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EXECUTIVE DIRECTOR REPORT
September 17, 2015

Activities	Updates
O'Rourke v. DCRB	*Joseph G. O'Rourke v. DCRB*, Case No. 14-CV-1106: On July 23, 2015, the District of Columbia Court of Appeals affirmed the DC Superior Court's decision to dismiss Joseph O'Rourke's lawsuit against DCRB. Mr. O'Rourke was a lateral law enforcement officer who did not purchase any of his prior law enforcement service and retired with 8 years of active MPD service. He claimed that he was entitled to longevity pay in his retirement benefit without having to purchase the prior service. Groom Law Group represented DCRB in this matter, and the DCRB legal team did an excellent job managing this case from the outset.
TOP Program Meeting and Status of FOIA Requests	Staff from DCRB, ODCP and Treasury's Bureau of the Fiscal Service (BFS) met on August 28, 2015 to discuss issues related to Treasury's TOP Program. Following an exchange of information, clarification of the Program, and a discussion regarding DCRB's stance on Treasury's interpretation of TOP's application to District benefit payments, BFS officials indicated that they should be able to reach a decision regarding ODCP's exemption request fairly soon. A summary of the issues addressed at the meeting, and a copy of a letter sent to BFS after the meeting, are attached.
Kick-off Meeting for Benefits Community of Interest	On Thursday, September 10, 2015, DCRB hosted the initial meeting of the new Benefits Community of Interest. The goals for forming this group are to create a forum for pension-related issues that occur due to the fragmented nature of the District's current pension administration structure, and to give all parties a place to discuss issues in advance of (and during) DCRB's acquisition and implementation of its Pension Information Management System (PIMS). Those who attended the meeting represented DCRB, DCHR, DCPS, FEMS, MPD, OPRS and PFRRB. It is anticipated that the group will meet at least quarterly, and that meeting frequency may increase once the PIMS Project gets underway.
DCRB Intranet Portal Launched	DCRB launched its Intranet portal with an "all-hands" meeting and demonstration of the site on August 17, 2015. The site, which is a SharePoint application, is intended to assist DCRB employees and departments in organizing their activities and documents, and to easily communicate and share information with one another. Each department is responsible for maintaining its own page and documents.
DCRB Welcomes Board and Staff of the Tanzanian Retirement System	On July 29, 2015, DCRB's senior staff welcomed the Board and senior staff of PFF-Pension-Tanzania, who were in the District for a week to visit other pension and financial entities (including the IBEW) to learn how assets are invested and benefits are administered in the United States. DCRB staff provided our guests with information on: Corporate Governance and Board Leadership, Investments and Effective Fund Risk Oversight, Risk Management and Internal Control Systems, Benefits and Customer Relations, and the U.S.

	Social Security System. Pictures taken during the meeting are attached.
ICMA Becomes Administrator of the DC 401(a) and 457(b) Plans	On August 11, 2015, DCHR sent an e-mail to participants indicating that plan administration for the District's 401(a) Retirement Plan, and its 457(b) Deferred Compensation Plan, will transition from VOYA to ICMA around September 18, 2015. A "black-out period" will begin on September 8th, to allow the uninterrupted transfer of data and accounts. As indicated previously, since ICMA is also the administrator for the DCRB Supplemental Retirement Plan, once the activities related to the other two plans have concluded, DCRB will explore the possibility of cost savings that might be gained by joining the District's agreement.
OPM Security Breach	This past spring, DCRB contacted OPM to determine if any of the compromised data related to the security breach affecting federal data involved members of the District's Police/Fire or Teachers' Plans. OPM was not able to give us any definitive information at that time. Earlier this month, we made an additional inquiry regarding this matter and we are waiting for a response.
Staff Appreciation Day	On July 24, 2015, senior staff hosted DCRB's 7th Annual Staff Appreciation Day. As in the past, this celebration, which was held in the IBEW's rooftop observation area, was enjoyed by all who attended.
ODCP Staff Relocate to New Offices	Treasury's Office of DC Pensions was relocated from Met Square on 14th and G Streets, NW, to new offices on 17th and I Streets, NW, effective August 17, 2015. All e-mail addresses and phone numbers remain the same.
Staffing	**New Hires** During July and August, the following employees joined DCRB's Benefits Department: **Jacqueline Oliver,** Member Services Manager, joined DCRB on July 30, 2015. Jacqueline has over 25 years of human resources, benefits and compensation, and customer service experience. Her most recent position was that of Call Center Operations Manager with the National Association of Area Agencies on Aging. **Paralee Massie-Armstrong,** Quality Analyst, joined DCRB on July 13, 2015. Paralee has over seven (7) years of human resources and benefits experience. Her most recent position involved relationship management and process improvement with Aon Hewitt. **Jonelle Hall**, Member Services Representative, joined DCRB on August 23, 2015. Jonelle has 14 years of experience providing customer service in a call center environment. Her most recent position was as a Team Lead and Trainer with the NRL Federal Credit Union. **Jimmie Luthuli**, Member Services Representative, joined DCRB on August

	31, 2015. Jimmie has over five (5) years of experience in human resources and customer service. He most recently served as a Human Resources Associate with Randstad, a human resources consulting firm. **Existing vacancies** include: Quality, Compliance and Project Analyst (Benefits); Sr. Financial Management and Budget Analyst (Finance); Portfolio Manager (IT), and Business Analyst (Operations).
Recent Retirement-Related Articles and Other Materials (attached)	*"The Funding of State and Local Pensions,"* Alicia H. Munnell and Jean-Pierre Aubry, Center for Retirement Research at Boston College, State and Local Pension Plans, Number 45, June 2015. "*The State Pensions Funding Gap: Challenges Persist,"* The Pew Charitable Trusts Issue Brief, July 2015. "Retirement Security Risks: What Role Can Annuities Play in Easing Risks in Public Pension Plans?, National Institute on Retirement Security, Issue Brief, Diane Oakley, August 2015. "Harvard Seen Forgoing $108 Million a Year Divesting Fossil Fuels," Bloomberg, Michael McDonald, September 4, 2015.

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September 3, 2015

Sent Via Email and Regular First Class Mail
Ms. Ronda L. Kent, Deputy Assistant Commissioner
Debt Management Services
U.S. Department of the Treasury
Bureau of the Fiscal Service
401 14th Street SW
Washington, DC 20227

Re: August 28, 2015 TOP Senior Staff Meeting with DCRB

Dear Ms. Kent:

I would like to thank you and your staff for taking the time to initiate the August 28, 2015 meeting with the District of Columbia Retirement Board (DCRB). We think it was very beneficial for both of our agencies.

As a recap, DCRB first learned about the Treasury Offset Program (TOP) in an email from the U.S. Department of the Treasury's Office of D.C. Pensions (ODCP) last March. We were not included in any earlier discussions that took place between ODCP and your agency.

It is DCRB's position that any District portion of the benefit payment disbursed to retirees by the U.S. Department of the Treasury's Bureau of the Fiscal Service (BFS) on behalf of ODCP should not be considered a federal payment for purposes of TOP. This was never the intention of the payment arrangement between Treasury and the District.

Financial responsibility for the benefit payments under the District of Columbia Police Officers and Firefighters' Retirement Plan and the District of Columbia Teachers' Retirement Plan were split in 1997 between the Federal and District governments. If a member retired on or before June 30, 1997, the Federal government is 100% responsible; if a member was hired after June 30, 1997, the District government is 100% responsible; and if a member was hired on or before June 30, 1997 and retires after June 30, 1997, both the Federal and District governments are financially responsible. Currently, a significant portion of the benefit payments are a Federal responsibility.

ODCP carries out Treasury's responsibility for its membership under the Plans (Frozen Plans) and DCRB is responsible for the District Plan membership (Replacement Plans). DCRB is ODCP's third-party benefits administrator. DCRB is also custodian of the District trust funds that finance the District's portion of the benefits. As custodian, DCRB has strict fiduciary responsibilities mandated by Congress in the Retirement Reform Act of 1979 (Pub. L. 96-122) that require DCRB to only pay benefits in accordance with the terms of the Replacement Plans. Although benefit payments are subject to income

withholding orders for child and spousal support, Federal tax levies, and the D.C. Spouse Equity Act of 1988, there is nothing in the Replacement Plans that allow District benefits to be subject to TOP.

