7	5.9	5.9	109.8	AAA
Vermont (3)	4.0	4.1	5.7	2.4	3.4	2.5	25.4	AA+
Virginia (1)	69.1	69.4	89.6	41.3	21.9	18.4	397.0	AAA
Washington (7)	62.3	63.1	86.4	43.5	23.5	17.9	322.8	AA+
West Virginia (2)	13.7	13.6	18.3	7.2	6.4	4.9	61.7	AA−
Wisconsin (1)	79.7	84.9	114.6	58.4	22.1	15.1	240.4	AA
Wyoming (4)	7.0	7.1	9.8	4.4	1.3	2.2	35.3	NR
TOTAL (116)	3,136.5	3,198.9	4,427.4	1,941.6	1,004.6	780.8	14,068.1	

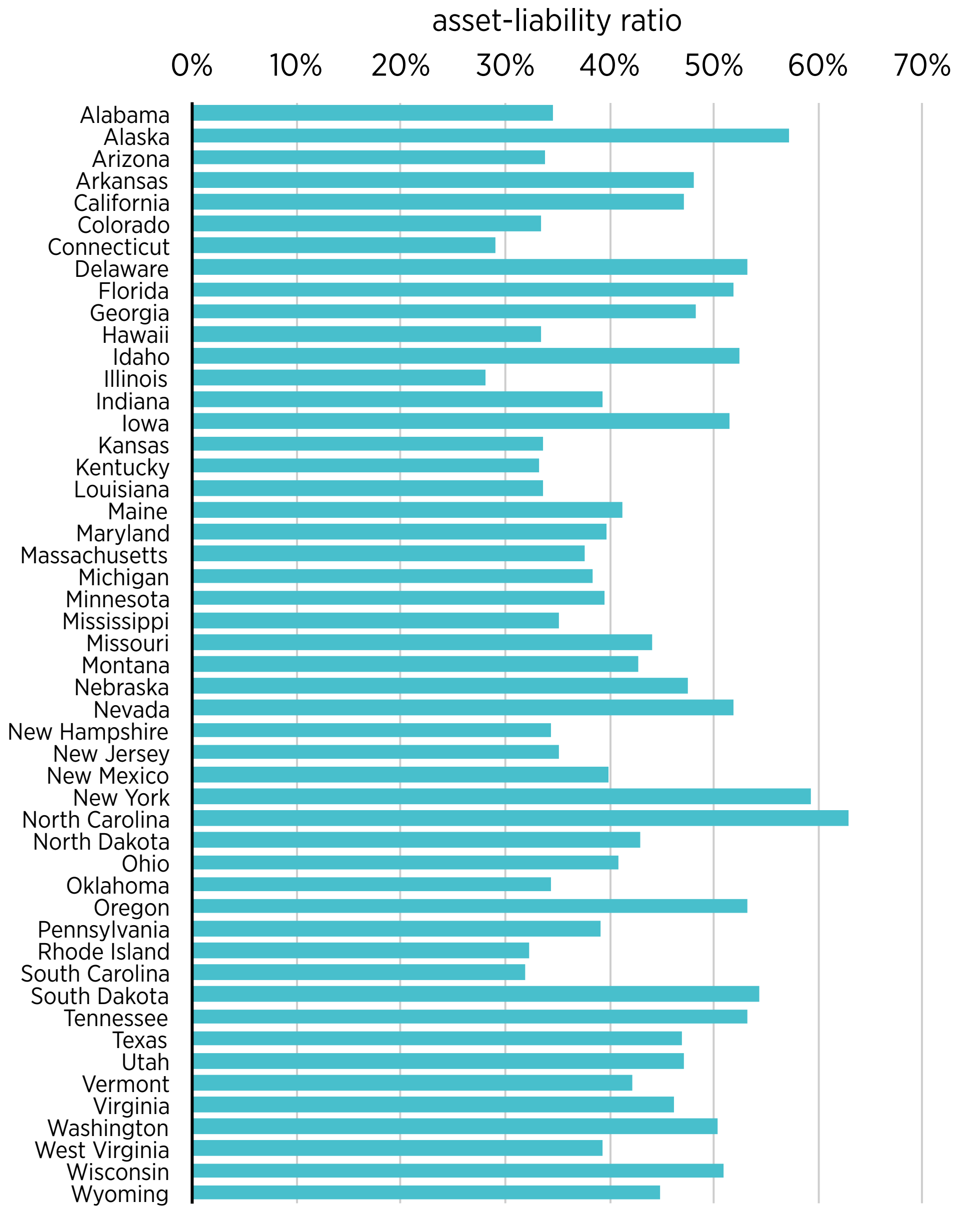
Source: Robert Novy-Marx and Joshua Rauh, "Public Pension Promises: How Big Are They and What Are They Worth?," *Journal of Finance* 66, no. 4 (August 2011).

Figure 1 shows the range of funding percentages (asset-liability ratios) across states for 2009, where the liabilities are discounted using US Treasury yields. By this measure, 21 states are less than 40 percent funded. By contrast, corporate pension obligations are almost always 80 percent funded and often higher.[14]

Building on their prior work, Novy-Marx and Rauh measure the increases in funding for state and local government pension plans that would be needed to close funding gaps over the next 30 years.[15] Under current accounting standards and loose state funding requirements, state and local governments contribute an average of 5.7 percent of their own revenues to public employee retirement plans. According to Novy-Marx and Rauh, full funding status would require a 14.1 percent annual claim on revenues. This is roughly a 150 percent increase from the baseline. For each taxpayer, the additional burden roughly equates to an average of $1,385 per year for three decades. For the 12 states with the largest shortfalls per citizen (California, Colorado, Illinois, Minnesota, New Jersey, New Mexico, New York, Ohio, Oregon, Pennsylvania, Wisconsin, and Wyoming) taxpayers must each increase their contributions by at least

14. Brendan McFarland, "Corporate Pension Funding Declined in 2014, Largely Reversing 2013 Gains," *Insider* (Towers Watson), January 2015, https://www.towerswatson.com/en/Insights/Newsletters/Americas/Insider/2015/01/corporate-pension-funding-declined-in-2014.
15. Robert Novy-Marx and Joshua Rauh, "The Revenue Demands of Public Employee Pension Promises," *American Economic Journal: Economic Policy* 6, no. 1 (February 2014): 193–229.

FIGURE 1. ASSET-LIABILITY (TREASURY-RATE DISCOUNTED) RATIOS FOR STATE PENSION PLANS, 2009



Source: Data from Robert Novy-Marx and Joshua Rauh, "Public Pension Promises: How Big Are They and What Are They Worth?," *Journal of Finance* 66, no. 4 (August 2011).