After the 1997 Split, in consideration of administrative efficiency and cost, ODCP agreed through various memoranda of understanding with the District and various District agencies including DCRB, to act as the District's agent with respect to the District's share of payments under the Replacement Plans. Treasury's System to Administer Retirement (STAR) benefits was developed to calculate and pay benefits for all retirees and to issue one check from ODCP disbursed by Treasury. DCRB immediately reimburses ODCP for the District's portion of the payment from the District trust funds on the date of disbursement. In this respect, Treasury is only acting as a service provider for DCRB when disbursing the District portion.

TOP was enacted around the same time as the 1997 Split. It is highly unlikely Congress intended the District benefit to be subject to TOP when it discussed the "one check" policy. Neither Treasury nor the District considered TOP when they agreed that ODCP would make payments for DCRB and nor did they intend for the District portion of the ODCP payment to be included in TOP. In fact, it was the District's intention to retain control of the District share of the benefit payment (see, for example, D.C. Code § 47-143).

The TOP issue presents a dilemma for DCRB and leaves us no choice but to consider other options to prevent the District portion of the ODCP payment from being administratively offset under TOP.

Hopefully, you will consider the historical background and underlying policy issues and conclude that the District portion should be carved out of the TOP implementation for the ODCP payment in STAR.

Because DCRB is ODCP's benefits administrator, we will still be on the hook for any complaints from irate retirees who have their pension payments offset under TOP.

If you need any additional information or have any questions, please contact me at (202) 343-3238 or johnetta.bond@dc.gov.

Sincerely,

Johnetta Bond, Chief Benefits Officer

cc: Eric O. Stanchfield, DCRB Executive Director
Thomas Kobielus, BFS

CENTER for RETIREMENT RESEARCH at BOSTON COLLEGE

STATE AND LOCAL PENSION PLANS NUMBER 45, JUNE 2015

THE FUNDING OF STATE AND LOCAL PENSIONS: 2014-2018

*By Alicia H. Munnell and Jean-Pierre Aubry**

INTRODUCTION

The year 2014 was always going to be a pivotal one for the funded status of public pension plans because, under the old GASB 25 accounting standards, the disastrous stock market performance of 2009 rotates out of the smoothing calculations for the majority of plans that use a five-year averaging period. But 2014 also became pivotal because it was the first year that plan sponsors reported under GASB's new accounting standards for their financial disclosures. The new GASB 67 standards involve two major changes. First, assets are reported at market value rather than actuarially smoothed. Second, in cases when assets are projected to fall short of future benefits, liabilities are valued using a "blended" discount rate.

Although GASB standards apply to financial reporting only, when GASB 25 was in effect, most plans also used the same standards for funding purposes. Under GASB 67, however, plans are now using separate standards for reporting and funding. For reporting in their financial documents, all plans in our sample that have released 2014 data adopted the market valuation of assets as required by GASB 67, but only seven plans determined it necessary to use a significantly lower blended discount rate. For funding purposes (i.e. in plans' actuarial valuations), they maintained the traditional approach used under GASB 25 of using smoothed assets and expected long-run returns for discounting. This *brief* focuses on the data used in plans' actuarial valuations because they provide the basis for historical comparisons and for funding decisions.

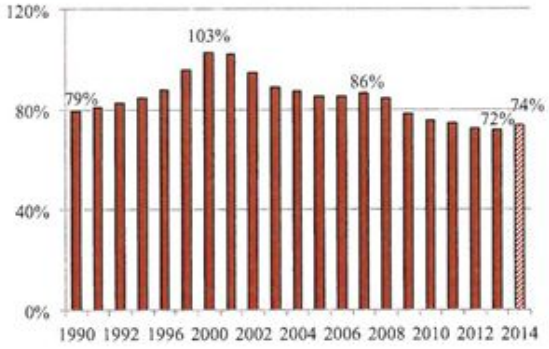
* *Alicia H. Munnell is director of the Center for Retirement Research at Boston College (CRR) and the Peter F. Drucker Professor of Management Sciences at Boston College's Carroll School of Management. Jean-Pierre Aubry is the assistant director of state and local research at the CRR.* *The authors thank Christine Manuelo and Joseph Prestine for extraordinary data collection efforts. The authors thank David Blitzstein, Keith Brainard, Steven Kreisberg and Ian Lanoff for helpful comments.*

The discussion is organized as follows. The first section reports that the ratio of assets to liabilities for the 150 plans in the *Public Plans Database* increased from 72 percent in 2013 to 74 percent in 2014. The second section shows that the required contribution increased from 17.8 percent to 18.6 percent of payrolls, while the percentage of required contributions paid increased from 82 percent to 88 percent. The third section revalues liabilities and recalculates funded ratios using the riskless rate, as advocated by most economists for *reporting* – as opposed to funding – purposes. The fourth section projects funded ratios for our sample plans for 2015-18 under two economic scenarios. The fifth section briefly describes the information reported in the financial statements under the new GASB standards. The final section concludes that, if plans achieve their assumed returns, the public pension landscape should continue to improve over the next few years.

Funded Status in 2014

In fiscal year (FY) 2014, the estimated aggregate ratio of assets to liabilities for our sample of 150 state and local pension plans was 74 percent under GASB's old standards (see Figure 1).[1] (The ratio for each individual plan appears in the Appendix).

Figure 1. State and Local Pension Funded Ratios under GASB 25 Standards, FY 1990-2014



Note: 2014 involves projections for about one third of plans.
Sources: 2014 actuarial valuations; *Public Plans Database* (PPD) (2001-2014); and Zorn (1990-2000).

Because only about two thirds of our sample of 150 plans had reported their funded levels by early June 2015, the 2014 aggregate figure involves some projections. As in previous years, for those plans without 2014 valuations, assets are projected on a plan-by-plan basis using the detailed process described in the valuations.[2] This process resulted in a complete set of plan funded ratios for FY 2014. In the aggregate, the actuarial value of assets amounted to $3.2 trillion and liabilities amounted to $4.3 trillion, producing the funded ratio of 74 percent.

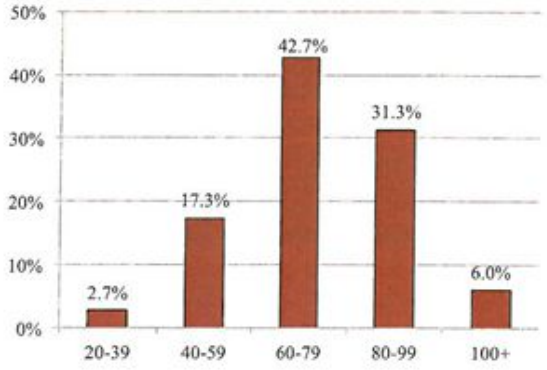
The funded ratio rose because asset values increased faster than liabilities. Not only was 2014 a strong year for the stock market, but the terrible 2009 performance of the market was rotated out of the smoothing calculations (see Figure 2). These two changes boosted smoothed asset values by 7 percent. Since liabilities grew by only 4.5 percent in 2014, below their historical rate of 5.6 percent, funding rose.

Figure 2. Percent Change in Wilshire 5000 Index, FY 2001-2014

Source: Wilshire Associates (2015).

In 2014, as in earlier years, funded levels among plans varied substantially. Figure 3 on the next page shows the distribution of funding for the sample of 150 plans. Although many of the poorly funded plans are relatively small, several large plans, such as those in Illinois (SERS, Teachers, and Universities) and Connecticut (SERS), had funded levels below 50 percent.

FIGURE 3. DISTRIBUTION OF FUNDED RATIOS FOR PUBLIC PLANS, FY 2014



Sources: 2014 actuarial valuations; and authors' calculations from the PPD (2014).

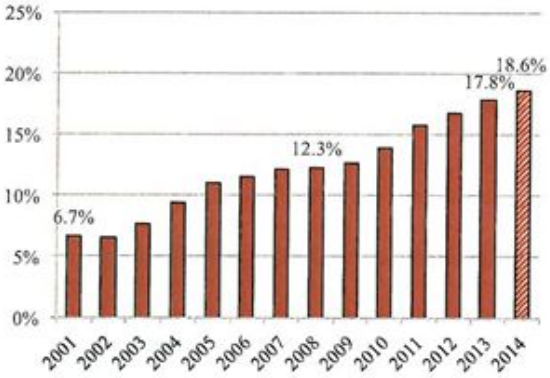
THE ADEC (FORMERLY THE ARC)

The new GASB standards replaced the Annual Required Contribution (ARC) with the Actuarially Determined Employer Contribution (ADEC). Unlike with assets and liabilities, plans do not seem to be maintaining two sets of required-contribution numbers – one for the actuarial valuation and one for the financial statements – but rather have shifted to using the ADEC for both purposes.

While both the ARC and ADEC are meant to capture the employer's "required contribution" to keep the plan on a steady path toward full funding, the two concepts differ slightly. First, while GASB 25 limited the range of allowable assumptions and methods that could be used to calculate the ARC, GASB 67 places no limitation on the calculation of the ADEC. Second, for the few plans that use a statutory contribution rate, GASB allows for the ADEC to reflect the statutory contribution rather than an actuarially calculated contribution. While conceptually these differences could cause a discontinuity between the ARC and ADEC, in practice they do not appear to be consequential. For the plans in our database, the ARC and ADEC are nearly identical; most plans have continued to use the same methods and assumptions they became accustomed to under the old GASB standards, and the few plans with a statutory rate have continued to report an actuarially determined contribution rather than the statutory rate. Thus, it is possible to extend our prior ARC series using the ADEC for 2014 forward.

Both the ARC and the ADEC equal the normal cost – the present value of the benefits accrued in a given year – plus a payment to amortize the unfunded liability, generally over 20-30 years. These measures have increased because the financial crisis led to higher unfunded liabilities and thereby a higher amortization component of the calculation. In 2014, the ADEC was 18.6 percent of payroll, up sharply from 2013 (see Figure 4).

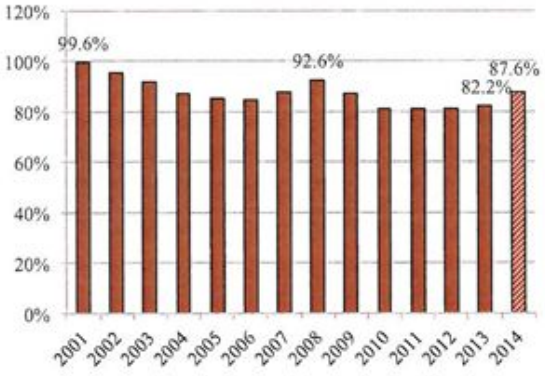
FIGURE 4. REQUIRED CONTRIBUTION AS A PERCENTAGE OF PAYROLL, FY 2001-2014



Notes: The measure for 2001-2013 is the ARC; the measure for 2014 is the ADEC. The 2014 value involves projections for about one third of plans.
Sources: 2014 actuarial valuations; and PPD (2001-2014).

The increase in required contributions over the past several years began just as the recession eroded state and local government revenues. As a result, states and localities cut back on their pension contributions. As revenues have started to recover, sponsors are paying an increasing share of their required contribution, rising to 88 percent in 2014 (see Figure 5 on the next page). Hopefully, this trend will continue as the economy improves, mirroring the pattern of decline and recovery evident in the wake of the bursting of the dot.com bubble at the turn of the century.

FIGURE 5. PERCENTAGE OF REQUIRED CONTRIBUTION PAID, FY 2001-2014

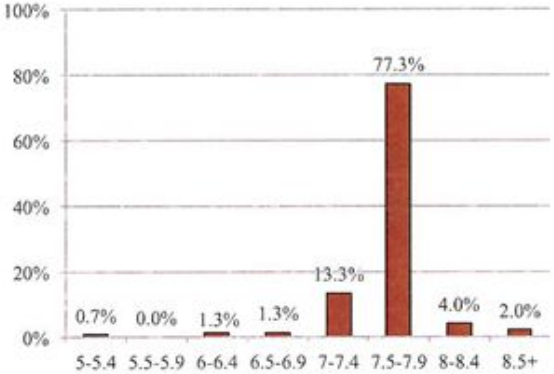


Notes: The measure for 2001-2013 is the ARC; the measure for 2014 is the ADEC. The 2014 value is authors' estimate.
Sources: 2014 actuarial valuations; and PPD (2001-2014).

LIABILITIES VALUED AT RISKLESS RATE

The funded ratios presented above reflect assets reported on an actuarially smoothed basis and a discount rate equal to the long-run expected rate of return, which has moved from around 8.0 percent to 7.6 percent in 2014 (see Figure 6). These ratios have been challenged by financial economists who argue that – *for reporting purposes* – future streams of payment should be discounted at a rate that reflects their risk.[3]

FIGURE 6. DISTRIBUTION OF DISCOUNT RATES FOR PUBLIC PLANS UNDER GASB 25, FY 2014



Sources: 2014 actuarial valuations; and PPD (2001-2014).

Table 1 shows the value of total liabilities and unfunded liabilities for our sample of 150 plans under different interest rates. As noted, in 2014 – calculated under a typical discount rate of 7.6 percent – the aggregate liability was $4.3 trillion and, given assets of $3.2 trillion, the unfunded liability was $1.1 trillion. A discount rate of 5 percent – a close approximation to the riskless rate – raises public sector liabilities to $6.3 trillion and the unfunded liability to $3.1 trillion.[4] In the end, required contributions to fund future benefits will depend on actual investment returns, not the discount rate used to calculate liabilities.

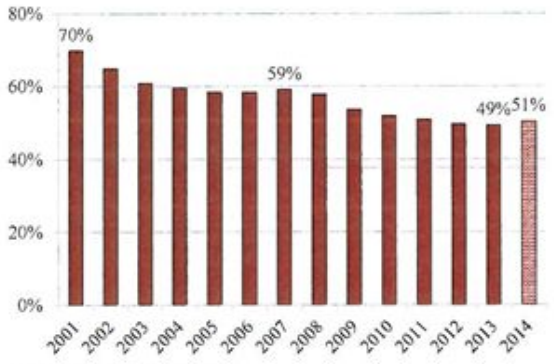
TABLE 1. AGGREGATE STATE AND LOCAL PENSION LIABILITIES UNDER ALTERNATIVE DISCOUNT RATES, 2014, TRILLIONS OF DOLLARS

Measure	Discount rate				
	7.6%	7%	6%	5%	4%
Total liability	$4.3	$4.9	$5.5	$6.3	$7.1
Assets	3.2	3.2	3.2	3.2	3.2
Unfunded liability	1.1	1.7	2.3	3.1	3.9

Source: Various 2014 actuarial valuations; and authors' calculations from the *Public Plans Database* (2014).

Recalculating the liabilities for each plan at 5 percent in 2014 produces a funded ratio of 51 percent: $3.2 trillion in actuarial assets compared to $6.3 trillion in liabilities. The 2014 ratio of 7.6-percent liability to 5-percent liability was applied retroactively to derive funded ratios for earlier years (see Figure 7).

FIGURE 7. STATE AND LOCAL FUNDED RATIOS WITH LIABILITIES DISCOUNTED BY RISKLESS RATE, FY 2001-2014



Note: Authors' estimates.
Sources: 2014 actuarial valuations; and PPD (2001-2014).

Looking Beyond 2014

Future funded levels depend on three factors: cash flows (contributions and benefits), the growth in liabilities, and the performance of the stock market. Both contributions and benefits rise slowly over time, so their average growth for the period 2015-2018 is assumed to equal their average growth over 2001-14.[5] Growth in liabilities, which will likely be restrained by the long-term benefit cutbacks enacted in recent years, is assumed to hold steady at the 2014 level of 4.5 percent.[6]

Public pensions currently hold more than half of their assets in equities and about 70 percent in risky assets. While most plans assume portfolio returns of 7.6 percent nominal (implying nominal stock returns are at least 9.6 percent), many investment firms – such as Bridgewater, Goldman Sachs, and GMO – project nominal returns for a balanced portfolio of between 4 and 5 percent.[7] To address uncertainty about the future performance of plan assets, projections are made under two scenarios. The baseline is designed to yield an overall return on portfolios close to that assumed by most plans. The alternative scenario assumes portfolio returns are 3 percent below plans' assumed return – 4.6 percent nominal.

The projected funded ratios are shown in Table 2. After 2014, if plans achieve their assumed return, funded ratios keep climbing, as asset growth continues to exceed assumed liability growth. If, instead, returns are at the lower rates predicted by the investment firms, funding grows for the next year and then levels off.

Table 2. Projected Funded Ratios for FY 2015-18 under Two Scenarios for Asset Returns

Year	Baseline	Alternative
2014 (actual)	73.7%	73.7%
2015	77.5	77.4
2016	78.6	77.8
2017	79.7	77.9
2018	80.5	77.3

Source: Authors' projections.