$1,500 to achieve full funding. Of this set of states, New York, Oregon, Wyoming, Ohio, and New Jersey will require average annual future contributions of more than $2,000 per taxpayer. These are large increases, particularly for states with already high tax rates. Nearly half of the states (22), however, will require per-taxpayer contribution increases of $1,000 or less. Arizona, West Virginia, Arkansas, Utah, and Indiana are the fiscally healthiest by this measure, requiring $600 or less in annual per-taxpayer increases.[16]

These estimates of per-taxpayer contribution increases vary depending on the assumptions being used. A large degree of uncertainty stems from so-called Tiebout effects: changing fiscal policy may mean that more or fewer people will migrate out of a state. States such as Illinois that have larger holes to fill face an additional problem. If, for instance, Illinois responds to its pension shortfall by suddenly increasing taxes or reducing state services and benefits, the “mobile tax base” may respond by migrating out of the state. This development would result in a smaller tax base and an increase in the average amount required from each taxpayer. The reverse is true for states with low tax burdens: they could see a net-migration *rise* as a result of Tiebout effects. The influx of tax migrants to states with lower tax burdens would increase the base of taxpayers, leading to a smaller required increase in contributions per taxpayer. Novy-Marx and Rauh assume a baseline of zero Tiebout sensitivity,

16. To arrive at these calculations, Novy-Marx and Rauh (ibid.) use a baseline measure of gross state product. They average 10 years of measured growth rates from the Bureau of Economic Analysis data released in 2010 and use this average as the projected growth rate for all future years. They use similar methods to obtain baseline data from the US Census Bureau on state revenue, population, and pension contribution growth. The census data on contributions are separated into government contributions and employee contributions. (US Census Bureau, *Census of Governments: Finance—Annual Survey of State Government Finances*.)

Taking a similar approach to their 2011 research, Novy-Marx and Rauh derive pension liability data from the Comprehensive Annual Financial Reports (CAFRs) of 193 pension systems. Of these, 116 systems are statewide and 77 are local. Data gathered from these reports include liability estimates, descriptions of accrual methods, benefit formula factors, average worker salaries, and the ratio of active workers to total workers in the system. Worker age and service distributions, as well as the deviation of worker wages at each age and service level from the overall average wage, are averaged from a CAFR sample of states with the largest liabilities. The resulting figures are used as a uniform assumption for all pension plans in the study. Novy-Marx and Rauh also assume that the plans have uniform rules about when workers can begin collecting benefits (age 55), when workers can assume the full benefit (age 60), and the yearly benefit penalty for collecting before age 60 (6 percent). Finally, the researchers assume marriage rates, survivor benefit collection rates, and a distribution of retiree ages with standard pensioner mortality tables. Cost-of-living adjustments (COLAs), total wage data, and the number of vested, separated members come from the CAFRs of individual pension plans. The researchers calibrate the resulting pension liability figures to each individual plan’s stated liability, discounted at a Treasury Inflation-Protected Securities (TIPS) rate of 1.7 percent. Finally, they use a uniform yearly inflation assumption of 2 percent to convert the figures to real cash flows.

and examine parameters of 1, 2, and 3. Under the largest parameter—that is, when taxpayers are highly mobile in response to fiscal policy—Ohio and Oregon cannot achieve full funding under *any* level of taxation, and Utah and Indiana barely have to make any fiscal sacrifices.

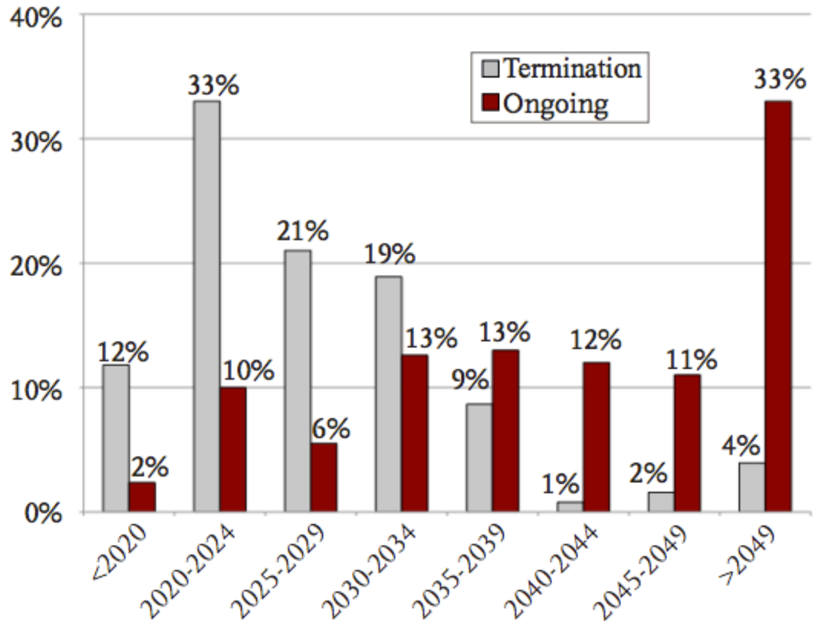
Novy-Marx and Rauh also find that the increase in required contributions varies depending on possible structural reforms. A state, for instance, may choose to implement a "soft freeze" in which new hires would be given a defined contribution account. In addition, these new hires would be placed into Social Security. The researchers model two scenarios: one assumes that the employer (i.e., the state) will make the full FICA contribution of 12.4 percent while the other assumes that the employee and employer will each contribute 6.2 percent of the employee's earnings. Under the latter, more realistic, assumption, required annual average increases in pension funding fall from $1,385 per taxpayer to $1,134. This strategy would leave only Ohio, Colorado, and Maine in a worse fiscal situation than the baseline. Only in these three states are employee pension contributions as a share of total contributions already high, and they would fall in response to the soft freeze strategy. For the remaining 47 states, though, transitioning to a defined contribution program for new hires and expanding Social Security reduces the public debt and tax obligations of the state. Including all state government workers is an element in many Social Security reform plans in order to bring equity across workers in the private and public sectors and, at least in the initial years, to increase cash flows to the Social Security Trust Fund. The inclusion of government workers could improve or worsen Trust Fund finances in the long run, depending on other elements of the Social Security reform plan. While improving state finances, the transition to a defined contribution plan is not a complete solution, particularly for those states with large amounts of underfunding, stressed finances, and slow economic growth.

Estimating the Exhaustion Dates of State Pension Plans

Alicia Munnell and her colleagues measure the fiscal health of state and local pension plans by estimating the number of years the plan has until exhaustion.[17] Arriving at a date of exhaustion, however, depends on assumptions about the liquidity of assets in the system. Under the "termination" framework, future contributions are only available for covering pension obligations that arise in the future. Thus, expected assets are unavailable for paying down accrued

17. Alicia H. Munnell et al., "Can State and Local Pensions Muddle Through?" (Issue in Brief No. 15, Center for Retirement Research at Boston College, March 2011).

FIGURE 2. PERCENTAGE OF STATE AND LOCAL PLANS EXHAUSTED BY YEAR UNDER A TERMINATION FRAMEWORK AND AN ONGOING FRAMEWORK



Note: Assumes an 8 percent return.

Source: Alicia H. Munnell et al., "Can State and Local Pensions Muddle Through?" (Issue in Brief No. 15, Center for Retirement Research at Boston College, March 2011), using data from *Public Plans Database*, Center for Retirement Research at Boston College, Center for State and Local Government Excellence, and National Association of State Retirement Administrators, 2009.

liabilities in the system. In contrast, the "ongoing" approach allows for future contributions to be used in paying down present obligations. Although Munnell regards the ongoing framework as more realistic, she calculates exhaustion dates under both approaches. For each approach, estimates are calculated for both 6 percent and 8 percent average annual returns on pension assets.

Munnell and her colleagues find that, under the liberal ongoing framework and using the generous 8 percent rate-of-return assumption, several large plans will still run out of funds within a decade. Specifically, Illinois State Employees' Retirement System, Illinois Universities, Kentucky Employees Retirement System, Rhode Island Employees' Retirement System, and Connecticut State Employees Retirement System are projected to exhaust their assets by 2024. Under the aforementioned set of generous assumptions, 31 percent of state and local plans studied will have to borrow from state general funds by 2034. Figure 2 shows the percentage of all plans that are projected to be exhausted in successive four-year time intervals from 2020 through 2049.