GASB 67

The new GASB 67 standards involve two major changes relating to the valuation of assets and liabilities used to measure reported funded ratios. First, assets are reported at market value rather than actuarially smoothed. Second, projected benefit payments are discounted by a combined rate that reflects the expected return for the portion of liabilities that is projected to be covered by plan assets and the return on high-grade municipal bonds for the portion that is to be covered by other resources.[8] It was always unclear the extent to which discount rates would really change for reporting purposes, and in fact only seven plans in our sample reduced their rates by more than 50 basis points (see Table 3).

Table 3. Plans Adopting a Significantly Lower GASB 67 Blended Rate, 2014

Plan	Rate		Funded status	
	Actuarial	GASB 67	Actuarial	GASB 67
Duluth Teachers	8.0%	5.4%	56.9%	46.8%
Kentucky Teachers	7.5	5.2	53.6	45.6
New Jersey PERS	7.9	5.4	60.9	42.7
New Jersey Police & Fire	7.9	6.3	72.6	58.9
New Jersey Teachers	7.9	4.7	54.0	33.6
Texas ERS	8.0	6.1	77.2	63.4
Texas LECOS	8.0	5.7	73.2	56.4

Note: A number of other plans, such as IL SERS and IL SURS, have reduced their rate by less than 50 basis points.
Sources: 2014 actuarial valuations; and PPD (2014).

Even though market assets were greater than actuarially smoothed assets for some of these plans in FY 2014, lowering the discount rate reduced the funded status for all the plans. Until more is understood about the adoption of GASB 67, our updates will continue to focus on assets and liabilities reported in the actuarial valuations.

Conclusion

The year 2014 was a year of big change. A strong stock market and the elimination of 2009 from the smoothing process led to a sharp increase in actuarial assets and to the first improvement in the funded status of public sector plans since the financial crisis. What happens from here on out depends very much on the performance of the stock market. In 2018, assuming plans achieve their expected return, they should be 81 percent funded. If returns are lower, as predicted by many investment firms, funding will stabilize at about 77 percent.

2014 was also the first year that GASB's new provisions took effect for financial reporting. Under these provisions, funded ratios were based on market values, and seven plans – those with assets projected to be insufficient to cover future benefits – adopted a significantly lower blended rate to calculate liabilities. As a result, the overall ratio of assets to liabilities for these plans was lower under the new standards.

For understanding the long-term trends in plan funding, however, we believe that it makes more sense to continue to focus on the numbers calculated for funding purposes.

Endnotes

1 The sample represents about 90 percent of the assets in state-administered plans and 30 percent of those in plans administered at the local level.

2 For plans without published 2014 actuarial valuations, we estimated the percent change in actuarial assets between 2013 and 2014, calculated according to the plan's own methodology, and applied that change to its published 2013 GASB level of actuarial assets. Liabilities are projected based on the average rate of growth for plans already reporting. The initial estimates of assets and liabilities were then sent to the plan administrators, and any suggested alterations were incorporated.

3 The analysis of choice under uncertainty in economics and finance identifies the discount rate for riskless payoffs with the riskless rate of interest. See Gollier (2001) and Luenberger (1997). This correspondence underlies much of the current theory and practice for the pricing of risky assets and the setting of risk premiums. See Sharpe, Alexander, and Bailey (2003); Bodie, Merton, and Cheeton (2008); and Benninga (2008).

4 Just what constitutes the riskless rate is a subject of debate. See Munnell et al. (2010) for the rationale for our choice of 5 percent.

5 The focus here is on contributions, where growth remains fairly steady, rather than on the percentage of required contributions paid, which is more variable.

6 See Munnell et al. (2013). From 2001-2013, liabilities have grown an average of 5.6 percent annually. In 2013, liabilities grew by 4.1 percent in aggregate. For the 90 or so plans that did report in 2014, liabilities grew by 5.0 percent. For the remaining plans, we assume a 4-percent growth rate, resulting in aggregate liability growth of 4.5 percent for 2014.

7 GMO (2015); Goldman Sachs (2014).

8 In addition, the entry age normal/level percentage of payroll would be the sole allocation method used for reporting purposes (roughly three quarters of plans already use this method).

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APPENDIX

APPENDIX: RATIO OF ASSETS TO LIABILITIES FOR STATE/LOCAL PLANS 2001, 2004, 2007-2013, AND 2014 ESTIMATES[a]

Plan name	2001	2004	2007	2008	2009	2010	2011	2012	2013	2014
Alabama ERS	100.2	89.7	79.0	75.7	72.2	68.2	65.8	65.7	65.7	69.5 *
Alabama Teachers	101.4	89.6	79.5	77.6	74.7	71.1	67.5	66.5	66.2	70.1 *
Alameda County Employee's Retirement Association	105.8	82.1	89.2	83.9	81.2	77.5	76.6	73.9	75.9	79.2 *
Alaska PERS	100.9	70.2	77.8	78.8	63.0	62.4	61.9	57.1	54.5	57.1 *
Alaska Teachers	95.0	62.8	68.2	70.2	57.0	54.3	54.0	49.9	48.1	50.2 *
Arizona Public Safety Personnel	126.9	92.4	66.4	68.8	70.0	67.7	63.7	60.2	58.7	49.2
Arizona SRS	115.1	92.5	83.3	82.1	79.0	76.4	75.5	75.3	75.4	76.3
Arizona State Corrections Officers	140.0	104.8	84.6	90.3	86.4	83.8	76.6	70.7	66.9	57.3
Arkansas PERS	105.6	88.7	89.1	89.7	78.0	74.1	70.7	68.9	74.3	77.8
Arkansas Teachers	95.4	83.8	85.3	84.9	75.7	73.8	71.8	71.2	73.3	77.3
Boston Retirement Board[b]	70.3	63.3	67.6	59.3	60.2	63.1	61.4	61.9	59.5	60.9 *
California PERF	111.9	87.3	87.2	86.9	83.3	83.4	82.6	83.1	75.2	75.8 *
California Teachers	98.0	82.5	88.8	87.3	78.2	71.5	69.3	67.2	66.9	68.5
Chicago Municipal Employees	93.3	72.0	69.1	64.2	58.1	50.8	45.2	37.6	37.0	40.9
Chicago Police	70.5	55.9	51.5	48.3	44.5	40.4	36.2	31.3	29.7	29.2 *
Chicago Teachers	100.0	85.8	80.1	79.4	73.3	66.9	59.7	53.9	49.5	51.5
City of Austin ERS	96.4	80.8	78.3	65.9	71.8	69.6	65.8	63.9	70.4	70.9
Colorado Municipal	104.3	77.2	81.2	76.4	76.2	73.0	69.3	74.5	73.1	77.2 *
Colorado School	98.2	70.1	75.5	70.1	69.2	64.8	60.2	62.1	60.3	63.6 *
Colorado State	98.2	70.1	73.3	67.9	67.0	62.8	57.7	59.2	57.5	60.6 *
Connecticut Municipal	109.3	102.9	103.7	103.3	88.9	88.4	88.3	85.0	87.5	92.3 *
Connecticut SERS	63.1	54.5	53.6	51.9	–	44.4	47.9	42.3	41.2	41.5
Connecticut Teachers	–	65.3	–	70.0	–	61.4	–	55.2	–	59.0
Contra Costa County	87.6	82.0	89.9	88.4	83.8	80.3	78.5	70.6	76.4	79.7 *
Cook County Employees	88.9	70.9	77.3	72.6	63.2	60.7	57.5	53.5	56.6	57.5 *
Dallas Police and Fire	84.5	80.8	89.4	78.4	81.9	79.5	74.0	78.1	75.6	74.2 *
DC Police & Fire	–	–	101.0	99.8	100.7	108.0	108.6	110.1	110.1	107.3
DC Teachers	–	–	111.6	108.2	110.8	118.3	101.9	94.4	90.1	88.6
Delaware State Employees	112.4	103.0	103.7	103.1	98.8	96.0	94.0	91.5	91.1	92.3
Denver Employees	99.5	99.1	98.2	91.8	88.4	85.0	81.6	76.4	76.4	75.5 **
Denver Schools	96.5	88.2	87.7	84.3	88.3	88.9	81.5	84.0	81.2	85.7 *
Duluth Teachers	107.6	91.8	86.8	82.1	76.5	81.7	73.2	63.4	54.0	56.9
Fairfax County Schools	103.0	–	86.4	88.0	76.9	75.6	76.4	75.6	75.4	77.1 *
Florida RS	117.9	112.1	105.6	105.3	87.9	88.0	86.9	86.4	85.4	86.6
Georgia ERS	101.7	97.6	93.0	89.4	85.7	80.1	76.0	73.1	71.4	72.8 **
Georgia Teachers	103.9	100.9	94.7	91.9	89.9	85.7	84.0	82.3	81.1	81.9
Hawaii ERS	90.6	71.7	67.5	68.8	64.6	61.4	59.4	59.2	60.0	61.4
Houston Firefighters	112.9	88.2	91.1	95.6	95.4	93.4	90.6	87.0	86.6	90.4 *
Idaho PERS	97.2	91.7	105.5	93.3	73.3	78.9	90.2	84.7	85.3	93.9
Illinois Municipal	106.4	94.3	96.1	84.3	83.2	83.3	83.0	84.3	87.6	92.4 *
Illinois SERS	65.8	54.2	54.2	46.1	43.5	37.4	35.5	34.7	34.2	33.7