Under an assumption of 6 percent asset growth, the average exhaustion dates are 2023 and 2025 for the termination and ongoing scenarios respectively. In the current investment environment, with very low interest rates, an assumption of 6 percent asset growth may be more realistic. For the assumption of 8 percent asset growth, the respective years are 2033 and 2041.[18]

Our Own Alternative Measures of Pension Funding Viability

In addition to the measures proposed by Novy-Marx and Rauh[19] and Munnell and her colleagues,[20] we can assess the ability of states to honor future obligations by measuring unfunded accrued liabilities against different measures of state income and the capacity for revenue generation. Rebecca Sielman provides state-by-state estimates of accrued pension liabilities and plan assets for the 100 largest public pension plans in FY 2013.[21] The accrued liability figures are recalibrated from the states' CAFRs.[22] This is clearly an inferior approach to that of Novy-Marx and Rauh in that it still calculates liabilities using the expected investment return and the EAN instead of the projected unit credit actuarial method, which is more economically justified. But working with the more current data clearly is an advantage, and we focus here on differences across states.

To get a rough sense of each state's ability to finance pension obligations through somehow taxing the resources of its citizens, we look at Sielman's unfunded liability estimates as a proportion of 2013 gross state product figures. There is obviously no hard and fast rule regarding what is "too much" to

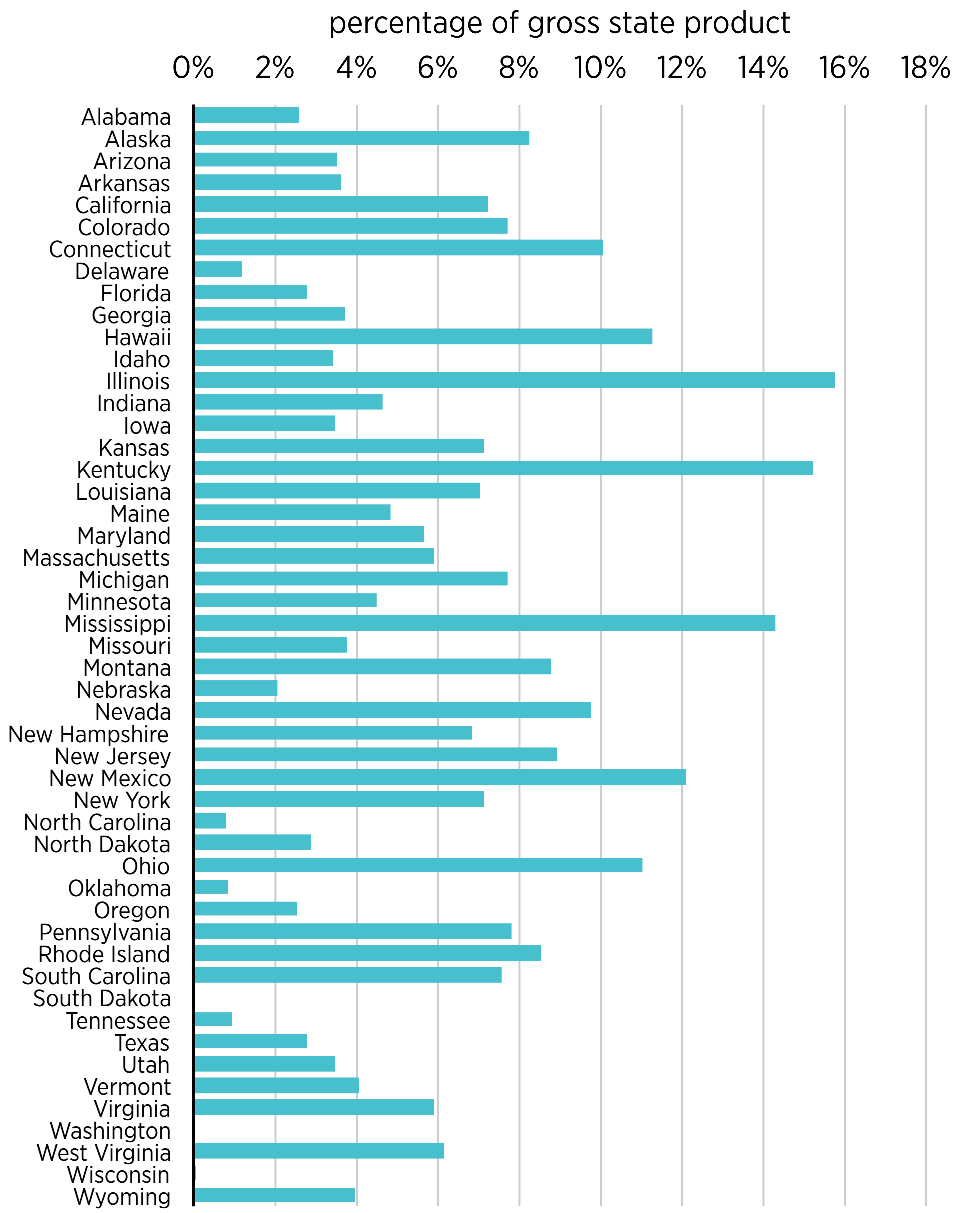
18. Munnell et al. (ibid.) draw on a dataset of 126 state and local public pension plans to arrive at exhaustion year estimates. To calculate the estimates, assumptions regarding mortality, salary growth, employee contribution rate, COLA provisions, and benefit formula were taken from 2001–2009 reports from the *Public Plans Database* (Center for Retirement Research at Boston College, Center for State and Local Government Excellence, and National Association of State Retirement Administrators). Instead of analyzing all plans with a set of uniform assumptions, the researchers created 14 separate models based on the structural details of the 14 largest plans in the sample. The remaining plans were each sorted into one of the 14 models, based on liability calculation estimates. In contrast to Novy-Marx and Rauh ("Public Pension Promises," "Revenue Demands of Public Employee Pension Promises"), Munnell et al. use the conventional discounting method.
19. Novy-Marx and Rauh, "Revenue Demands of Public Employee Pension Plans."
20. Munnell et al., "Can State and Local Pensions Muddle Through?"
21. Rebecca A. Sielman, "Milliman 2014 Public Pension Funding Study," Milliman, 2014.
22. For the recalibration process, Sielman uses information reported in the CAFRs to determine each plan's asset investment allocation. She analyzes the portfolios using assumptions for investment rate returns and current capital markets derived from Milliman Inc. The resulting asset return estimate for each plan is used in tandem with a variety of demographic assumptions and plan-specific information (such as COLA size and plan structure) in order to recalibrate state-reported liability figures.

indicate an unrealistic prospect of paying off the obligations, but at least we can see those states with high ratios versus those with quite low ratios as an indicator of relative burden. As figure 3 shows, Connecticut, Hawaii, Illinois, Kentucky, Mississippi, New Mexico, and Ohio have unfunded accrued pension liabilities equal to or exceeding 10 percent of 2013 gross state product, while Delaware, North Carolina, Oklahoma, and Tennessee have low ratios—that is, ratios of less than 2 percent.