Plan name	2001	2004	2007	2008	2009	2010	2011	2012	2013	2014
Illinois Teachers[c]	59.5	61.9	63.8	56.0	52.1	48.4	46.5	42.1	40.6	40.6
Illinois Universities	72.1	66.0	68.4	58.5	54.3	46.4	44.3	42.1	41.5	42.3
Indiana PERF	105.0	100.1	98.2	97.5	93.1	85.2	80.5	76.6	80.2	82.4
Indiana Teachers[d]	43.0	44.8	45.1	48.2	41.9	44.3	43.8	42.7	45.7	48.1
Iowa Municipal Fire and Police	–	84.2	87.2	89.7	85.6	81.1	78.2	73.7	73.9	77.8
Iowa PERS	97.2	88.6	90.2	89.1	81.2	81.4	79.9	79.9	81.0	82.7
Kansas PERS	88.3	75.2	69.4	70.8	58.8	63.7	62.2	59.2	59.9	63.6 *
Kentucky County	141.0	101.0	80.1	77.1	70.6	65.5	62.9	60.0	59.5	61.9
Kentucky ERS	125.8	85.8	58.4	54.2	46.7	40.3	35.6	29.7	25.8	23.9
Kentucky Teachers	90.8	80.9	71.9	68.2	63.6	61.0	57.4	54.5	51.9	53.6
Kern County Employees Retirement Association	103.3	93.6	75.7	72.3	66.1	62.7	60.8	60.5	61.1	60.8
LA County ERS	100.0	82.8	93.8	94.5	88.9	83.3	80.6	76.1	75.0	79.5
Los Angeles City Employees' Retirement System	108.1	82.5	81.7	84.4	79.5	75.9	72.4	69.0	68.7	67.4
Los Angeles Fire and Police	118.9	103.0	99.2	99.1	96.2	91.6	86.3	83.7	83.1	86.6
Los Angeles Water and Power	109.9	97.3	91.9	95.1	90.0	81.5	80.3	78.1	78.8	80.9
Louisiana Municipal Police	101.1	72.9	89.1	86.9	65.2	59.9	58.1	59.8	64.2	68.1
Louisiana Schools	103.0	75.8	80.0	76.6	65.5	61.0	59.9	61.6	62.1	66.9
Louisiana SERS	74.2	59.6	67.2	67.6	60.8	57.7	57.6	55.9	60.2	59.3
Louisiana State Parochial Employees	–	93.5	96.9	96.0	96.9	97.2	97.6	86.8	92.5	99.1 *
Louisiana Teachers	78.4	63.1	71.3	70.2	59.1	54.4	55.1	55.4	56.4	57.4
Maine Local	108.2	112.1	113.6	112.7	102.5	96.3	93.5	88.8	88.4	91.2
Maine State and Teacher	73.1	68.5	74.1	74.1	67.7	66.0	77.6	77.0	77.7	81.4
Maryland PERS	102.2	91.2	79.5	77.2	63.9	62.8	62.8	62.5	63.3	65.9
Maryland Teachers	95.3	92.8	81.1	79.6	66.1	65.4	66.3	65.8	67.1	70.7
Massachusetts SRS	91.8	83.9	85.1	89.4	71.6	76.5	81.0	73.8	69.1	70.3
Massachusetts Teachers	79.2	69.6	71.0	73.9	58.2	63.0	66.3	60.7	55.7	56.3
Michigan Municipal	84.3	76.7	77.3	75.1	75.5	74.5	72.6	71.4	71.7	71.4 *
Michigan Public Schools	96.5	83.7	88.7	83.6	78.9	71.1	64.7	61.3	59.6	59.9
Michigan SERS	107.6	84.5	86.2	82.8	78.0	72.6	65.5	60.3	60.3	61.6
Milwaukee City ERS	137.2	116.7	131.2	99.1	112.8	104.4	96.0	90.8	94.8	100.8 *
Minneapolis ERF	93.3	92.1	85.9	77.0	56.7	65.6	73.5	69.1	74.4	82.0
Minnesota GERF	87.0	76.7	73.3	73.6	70.0	76.4	75.2	73.5	72.8	73.5
Minnesota Police and Fire Retirement Fund	120.5	101.2	91.7	88.4	83.2	87.0	82.9	78.3	81.2	80.0
Minnesota State Employees	112.1	100.1	92.5	90.2	85.9	87.3	86.3	82.7	82.0	83.0
Minnesota Teachers	105.8	100.0	87.5	82.0	77.4	78.5	77.3	73.0	71.6	74.1
Mississippi PERS	87.5	74.9	73.7	72.9	67.3	64.2	62.2	58.0	57.7	61.0
Missouri DOT and Highway Patrol	66.1	53.4	58.2	59.1	47.3	42.2	43.3	46.3	46.2	49.2
Missouri Local	104.0	95.9	96.1	97.5	80.0	81.0	81.6	83.5	86.5	91.7
Missouri PEERS	103.1	82.7	83.2	82.5	80.7	79.1	85.3	82.5	81.6	85.1
Missouri State Employees	97.0	84.6	86.8	85.9	83.0	80.4	79.2	73.2	72.7	75.1
Missouri Teachers	99.4	82.0	83.5	83.4	79.9	77.7	85.5	81.5	80.1	82.8

Plan name	2001	2004	2007	2008	2009	2010	2011	2012	2013	2014
Montana PERS	–	86.7	91.0	90.2	83.5	74.2	70.2	67.4	80.2	74.4
Montana Teachers	–	77.4	80.4	80.7	67.4	65.4	61.5	59.2	66.8	65.4
Nebraska Schools	87.2	87.2	90.5	90.6	86.6	82.4	80.4	76.6	77.1	82.7
Nevada Police Officer and Firefighter	78.9	71.7	71.1	70.8	68.9	67.8	68.4	70.1	71.1	74.9 *
Nevada Regular Employees	85.5	80.5	78.8	77.7	73.4	71.2	70.6	71.2	68.9	71.2 *
New Hampshire Retirement System[e]	85.0	71.1	67.0	67.8	58.3	58.5	57.4	56.1	56.7	60.7
New Jersey PERS	117.1	91.3	76.0	73.1	64.9	69.5	66.8	63.6	62.1	60.9
New Jersey Police & Fire	100.8	84.0	77.6	74.3	70.8	77.1	75.0	74.3	73.1	72.6
New Jersey Teachers	108.0	85.6	74.7	70.8	63.8	67.1	62.8	59.5	57.1	54.0
New Mexico Educational	91.9	75.4	70.5	71.5	67.5	65.7	63.0	60.7	60.1	63.1
New Mexico PERA	105.4	93.1	92.8	93.3	84.2	78.5	70.5	65.3	72.9	75.8
New York City ERS	117.4	94.5	79.0	79.7	78.6	64.2	65.0	66.3	68.4	70.6 *
New York City Fire	84.7	63.9	55.1	56.4	56.8	48.2	50.3	52.3	54.3	56.6 *
New York City Police	104.5	80.1	68.9	70.8	71.3	60.1	61.1	63.7	66.8	70.5 *
New York City Teachers	98.0	81.1	69.6	65.2	64.1	58.9	58.2	57.6	57.7	60.3 *
New York State Teachers	125.0	99.2	104.2	106.6	103.2	100.3	96.7	89.8	87.5	89.6 *
North Carolina Local Government[f]	99.3	99.3	99.5	99.5	99.6	99.5	99.6	99.8	99.8	99.8
North Carolina Teachers and State Employees[f]	112.8	108.1	106.1	104.7	99.3	95.9	95.4	94.0	94.2	94.8
North Dakota PERS	110.6	94.0	93.3	92.6	85.1	73.4	70.5	65.1	62.0	64.5
North Dakota Teachers	96.4	80.3	79.2	81.9	77.7	69.8	66.3	60.9	58.8	61.8
NY State & Local ERS	120.1	100.5	105.8	107.3	101.0	93.9	90.2	87.2	88.5	94.2 *
NY State & Local Police & Fire	132.6	104.1	106.5	108.0	103.8	96.7	91.9	87.9	89.5	95.1 *
Ohio PERS	102.6	87.6	96.3	75.3	75.3	79.1	77.4	80.9	82.4	83.8 *
Ohio Police & Fire	92.7	80.9	81.7	65.1	72.8	69.4	63.1	64.2	66.7	66.2 *
Ohio School Employees	95.0	78.1	80.8	82.0	68.4	72.6	65.2	62.8	65.3	68.1
Ohio Teachers	91.2	74.8	82.2	79.1	60.0	59.1	58.8	56.0	66.3	69.3
Oklahoma PERS	82.6	76.1	72.6	73.0	66.8	66.0	80.7	80.2	81.6	88.6
Oklahoma Police Pension and Retirement System	91.4	81.1	79.9	82.2	76.2	74.9	93.0	90.2	89.3	94.6
Oklahoma Teachers	51.4	47.3	52.6	50.5	49.8	47.9	56.7	54.8	57.2	63.2
Orange County ERS	94.7	70.9	74.1	71.3	68.8	69.8	67.0	62.5	66.0	69.2 *
Oregon PERS	97.6	97.0	110.5	112.2	80.2	85.8	86.9	82.0	90.7	95.9
Pennsylvania Municipal Retirement System	–	105.6	105.9	106.1	103.8	102.4	103.8	99.1	98.4	99.3 *
Pennsylvania School Employees	114.4	91.2	85.8	86.0	79.2	75.1	69.1	66.3	63.8	62.0
Pennsylvania State ERS	116.3	96.1	97.1	89.0	84.4	75.2	65.3	58.8	59.2	61.3 *
Philadelphia Municipal Retirement System	77.5	59.8	53.9	55.0	45.0	45.4	47.3	45.8	47.4	45.8
Phoenix ERS	102.5	84.2	83.9	79.1	75.3	69.3	66.6	62.2	64.2	58.7
Rhode Island ERS	77.6	59.4	56.2	61.5	58.5	48.4	58.8	57.8	57.3	58.7
Rhode Island Municipal	118.1	93.2	90.3	92.8	88.3	73.6	84.3	82.5	82.1	84.1
Sacramento County ERS	107.7	93.3	93.4	93.2	86.0	87.7	87.0	83.3	82.8	85.2
San Diego City ERS	89.9	65.8	78.8	78.1	66.5	67.1	68.5	68.6	70.4	74.2
San Diego County	106.8	81.1	89.7	94.4	91.5	84.3	81.5	78.7	79.0	80.9

Plan name	2001	2004	2007	2008	2009	2010	2011	2012	2013	2014
San Francisco City & County	129.0	103.8	110.2	103.8	97.0	91.1	87.7	82.6	80.6	85.3
South Carolina Police[c]	94.6	87.7	84.7	77.9	76.3	74.5	72.8	71.1	69.2	69.5 **
South Carolina RS[g]	87.4	80.3	69.7	69.3	67.8	65.5	67.4	64.7	62.5	62.7 **
South Dakota RS	96.4	97.7	97.1	97.2	91.8	96.3	96.4	92.6	100.0	100.0
St. Louis School Employees[h]	80.5	86.3	87.6	87.6	88.4	88.6	84.9	84.3	84.4	84.8 **
St. Paul Teachers	81.9	71.8	73.0	75.1	72.2	68.0	70.0	62.0	60.4	61.8
Texas County & District	89.3	91.0	94.3	88.6	89.8	89.4	88.8	88.2	89.4	95.3 *
Texas ERS	104.9	97.3	95.6	92.6	89.8	85.4	84.5	82.6	79.6	77.2
Texas LECOS	131.6	109.3	98.0	92.0	89.7	86.3	86.4	82.0	73.3	73.2
Texas Municipal	85.0	82.8	73.7	74.4	75.8	82.9	85.1	87.2	84.1	85.8
Texas Teachers	102.5	91.8	89.2	90.5	83.1	82.9	82.7	81.9	80.8	80.2
TN Political Subdivisions	90.4	–	89.5	–	86.3	–	89.1	–	95.0	94.5 *
TN State and Teachers	99.6	–	96.2	–	90.6	–	92.1	–	93.3	92.9 *
University of California	147.7	117.9	104.8	103.0	94.8	86.7	82.5	78.7	75.9	80.0
Utah Noncontributory	102.8	92.3	95.1	86.5	85.7	83.8	80.1	77.4	82.0	83.0 *
Utah Public Safety	100.8	88.3	90.7	81.6	80.6	77.1	75.4	73.0	79.3	80.4 *
Vermont State Employees	93.0	97.6	100.8	94.1	78.9	81.2	79.6	77.7	76.7	77.9
Vermont Teachers	89.0	90.2	84.9	80.9	65.4	66.5	63.8	61.6	60.5	59.9
Virginia Retirement System[i]	107.3	90.3	82.3	84.0	80.2	72.4	69.9	65.8	65.9	69.6
Washington LEOFF Plan 2	154.4	116.9	128.8	133.5	127.9	119.0	118.7	119.0	114.6	117.4 *
Washington PERS 2/3	179.1	134.4	119.9	118.7	116.3	112.7	111.6	111.3	102.3	103.0 *
Washington School Employees Plan 2/3	197.0	136.9	126.1	120.8	115.7	112.5	110.2	109.9	101.9	102.8 *
Washington Teachers Plan 2/3	197.4	152.6	130.4	125.4	118.2	115.5	113.4	114.1	104.9	107.2 *
West Virginia PERS	84.4	80.0	97.0	84.2	79.7	74.6	78.4	77.6	79.7	83.1
West Virginia Teachers	21.0	22.2	51.3	50.0	41.3	46.5	53.7	53.0	57.9	66.2
Wisconsin Retirement System	96.5	99.4	99.6	99.7	99.8	99.8	99.9	99.9	99.9	104.7 *
Wyoming Public Employees	103.2	96.0	94.0	78.6	87.5	84.6	81.9	78.6	77.6	81.0 *

Note: Municipal agency plans such as Michigan Municipal and Illinois Municipal do not have a single funded ratio, as they are made up of individual retirement systems that each maintain their own liabilities and funded ratio. For these types of plans, the funded ratios reported above represent an aggregate of assets and liabilities of the individual systems.
* Numbers are authors' estimates. ** Received from plan administrator.
[a] Funded ratios may vary across plans because of the discount rate used to value liabilities. While the median discount rate is 7.75 percent, the rates range from 8.5 percent for Connecticut Teachers and 8.25 percent for Ohio Police and Fire, to 7.0 percent in Virginia, 6.75 percent for Indiana, and 5.5 percent in Pennsylvania Municipal.
[b] If you include the Commonwealth's share of the Boston Retirement System's actuarial liability, the plan was 59.5 percent funded in fiscal year 2014 (without the Commonwealth's share the plan was 70.2 percent funded).
[c] Through 2008, Illinois TRS funded ratio was based on the market value of assets. Beginning in 2009, the funded ratio was calculated using five-year smoothed actuarial assets.
[d] The reported funded ratios of the Indiana TRF are made up of two separately funded accounts: the pre-1996 account and the 1996 account. The pre-1996 account is for employees hired prior to 1996 and is funded under a pay-go schedule. The 1996 account is for employees hired afterwards and is pre-funded. The funded ratio for the pre-funded account is currently 96.1 percent. As expected, the pay-go account has a much lower funded ratio of 32.8 percent.
[e] Prior to 2007, the New Hampshire Retirement System used the Open Group Aggregate to calculate its funded ratio. Beginning in 2007, the entry age normal (EAN) was used.
[f] For North Carolina Local Government and North Carolina Teachers and State Employees, data are as of December 31st of the previous year. For example, the funded ratio reported for 2014 is the funded ratio as of December 31, 2013.
[g] The 2011 funded ratios for South Carolina Police and RS are calculated based on the plan design features and actuarial methods in place prior to the passing of Act 278.
[h] For St. Louis School Employees, data are as of the Jan. 1 actuarial valuation of the following calendar year. For example, the funded ratio reported for 2014 is the funded ratio as of Jan. 1, 2015.
[i] The funded ratios presented represent the "VRS" plan only for the state employees, teachers and political subdivisions. They do not reflect the information in the other plans – SPORS, JRS and VaLORS.