As another, perhaps more direct, way of assessing the burden of the unfunded pension obligations on the state's usual finances, we look at unfunded accrued liabilities as a percentage of 2013 state revenues, and a picture emerges that is broadly similar to the one shown in figure 3. Figure 4 shows Colorado, Connecticut, Illinois, Kentucky, Louisiana, Mississippi, Nevada, New Hampshire, New Jersey, New Mexico, Ohio, Rhode Island, and South Carolina with pension obligations meeting or exceeding 150 percent of 2013 state revenues. As we described above by citing academic studies, the prospect of paying off these growing obligations is quite doubtful for most of these states without reducing the pensions themselves.

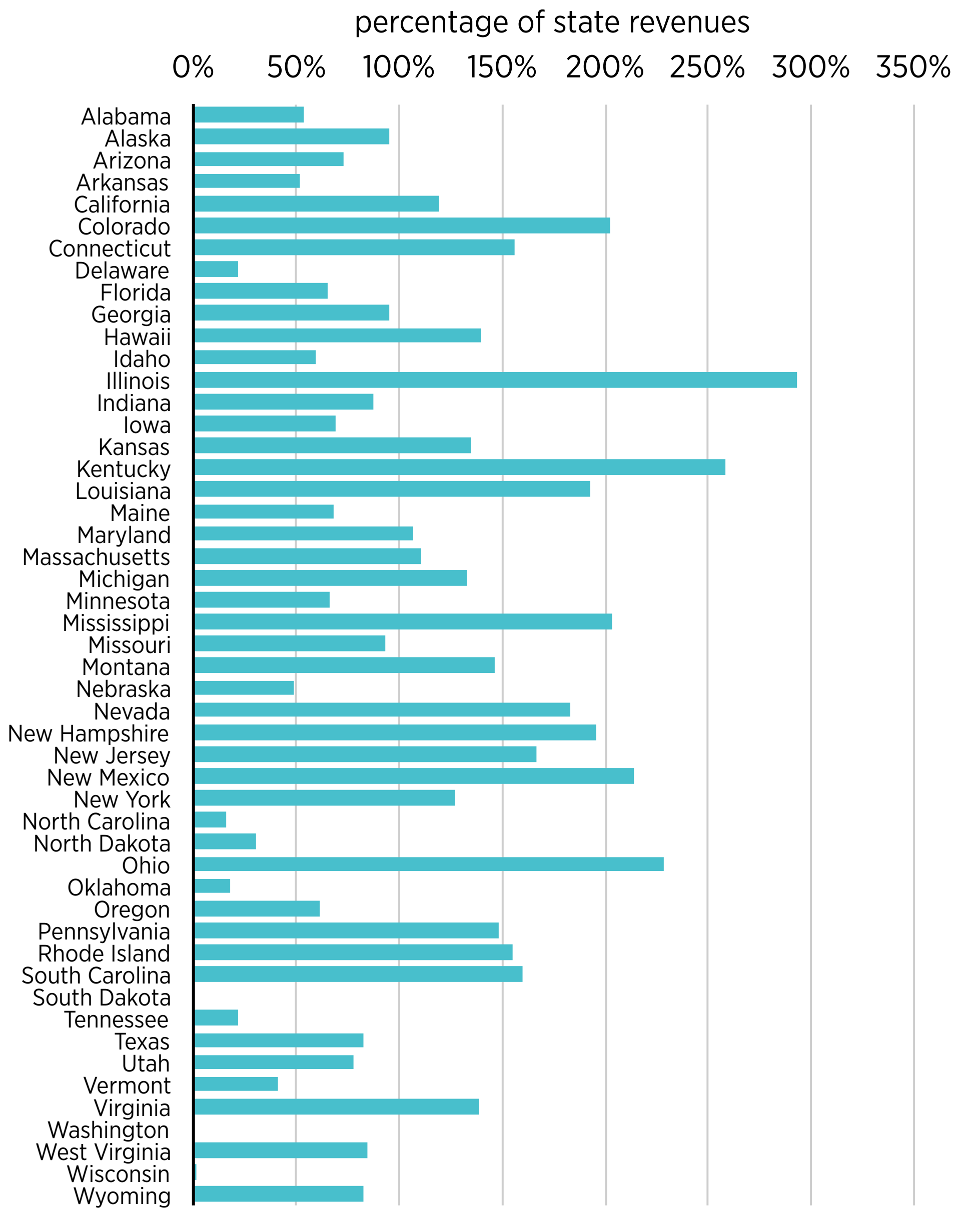
"We can assess the ability of states to honor future obligations by measuring unfunded accrued liabilities against different measures of state income and the capacity for revenue generation."

FIGURE 3. UNFUNDED ACCRUED LIABILITY AS A PERCENTAGE OF GROSS STATE PRODUCT, 2013



Sources: Liability estimates are from Rebecca A. Sielman, "Milliman 2014 Public Pension Funding Study," Milliman, 2014. Gross state product estimates are from Bureau of Economic Analysis data released in 2015.

FIGURE 4. UNFUNDED ACCRUED LIABILITY AS A PERCENTAGE OF STATE REVENUES, 2013



Sources: Liability estimates are from Rebecca A. Sielman, "Milliman 2014 Public Pension Funding Study," Milliman, 2014. State revenue estimates are from US Census Bureau data released in 2015.

QUANTIFICATION OF LEGAL RIGIDITY TO REFORM STATE PENSION PLANS

Just as there is a range of plan funding and financing prospects across states—some in dire straits, some manageable, and some quite good—there is a range of legal possibilities across states about whether they can reform their plans, even for current workers and retirees. If states have poorly funded plans but can reform them with relative ease, then unconventional solutions, such as we will propose, are not needed. If, however, it is difficult to reform plans, then other, more innovative, solutions must be sought out.

As explained by Terrance O'Reilly, in comparing the operation of state and federal law, we find that state and local government plans have significantly stronger nominal legal protections for workers than private-sector plans do.[23] In particular, with respect to services an employee has not yet rendered, a private-sector employer may reduce or eliminate the rate at which pension benefits accrue or make other changes in the benefit formula. In contrast, in some states, a government sponsor of a pension plan is bound to the terms existing on the date an employee begins work for the entire career of the employee and after retirement. The basis for this stronger protection comes from direct statements in state constitutions, or from federal or state constitutional contract protections. In particular, according to O'Reilly, many state courts have decided in past cases that, once an employee has joined the state or local government workforce, future job prospects in the private sector become limited; therefore the employee needs extra protection for pension benefits through retirement.[24] There is, however, some greater legal uncertainty, and therefore perhaps lesser protection, about cost-of-living adjustments.

Although there is clear legal protection for government workers regarding their career retirement plan benefits, securing those rights, especially in a difficult or chaotic fiscal environment, may be quite challenging. Pursuing conventional state law remedies is certainly possible, but forcing payment through, for example, a foreclosure on public property is not. The hearing judge could order an increase in taxes or cuts in other spending by the government plan sponsor, but again, this is a difficult and uncertain path.

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23. Terrance O'Reilly, "A Public Pensions Bailout: Economics and Law," *University of Michigan Journal of Law Reform* 48, no. 1 (2014): 183–240.

24. This viewpoint does not seem consistent with modern conditions in labor markets, even for government workers, and it is besides somewhat circular, as it is the provisions of the government retirement plan itself that encourage a lifelong career with the government employer. Therefore it would be interesting to see how new legal challenges would fare if these modern economic arguments were advanced. But for the purposes of policy proposals evaluated and forwarded in this paper, we take a conservative approach and consider the law settled.