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A brief from THE PEW CHARITABLE TRUSTS | July 2015

The State Pensions Funding Gap: Challenges Persist

New reporting standards may offer more guidance to policymakers

Overview

The nation's state-run retirement systems had a $968 billion shortfall in 2013 between pension benefits that governments have promised to their workers and the funding available to meet those obligations—a $54 billion increase from the previous year.

This report focuses on the most recent comprehensive data and does not fully reflect the impact of recent strong investment returns.[1] Because state retirement systems have historically accounted for investment losses and gains over time, the latest data still include losses from the 2008 Great Recession and do not fully incorporate the strong returns of recent years. As these returns are fully realized under new accounting standards, preliminary data from 2014 point to a reduction in unfunded liabilities for the majority of states. Many states have also benefited from reforms enacted since the financial crisis.

Nevertheless, reported pension debt is expected to remain over $900 billion for state plans, which increases to more than $1 trillion when combined with the shortfalls in local pension systems, and will stay at historically high levels as a percentage of U.S. gross domestic product. State and local policymakers cannot count on investment returns over the long term to close this gap and instead need to put in place funding policies that put them on track to pay down pension debt.

The actuarial required contribution, or ARC, that states have disclosed has been the common metric for assessing contribution adequacy, based on a minimum standard set by government accounting rules. Using plans' own economic and demographic assumptions, the ARC calculation includes the expected cost of benefits earned for the current year and an amount to reduce some of the unfunded liability. In 2013, state pension contributions totaled $74 billion—$18 billion short of what was needed to meet the ARC—with only 24 states setting aside at least 95 percent of the ARC they determined for themselves. Overall, states that contributed at least 95 percent of the ARC from 2003 to 2013 had retirement systems that were 75 percent funded, while those that hadn't were funded at 68 percent. But as we describe below, ARC does not always signal true fiscal health.

The Governmental Accounting Standards Board (GASB)—an independent organization recognized by governments, the accounting industry, and the capital markets as the official source of generally accepted accounting principles for state and local governments—has established standards that will provide new information on pension funds' health for data from June 15, 2014, on.

Funding levels and contribution policies vary widely between the states and between individual plans within states. Find a detailed state-by-state view at pewtrusts.org/pensionfunding.

State Public Pensions

Pension debt is continuing to increase in many states, despite reform efforts, because of missed contributions and the continued impact of investment losses.

State	Liability	Unfunded	ARC*	Funded ratio			% of ARC paid		
	2013			2011	2012	2013	2011	2012	2013
Alabama	44,617	15,197	981	67%	66% ↓	66% →	100%	100%	100%
Alaska	18,779	8,949	653	59%	55% ↓	52% ↓	89%	88%	90%
Arizona	53,314	15,107	1,350	73%	72% ↓	72% →	100%	100%	100%
Arkansas	27,000	6,887	742	72%	71% ↓	74% ↑	98%	95%	94%
California	610,304	169,634	16,222	77%	77% →	72% ↓	72%	72%	70%
Colorado	66,921	25,798	1,403	61%	63% ↑	61% ↓	87%	85%	79%
Connecticut	48,950	25,256	1,863	55%	49% ↓	48% ↓	91%	100%	100%
Delaware	9,262	1,091	212	91%	88% ↓	88% →	98%	99%	98%
Florida	163,144	31,243	2,631	82%	82% →	81% ↓	80%	59%	65%
Georgia	90,504	18,659	1,568	82%	81% ↓	79% ↓	100%	100%	100%
Hawaii	21,244	8,495	667	59%	59% →	60% ↑	92%	84%	87%
Idaho	14,575	2,102	300	90%	85% ↓	85% →	87%	86%	101%
Illinois	165,458	100,501	7,015	43%	40% ↓	39% ↓	80%	76%	84%
Indiana	42,911	15,128	1,654	63%	61% ↓	65% ↑	84%	88%	120%
Iowa	31,176	6,018	642	80%	80% →	81% ↑	82%	97%	97%
Kansas	24,329	9,766	825	59%	56% ↓	60% ↑	74%	67%	75%
Kentucky	42,044	23,471	1,351	51%	47% ↓	44% ↓	114%	65%	67%
Louisiana	45,402	19,025	2,037	56%	56% →	58% ↑	88%	97%	96%
Maine	14,394	2,942	292	80%	79% ↓	80% ↑	102%	100%	100%
Maryland	60,537	20,992	2,180	65%	64% ↓	65% ↑	73%	70%	77%
Massachusetts	74,736	28,842	1,963	65%	61% ↓	61% →	103%	87%	80%
Michigan	81,700	32,774	2,615	65%	61% ↓	60% ↓	87%	83%	77%
Minnesota	64,209	16,256	1,364	79%	75% ↓	75% →	84%	81%	71%
Mississippi	36,344	15,416	915	62%	58% ↓	58% →	101%	101%	100%
Missouri	59,189	13,853	1,162	82%	78% ↓	77% ↓	93%	93%	112%
Montana	11,269	3,012	241	66%	64% ↓	73% ↑	75%	69%	83%

State	Liability	Unfunded	ARC*	Funded ratio			% of ARC paid		
	2013			2011	2012	2013	2011	2012	2013
Nebraska	11,983	2,401	283	82%	79% ↓	80% ↑	91%	91%	86%
Nevada	42,092	12,906	1,524	70%	71% ↑	69% ↓	88%	96%	86%
New Hampshire	10,780	4,668	254	58%	56% ↓	57% ↑	100%	100%	100%
New Jersey	137,147	51,025	5,669	68%	65% ↓	63% ↓	32%	39%	47%
New Mexico	33,681	11,221	1,015	67%	63% ↓	67% ↑	81%	61%	58%
New York	175,131	19,846	5,336	90%	87% ↓	89% ↑	100%	100%	100%
North Carolina	88,494	3,582	1,468	95%	95% →	96% ↑	81%	100%	103%
North Dakota	5,852	2,281	153	69%	63% ↓	61% ↓	52%	53%	72%
Ohio	181,909	47,308	4,563	67%	67% →	74% ↑	67%	57%	65%
Oklahoma	33,992	11,384	1,171	67%	65 %↓	67% ↑	65%	104%	101%
Oregon	62,594	2,580	N/A	82%	91% ↑	96% ↑	83%	72%	N/A
Pennsylvania	133,826	50,498	4,425	68%	64% ↓	62% ↓	31%	43%	50%
Rhode Island	10,689	4,439	320	59%	58% ↓	58% →	100%	100%	100%
South Carolina	47,254	17,371	1,108	68%	65% ↓	63% ↓	100%	100%	100%
South Dakota	8,866	8	102	96%	93% ↓	100% ↑	102%	100%	101%
Tennessee	41,913	2,664	1,010	92%	92% →	94% ↑	100%	100%	100%
Texas	183,518	35,891	3,847	83%	82% ↓	80% ↓	81%	69%	69%
Utah	29,172	5,766	902	78%	76% ↓	80% ↑	100%	100%	100%
Vermont	5,010	1,541	112	73%	70% ↓	69% ↓	95%	118%	115%
Virginia	82,407	28,380	2,360	69%	65% ↓	66% ↑	46%	59%	76%
Washington	74,347	8,702	1,675	94%	95% ↑	88% ↓	65%	74%	75%
West Virginia	16,729	5,510	699	64%	63% ↓	67% ↑	100%	106%	100%
Wisconsin	85,329	53	912	100%	100% →	100% →	104%	100%	100%
Wyoming	9,133	1,946	185	83%	80% ↓	79% ↓	96%	89%	82%
Total	**3,434,158**	**968,383**	**91,941**	**74%**	**72% ↓**	**72% →**	**77%**	**76%**	**80%**

*Numbers are in millions of dollars. ARC stands for actuarial required contribution and is what plan actuaries recommend be set aside in a given year to fund retirement benefits. All figures were collected from Comprehensive Annual Financial Reports (CAFRS), actuarial reports and valuations, or other public documents, or as provided by plan officials. More detailed information about individual plans within states can be found at: www.pewtrusts.org/pensiondata.