As explained and quantified by Munnell and her colleagues,[25] the difficulty that a state faces in reforming its pension system through legislation largely depends on (a) the legal category that the pension promises fall into and (b) the point in time when the promises become legally binding. By far, the most permissive legal category that exists is "gratuity." In Texas and Indiana, pensions are not legally regarded as unalterable rights, but rather as an alterable form of payment. Even these flexible systems, though, have limitations. Indiana's gratuity model, for instance, only applies in cases where the compensation package is involuntary and the public servants aren't allowed to decide whether they can contribute to their plans.[26] For Indiana's voluntary plans, a contract model is followed.

The contract model of pension promises, adhered to by a plurality of states, allows changes but only in dire circumstances. In order for the state to alter a pension contract, it must prove that either (a) the alteration does not result in a severe impairment of the contract, or (b) the alteration serves a vital public purpose. While addressing the severe and growing underfunding of pension plans seems to serve a vital public purpose, the courts have not concurred. Often, the key to the court's flexibility regarding the alteration of pension contract promises is the point in time that the pension promises begin. If the court rules that the contract is only between retirees and the state, then current workers can have their promises altered with less difficulty.

But states such as Massachusetts and Kansas have been faced with court rulings that establish the contract at the point of hiring the worker. Such rulings all but ensure that legislative reform will be impossible. While Minnesota characterizes its pension promises as promissory estoppels instead of contracts, there is little practical distinction between the two. Yet Minnesota successfully withstood legal challenges to sweeping 2010 legislation that lowered cost-of-living increases for retirees and required government workers to contribute more to their retirements. Though subsequent court challenges alleged breaches in contract law, District Court Judge Gregg Johnson ruled in 2011 that addressing the fiscal threat posed by pension insolvency served a vital public purpose.

A handful of states have embraced the property model of pension promises. Here, all retirement benefits are the property of the worker, only to be taken away under due process of the law. In practice, this due process has been rather flexible toward the state; governments seeking to alter obligations

25. Munnell et al., "Can State and Local Pensions Muddle Through?"
26. Ballard v. Board of Trustees of Police Pension Fund, 324 N.E.2d 813, 263 Ind. 79 (1975).

only need to prove that these changes are "rationally related to a legitimate state interest."[27]

States trying to change their agreements with workers and retirees will face a great deal of difficulty if there is a clause in the state constitution safeguarding the benefits. Such contract clauses are mirrored in article I, section 10 of the US Constitution, which prevents state governments from passing laws "impairing the obligation of contracts." States with these constitutional issues are likely to face a tough road to reform, and indeed, despite recent fiscal problems in Illinois, that state Supreme Court recently said that legislated pension reforms were illegal.

States face varying levels of difficulty in overhauling their pension systems based on the legal category of the pension promises, yet there has been one area where scaling back obligations has been relatively easy. Cost-of-living adjustment (COLA) increases have been tied to the funded status of pension plans in three states: New Jersey, Rhode Island, and Oklahoma. In many other states, COLA increases have been curtailed for the foreseeable future. Alicia Munnell, Jean-Pierre Aubry, and Mark Cafarelli catalogue court challenges to these alterations and conclude that, save for a few states with pertinent state constitutional provisions, reducing or suspending COLAs is an option readily available to states.[28] And, given that the value of COLA is estimated to be around 17 percent of the lifetime benefit of the average pension plan, this is no insignificant change.

In table 2, there is a brief description of the legal structures surrounding pensions in each state. There are five possible aforementioned legal systems (gratuity, property, contract, promissory estoppel, and state constitution) combined with protected time frames (none, past only, past and maybe future, and past and future). A designation of "none" would imply a gratuity system. "Past only" signifies that only the past accrued obligations of retirees are protected under law; plans for current workers may be altered. "Past, maybe future" implies conflicting court decisions about whether the current worker plans are malleable. Finally, "past and future" shields the plans of both current workers and retirees unambiguously and is thus the most inflexible type. We have accompanied this qualitative data with a sliding number scale, which is our attempt to quantify the difficulty of reforming a pension system. A "1" would imply a system that is easily alterable (e.g., Texas), while a "4" denotes a system nearly impossible to reform (e.g., Illinois, at least under our understanding of state law and court decisions to date).

27. Parker v. Wakelin, 937 F. Supp. 46, 58 (D. Me. 1996).
28. Alicia H. Munnell, Jean-Pierre Aubry, and Mark Cafarelli, "COLA Cuts in State/Local Pensions" (SLP #38, Center for Retirement Research at Boston College, May 2014).

TABLE 2. DIFFICULTY IN THE ALTERATION OF PENSION OBLIGATIONS, STATE BY STATE

State	Legal system	Protected timeframe	Difficulty index	COLA reforms enacted?
Alabama	contract	past and future	4	no
Alaska	state constitution	past and future	4	no
Arizona	state constitution	past, maybe future	3	no
Arkansas	contract	past only	2	no
California	contract	past and future	4	no
Colorado	contract	past, maybe future	3	yes; retirees affected
Connecticut	property	past, maybe future	1	yes; current workers, hires affected
Delaware	contract	past only	2	no
Florida	contract	past only	2	yes; current workers, hires affected
Georgia	contract	past and future	4	no
Hawaii	state constitution	past only	2	no
Idaho	contract	past, maybe future	3	no
Illinois	state constitution	past and future	4	yes; retirees affected; struck down in court
Indiana	gratuity	none	1	no
Iowa	contract	past only	2	no
Kansas	contract	past and future	4	no
Kentucky	contract	past only	2	no
Louisiana	state constitution	past only	2	no
Maine	property	past and future	2	yes; retirees affected
Maryland	contract	past, maybe future	3	yes; current workers, hires affected
Massachusetts	contract	past and future	4	no
Michigan	state constitution	past only	2	no
Minnesota	promissory estoppel	past and future	3	yes; retirees, current workers affected
Mississippi	contract	past, maybe future	3	no
Missouri	contract	past only	2	no
Montana	contract	past only	2	yes; retirees affected
Nebraska	contract	past and future	4	no
Nevada	contract	past and future	4	no
New Hampshire	contract	past and future	4	no
New Jersey	contract	past, maybe future	3	yes; retirees affected
New Mexico	property	past, maybe future	1	yes; retirees affected
New York	state constitution	past and future	4	no
North Carolina	contract	past only	2	no
North Dakota	contract	past and future	4	no
Ohio	property	past, maybe future	1	yes; current workers, hires affected
Oklahoma	contract	past only	2	yes; retirees affected
Oregon	contract	past and future	4	yes; retirees affected
Pennsylvania	contract	past and future	4	no
Rhode Island	contract	past, maybe future	3	yes; retirees affected
South Carolina	contract	past, maybe future	3	no
South Dakota	contract	past only	2	yes; retirees affected

State	Legal system	Protected timeframe	Difficulty index	COLA reforms enacted?
Tennessee	contract	past and future	4	no
Texas	gratuity	none	1	no
Utah	contract	past only	2	no
Vermont	contract	past and future	4	no
Virginia	contract	past only	2	no
Washington	contract	past and future	4	yes; struck down in court
West Virginia	contract	past and future	4	no
Wisconsin	property	past only	1	no
Wyoming	property	past and future	2	yes; retirees affected

Source: Based on Alicia H. Munnell, Jean-Pierre Aubry, and Mark Cafarelli, "COLA Cuts in State/Local Pensions" (SLP #38, Center for Retirement Research at Boston College, May 2014).

REFORM PROPOSALS FROM OTHER ANALYSTS

The poor conditions of pension funding and state and local government fiscal situations serve as the backdrop to two alternate policy proposals for pension reform put forward by other analysts, which we summarize before presenting our own proposal.[29] The authors of these alternate proposals take as givens that (a) some large local and state governments will be approaching insolvency in the near future and pension underfunding is a major contributing factor, and (b) it is inevitable that the federal government will be forced to intervene and bail out the failing entities and plans. (We agree with the first judgment and disagree with the second, as explained below.) Therefore both proposals want to set up a more coherent and rational policy regime to forestall, or at least reduce, the resulting financial chaos in the municipal bond market; both proposals are intended to lower the projected costs to the federal government for the alternative to chaotic bailouts.

29. There is a third proposal from law school professor David Skeel to create a federal law mechanism for bankruptcy by state governments. See David A. Skeel Jr., "States of Bankruptcy," *University of Chicago Law Review* 79, no. 2 (2012): 678–735. Skeel is motivated only in part by the pension problem; his proposal is broader and quite controversial. In our opinion, in a federal constitutional system, it is hard to envision the created entity (the federal government) setting the allowance for the dissolution of the obligations of the creating entities (the state governments). Hence, we believe a constitutional amendment would be needed to make a change as major as this one. The last constitutional amendment was adopted in 1992, and it was on the relatively minor issue of the timing of any increases in the pay of congressional legislators. Moreover, strong political opposition across the spectrum has arisen to the possibility of state government bankruptcies.

In the first proposal, Joshua Rauh and Robert Novy-Marx advocate that states combine fiscal and pension reforms to improve solvency with increased borrowing to keep operating through the increase in pension benefit payments that will arise in the near future.[30] In particular, they recommend that states close defined benefit plans to new workers for at least 30 years, while keeping current benefit formulas for existing workers, as apparently demanded by many state constitutions and legal decisions. All new government workers would be enrolled in Social Security (currently about a quarter are not) and defined contribution plans, which while having good features, would likely be less generous and less costly than the old defined benefit plans. States should also be required to make annual actuarial contributions to existing DB plans. In return for states voluntarily taking these steps, the federal government would (a) allow states to issue pension financing bonds and (b) pay directly to the issuing states 35 percent of coupon payments on the pension bonds issued by those states. Because the average income tax rate is lower than 35 percent, this represents a generous form of tax exemption; moreover, it is a new tax preference item because, under current law, bonds floated by states to fund pensions are fully taxable.[31]

Terrance O'Reilly has a better articulated and more complex proposal, patterned on ERISA, the federal law governing private-sector pension plans.[32] Like Rauh and Novy-Marx's proposal, O'Reilly's also envisions substantial financial support from the federal government to state and local plans. He proposes a federal program that conditions federal financial support on acceptance of federal supervision of all of the requesting state's government retirement plans, at both the state and local levels. In particular, O'Reilly would require the state's plans to fully fund accruing benefits and to move to full funding of legacy liabilities, using actuarial standards comparable in strictness to the ones mandated by ERISA for corporate plans, essentially using low-risk bond rates to value liabilities. Also, the plans would pay premiums to a federal guarantee program; the premiums charged would depend on the riskiness of the portfolio's investments but would not be related to the exposure from legacy liabilities. Finally, participating states would be required to report regularly to the appropriate federal

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30. Joshua Rauh and Robert Novy-Marx, "Pension Security Bonds: A New Plan to Address the State Pension Crisis," *Economist's Voice* 7, no. 3 (June 2010).
31. Rauh and Novy-Marx (ibid.) claim that the net cost to the federal government would only be $75 billion over several decades. However, they make several incorrect and sometimes optimistic assumptions in coming to this estimate; the actual cost could be much higher, depending on the take-up of the proposed allowance by states.
32. O'Reilly, "Public Pensions Bailout."

agency. Although participation in the federal program would be voluntary, the reference date for full funding would be the date on which the federal stabilization program was established, rather than the date the plan joined, in order to minimize gaming by states joining just before their collapse.

O'Reilly would give the new federal insurance agency the power to terminate pension plans under its jurisdiction, either when they have insufficient funds to pay current benefits or in the case of a municipal bankruptcy. In addition, participating plans would be permitted, but not required, to alter the existing benefit formulas applying to current workers (but not to retirees or already accrued benefits). Finally, the federal fiscal exposure would be limited to a certain annual benefit amount, as is done by the PBGC for failed corporate pension plans.

The main problem with both these proposals is the tens and likely hundreds of billions of dollars that they would cost the federal government, given the size of the pension deficits in state and local government plans and given the relatively easy terms offered to states to get out of their pension plan liabilities, particularly in the O'Reilly proposal. Moreover, the existence of these programs would give states little incentive to fix their problems now rather than just hand over the liabilities to the federal government. Regarding the O'Reilly proposal, it is hard to believe that once a voluntary government insurance program is set up, political pressures would not build to allow states to enter the program and start required funding right before they become insolvent. Hence, the program would lose even the minimal prudence contained in it and would represent a massive bailout. In addition, because of the wide range of funding and reform possibilities across states, federal solutions to the government pension problem are inherently unfair, transferring resources from prudent state and local governments to imprudent governments.

OUR REFORM PROPOSAL

As mentioned above, we agree that some large local and state governments will be approaching insolvency in the near future and that pension underfunding is a major contributing factor. Furthermore, actual insolvency is not necessary to cause considerable pain and anxiety to pension participants, governments, taxpayers, and recipients of other government benefits and liabilities. Rather, as the impending insolvencies come into view, even years in advance of the actual event, financial markets and other borrowing and credit sources will freeze up for governments, necessitating both sudden spending cuts (including to pensioners) and tax increases.

But this crisis scenario does not mean that the federal government will inevitably come to the rescue and bail out the state and local governments. Indeed, the recent bankruptcy of Detroit did not result in a bailout by the federal government despite some initial calls for it, at least indirectly through the assumption of plan liabilities by Social Security or the PBGC. Instead, pensions and other benefits were eventually cut significantly for thousands of Detroit retirees. Similarly, the Multiemployer Pension Reform Act of 2014 was passed recently to deal with the incipient failures of several large multiemployer pension plans. This legislation envisions cuts to retiree benefits rather than a federal bailout (despite the existence of a federally sponsored benefit guarantee fund—that is, the PBGC), minimum required funding rules, and so on. (The existence of these federal institutions and mechanisms motivate O'Reilly to believe that, just as the federal government would bail out private pensions because of an implicit federal guarantee, it must also bail out public pensions.)

We believe that this bailout reticence is owing to the view that these expected failures were and will often be the result of widely recognized and long-standing poor governance and planning, profligacy, continual logrolling, and, as reported in the media, sometimes significant conflicts of interest with investment firms, legislators, and unions. Moreover, as mentioned above, state and local government workers are better compensated compared to similar workers in the private sector. Therefore, it is unfair to ask taxpayers or other pension plan participants, most of whom are responsible and sober in their retirement planning and funding, to pay for the mistakes of others. We instead predicate our proposal on self-help—that is, the affected governments, taxpayers, and pension participants will have to solve their problems on their own. We do agree, however, that it is better to deal with the issue sooner rather than later and in an organized and transparent fashion rather than in a chaotic, last-minute, clouded manner.

Our proposal faces the same legal and constitutional problems that both Rauh and Novy-Marx and O'Reilly

"State and local government workers are better compensated compared to similar workers in the private sector. Therefore, it is unfair to ask taxpayers or other pension plan participants . . . to pay for the mistakes of others."

faced in their proposals: pensions are often held in the law as extended contracts for workers' lifetimes and are therefore quite difficult to change. Hence, we too must employ voluntary means to coax significant reforms. But our focus will be on giving individual pension participants—both active older workers and retirees—choices concerning their retirement benefits as well as accurate information about the truly perilous state of those benefits.

The Public Employee Pension Transparency Act, a 2013 legislative proposal, contains some useful elements that provide a starting point for the first part of our proposal. This legislative proposal would impose reporting requirements on all state and local government plans. These requirements would be enforced by eliminating tax exemptions for interest on all existing and future state and local government bonds issued for any purpose when a government's pension plans are out of compliance with the required reporting. The bill would mandate that a plan sponsor file an annual report with the Treasury that describes the characteristics of plan participants and the plan's funding status, including the funding percentage, sponsor contributions, actuarial assumptions, and recent investment returns. Furthermore, it would require that the plan measure its accumulated benefit liabilities using the Treasury bond yield curve, a reflection of the riskless rate appropriate to the asserted riskless nature of the liability, and currently much lower than the 7.5 to 8 percent rates used by government plans as reflecting their expectations of fund investment returns. The bill also would require disclosure of alternative projections of the cash flows associated with the current plan liability for each of the next 60 plan years, as well as statements covering the degree to which unfunded liabilities are expected to be eliminated and the amount of pension obligation bonds outstanding. The reports would be placed on a public website.

In order to achieve our intended purpose of alerting plan participants to the true state of their retirement finances, we would modify the bill's requirements so that a summary annual report would also be provided to all plan participants containing the above essential information stated in layman's terms. ERISA already mandates something similar for private plans. Expanding this requirement to government plans is a consistent measure and would serve the same public policy purpose—that is, to get plan participants and their representatives more actively involved in assuring the prudence and safety of their retirement benefits. We would also require that a certified actuary sign off on all the above statements and disclosures, again as required by ERISA for private pension plans.

An open question is whether any automatic cost-of-living adjustment benefits should be included in the calculation of plan liability and funded percentage. On the one hand, COLAs are a valuable feature included in most government plans, and they therefore should be reflected in the measurements. On the other hand, in many states, COLAs have not proved to be a legally binding benefit feature when formula changes need to be made, even extending to current retirees. Our current view is that only legally binding features be included in the funding measures mandated above, but this is a close call on policy grounds in terms of disclosing the true state of pension finances to participants. However, we would not include two funding measures—with and without cost-of-living adjustments—because this step would confuse and make unclear the necessary communications.

The second essential element of our proposal would be to allow (but not require) government plan sponsors to offer plan participants (retirees below a certain age, say 80; terminated vested workers; and active vested older workers) a lump sum—that is, a payout equal to the present value of their retirement benefits accrued to date, discounted by 100 percent less the funded percentage of the plan at the time of the offer, plus 5 percentage points, as disclosed in the statement for the plan (as described above). For example, if a retiree had a pension stream valued at $300,000 using Treasury bond rates, and the plan, using consistent assumptions, was 45 percent funded, the retiree would be offered a buyout by the plan of a value of $150,000. (We add the 5 percentage point kicker to provide extra encouragement for retirees and older workers to take up the offer.)

Permission has been given by the IRS through several private letter rulings to private pension plans in recent years, allowing the plans to offer pension buyouts to retirees, albeit with no discounting.[33] We believe the same legal framework should apply to government plans. The only difference between the IRS's private letter rulings and our proposal is that a specified discount (haircut) on the value of promised benefits would be allowed. This is appropriate in a voluntary offer, given the current dire finances of many government plans and sponsors and given the great uncertainty about whether plan participants will receive their promised benefits. The uncertainty arises from future investment

33. See Elizabeth Thomas Dold, "IRS Rulings Permit Cashout of Pension Plan Retirees," *Journal of Pension Benefits* (2013). On July 9, 2015, the IRS announced (Notice 2015-49) that it intends to amend the required minimum distribution rules to provide that defined benefit plans are not allowed to replace any annuity now being paid with a lump-sum payment. This surprise announcement, made with no advance warning or discussion, contradicts IRS rulings just recently given that presumably were consistent with current law, and is inconsistent with the tax purpose of the minimum distribution rules. It remains to be seen whether the change will withstand expected political and legal opposition. It is, however, consistent with the general policy thrust of the Obama administration to encourage annuitization.

> "The deep discounts of value in the government sector indicate a lower take-up rate compared to the experience in the private sector, given the full value offered, but the generally higher perceived risk of the most troubled sponsors and plans . . . would argue for a higher take-up rate."

returns, future sponsor contributions, political considerations, current and future sponsor fiscal conditions, the possibility (albeit unlikely) of effective court interventions to require state performance on benefit promises, and so on. The plan sponsor would be allowed to make repeated offers over the years.

Implementation of Our Proposal

We expect that only the most poorly funded plans and most financially challenged and desperate sponsors will initially make these buyout offers, given the inevitable political controversy that will ensue, but these plans will also have a higher likelihood of participant acceptance. Over time, as this mechanism becomes more widely accepted, it will encourage government plan sponsors and union representatives to be more realistic in their design and funding of defined benefit pension plans in the public sector, to the extent that that plan type remains for new employees.

Obviously the relief to the plan and sponsor given by this mechanism is dependent on the take-up rate of the buyout offer among plan participants. According to Olivia Mitchell, a noted pension expert, the take-up rate in the private sector has been about 50 percent,[34] although the corporate plan sponsors making the offers, such as Ford and Boeing, have themselves been tight lipped about their own experience.[35] There are opposing considerations in estimating the take-up rate for the government sector compared to the private sector. The deep discounts of value in the government sector indicate a lower take-up rate compared to the experience in the private sector, given the full value offered, but the generally higher perceived risk of the most troubled sponsors and plans (such as the state of Illinois or the city of Chicago) with no federal government

34. See Steve Maas, "Decision on Pension Payout Will Last a Lifetime," *Boston Globe*, December 21, 2014.
35. See George Erb, "Decision Time for Boeing Pension-Buyout Offer," *Seattle Times*, October 25, 2014.

backstop and much poorer funding compared to the private sector, would argue for a higher take-up rate. There may be systematic differences between types of workers—teachers, fire fighters and police, general civil service, and so on, given the well-established differences in risk aversion by gender, age, and occupation. At the same time, risk here is quite ambiguous, and highly dependent on context, so that even established behavioral patterns might not cut in the expected ways.

There is some evidence from the following studies of government worker behavior in similar contexts that the take-up rate could be quite high. In particular, there exists an empirical literature examining whether public employees will take a lump-sum payment in exchange for forgoing a future stream of retirement payments.

Saul Pleeter and John Warner use a natural experiment to determine the willingness of individuals to exchange future earning streams for a lump sum.[36] The end of the Cold War in the early 1990s saw the implementation of a sustained US military drawdown program. In accordance with the 1991 Defense Authorization Act, the US Department of Defense (DOD) devised a 25 percentage point reduction in active duty strength by offering financial incentives for voluntary separation from the armed forces at every experience level. One program, known as the Voluntary Separation Incentive, was an annuity. The second program was the Selective Separation Benefit, a lump sum multiplied by the employees' years of service and annual basic pay.

At the DOD assumed nominal 7 percent interest rate, the present value of the annuity was often double the value of the lump-sum payment. Since this natural experiment was carried out at every experience level, the researchers could determine how the personal discount rate varied by income and job characteristics. Enlistees had the highest lump-sum take-up rates; for example, an E-5 with 7 years of service had a 95.1 percent take-up rate. The personal discount rate declined with experience and age; an E-7 with 15 years of service had a 74.3 percent take-up rate. Officers shared a similar pattern along the age and experience margins, but they had take-up rates in the 15–20 percent range. Pleeter and Warner found high discount rates overall among military personnel, albeit with high demographic variation.[37]

Maria Fitzpatrick also uses a natural experiment, in which Illinois public school teachers were given the option to subscribe to a higher future payment

36. Saul Pleeter and John T. Warner, "The Personal Discount Rate: Evidence from Military Downsizing Programs," *American Economic Review* 91, no. 1 (2001): 33–53.
37. Ibid.

stream in exchange for a payment in the current period.[38] The price that the teachers could pay depended on the amount of desired increase in future pension payments. In addition, teachers with a greater amount of experience faced a greater subscription price. Fitzpatrick observed teachers with 22 to 28 years of experience and examined the relationship between subscription price and quantity of future payouts demanded. She concludes that the teachers are only willing to pay $2 of present income for $10 in future pension payouts (present value). Fitzpatrick concludes that, while the results do not *necessarily* imply that public-sector employees would "be willing to sell the benefits back at such a low price," the suggestion that governments could buy back DB packages for as little as 20 cents on the dollar warrants further exploration.[39]

Responses to Possible Criticisms of Our Proposal

We recognize that the plan-specific discount factor we employ will itself be controversial. Some advocates, even after getting over their opposition to any type of buyout offer, will demand no discount—that is, full value. But because one of the main points of this proposal is to give relief to governments and taxpayers while reducing uncertainty to plan participants, such a full-value approach would be counterproductive, reducing plan liquidity, speeding up the time of plan insolvency, and giving no financial assistance to plan sponsors. At the same time, we recognize that allowing pension buyout offers, even after the publication of the true state of plan funding, will be quite unsettling to retirees and older workers, which is why we temper our proposal by requiring the addition of 5 percentage points to the funded percentage in the calculation of the discount factor. Another approach would be to simply mandate a fixed haircut across all plans, using an average funded percentage of all government plans, say 65 percent. This approach, however, would be unfair to participants in relatively better-funded plans, and it would not give sufficient relief to the worst-off plans. A fixed number in law or regulation, say 75 percent across all plans and times, would be even worse policy, as it would also remove flexibility in the timing and nature of offers, would be quite unfair to those in better-funded plans, and might invite gamesmanship.

One could imagine that even government worker unions would be enticed to enter into serious negotiations with governments, given this new

38. Maria Donovan Fitzpatrick, "How Much Are Public School Teachers Willing to Pay for Their Retirement Benefits?" (NBER Working Paper No. 20582, National Bureau of Economic Research, October 2014).
39. Ibid.

mechanism. For example, an arrangement could be worked out in the specific circumstances of poorly funded plans whereby the union gives its endorsement to the pension buyout offers in exchange for better terms than the legal minimum (for example, plus 10 percentage points rather than 5 percentage points), or for a guarantee of higher government contributions to the plans, and so on, as indeed occurred in negotiations in Chicago between Mayor Emanuel and some unions concerning worker givebacks.

Another objection to our suggested mechanism concerns its dynamic consistency. It might be thought that the more people who take the buyout offer, the better the overall funding level of the plan and the more likely that other pension recipients, who do not take the buyout, will receive their full benefits. Added to this scenario is a viewpoint of strategic behavior whereby everyone waits until someone else takes the buyout first, leading to no one taking the offer. We have several responses to this objection. First, while the plan funding will improve when people take the buyout offers, the improvements are unlikely to entirely remove the possibility of plan failure; therefore risk-averse plan participants will desire and take the buyout offer. Second, we doubt that most plan participants are that strategic in their behavior. And finally, the percentage point add-on for the offer (5 percentage points in our proposal) is indeed the adjusting and equilibrating mechanism to make the proposal work—it can be raised or lowered as experience dictates.

CONCLUSION

Severe underfunding of pensions for public workers has led to a range of suggestions about how best to steer these systems out of a storm that threatens the retirement security of millions of American retirees and older workers, as well as the fiscal health of state and local governments. We propose that in the case of even the worst-funded plans, retirees and older workers be given certainty, flexibility, and growth potential via a lump-sum payment mechanism that gives a realistic level of pension payments.

In this paper, we reviewed the extensive literature around pension funding and government finances, then presented our own statistics. We considered the complex legal and political environment and reviewed other reform proposals. Our own proposal, with its voluntary buyout mechanism, addresses the problem directly and simply, within a realistic set of parameters, better than the alternative proposals.

Now is the time to act, responsibly and realistically, on the large pension liability problems of state and local governments, for the improved welfare of retirees, taxpayers, and governments. There is a good, honest solution available that does not depend on a federal government bailout. The imprudence, evasion, and buck passing of the past will no longer work. We need joint leadership from politicians and workers' representatives to clear the mistakes of the past and move forward. This paper offers a tool for those working on pension reform, one that gives security to retirees and older workers while recognizing the practical realities of the actuarial, financial, economic, political, and legal constraints of the situation facing state and local governments and their pension plans for employees.

ABOUT THE AUTHORS

Mark J. Warshawsky, PhD, is a visiting scholar at the Massachusetts Institute of Technology Center for Finance and Policy, a senior research fellow at the Mercatus Center at George Mason University, and the writer of a monthly economic and policy perspectives column for *Tax Notes*. Warshawsky was director of retirement research at Towers Watson, a global human capital consulting firm, from 2006 to 2013. He has written numerous articles on employer-sponsored retirement programs, social security, financial planning, health and long-term care financing, corporate and public finance, and macroeconomics published in leading peer-reviewed scholarly journals, practitioner publications, and conference volumes. Warshawsky has testified before Congress and the administrative agencies on policy affecting retirement plans, long-term care, and income inequality. He is a coauthor of the *Fundamentals of Private Pensions*, ninth edition (2010), and author of *Retirement Income: Risks and Strategies* (2012). He was a member of the Social Security Advisory Board for a term from 2006 through 2012, and was vice chairman of the federal Commission on Long-Term Care in 2013. From 2004 to 2006, Warshawsky served as assistant secretary for economic policy at the US Treasury Department, playing a key role in the development of the Pension Protection Act of 2006. Warshawsky received his PhD in economics from Harvard University.

Ross A. Marchand is a Mercatus MA Fellow in the Department of Economics at George Mason University. Marchand received his BA in economics and government and politics from the University of Maryland. He has been an education and criminal justice intern for the Texas Public Policy Foundation and a tax and fiscal policy intern at the American Legislative Exchange Council. He has published op-eds and blogged on a range of issues, appearing in *Mic*, the *Denver Post*, and the *Wall Street Journal*. Marchand has also worked for the translation firm Net-Translators.

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