Source: The Pew Charitable Trusts

Four states' experiences

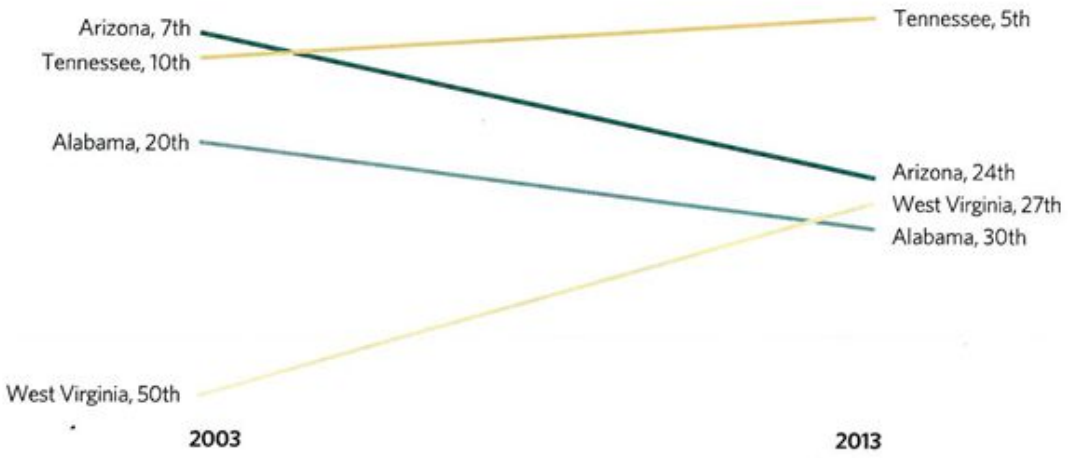
Four states illustrate the limitations of the ARC and why stronger measures of contribution policies may be useful. Alabama, Arizona, Tennessee, and West Virginia all contributed on average 100 percent or more of their ARC from 2003 to 2013. Tennessee and Arizona had nearly fully funded retirement systems in 2003, with 99 percent of their liabilities matched by assets. But 10 years later, while Tennessee's pension plans remained well-funded at 94 percent, Arizona's had steadily declined and was just 72 percent funded.

West Virginia and Alabama started from different points in 2003: West Virginia's pension plan ranked last in the nation, while Alabama's was in 20th place. But over the next decade, West Virginia improved its funding ratio from 40 percent to 67 percent and moved to the middle of the 50-state ranking. Meanwhile, Alabama's ratio dropped from 93 percent to 66 percent, with 10 states outpacing it. (See Figure 1.)

Figure 1

Comparison of 4 states that made 100% of ARC payments

Funding rank 2003 and 2013



Sources: Comprehensive Annual Financial Reports (CAFRs), actuarial reports and valuations, or other public documents, or as provided by plan officials

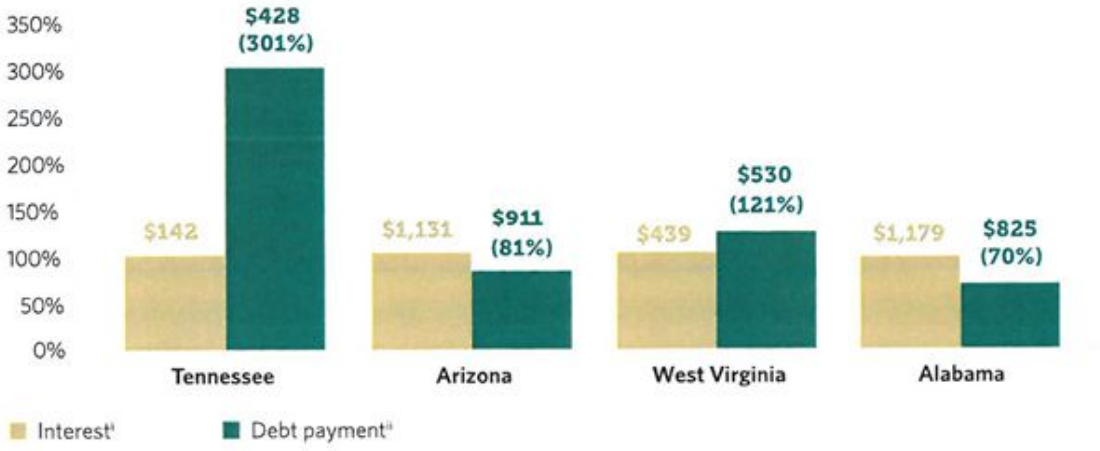
Changes to pension funding ratios are the result of multiple factors, including investment returns, benefit or cost of living modifications, adjustments to actuarial assumptions, and contribution levels. However, the differing results in the four states that are used as examples here can in part be attributed to how they adopted minimum funding standards that allowed debts to grow over time. Many state plans have stretched out their schedules to pay down their pension debts to the maximum timeframe allowable under the ARC disclosure standard and refinance each year following a funding method called 30-year open amortization. This is similar to the negative amortization loans some homeowners used in the run-up to the financial crisis. Initial payments on those loans failed to pay down any principal, and homeowners fell deeper into debt as a result.

States have a number of ways to pay off their pension debt more effectively: shorter amortization periods, recommended by the Society of Actuaries Blue Ribbon Panel, which produced a report offering best practices to the industry[2]; making steady, level interest payments rather than deferring larger payments until later; and using defined payment schedules, called closed amortization periods, rather than refinancing annually. States such as Tennessee and West Virginia have succeeded in reducing their unfunded liabilities by adhering to debt payoff plans designed to close the funding gap.[3] Alabama and Arizona have fallen short of this measure in the past but made recent changes to their contribution policies—specifically switching to a closed funding schedule so the current pension debt will have to be fully paid off within a fixed period—that may improve how they stand in the future.[4]

But without those policy changes, the trends in each of the four states would continue. Unless debt payments exceed the expected growth in the unfunded liability, commonly referred to as the interest on pension debt, debt will grow. As Figure 2 shows, debt payments in Tennessee and West Virginia outpaced interest on pension debt, which reduced unfunded liabilities. In Arizona and Alabama, unfunded liabilities grew because interest on pension debt was greater than debt payments.[5]

Figure 2

State Pension Contribution Policy Comparison (2013)



Notes: All dollar figures in millions.

i. The interest on pension debt reflects the expected annual increase in unfunded liability if plan assumptions are met, before the impact of amortization payments.

ii. Contributions above and beyond the cost of new benefits earned that year.

West Virginia includes the Teachers' Retirement System and Public Employees Retirement System. Tennessee includes the State Employees, Teachers, Higher Education Employees Pension Plan. Arizona includes the Arizona State Retirement System, Public Safety Personnel Retirement System, and Corrections Officer Retirement Plan. Alabama includes the Teachers' Retirement Systems and Employees' Retirement System.

Source: Comprehensive Annual Financial Reports (CAFRs), actuarial reports and valuations, or other public documents, or as provided by plan officials

Funding policies in West Virginia and Tennessee have been designed to reduce pension debt, while policies in Arizona and Alabama have not. All four states suffered investment losses in 2009 and saw funding levels reduced, and all four experienced strong investment gains in 2014 and gained ground. But over the long run, strong contribution policies have allowed West Virginia to make substantial progress in closing its funding gap and Tennessee to make up a portion of the investment losses from the dot-com crash and the Great Recession. Funding ratios in Arizona and Alabama have declined even though they, like the other two states, paid their full ARC.

New accounting and disclosure standards

Until now, most analyses gauging public pension funding policies relied heavily on how well states made their actuarial required contributions. Starting with the reporting of 2014 data, new standards required by GASB will provide additional data that policymakers can use to supplement the ARC and to evaluate the fiscal health of plans as well as policies' sufficiency to reduce pension debt.

Public pension plans will now be required to report liabilities using a standardized actuarial cost method, to clearly state the cost of new benefits earned that year by employees, and to disclose investment returns in a consistent fashion that allows them to be compared with other plans. In addition, for the first time, unfunded pension liabilities must be included in state and local government balance sheets and presented as net pension liabilities.

Reporting of these net liabilities will be based on the market valuation of assets rather than smoothing investment gains and losses over time, which will cause an uptick in reported funding levels in 2014 as recent strong returns are fully incorporated. It will also make direct comparisons between plans easier in the future. Standardized reporting based on market values also means that reported figures will be more volatile and that the next market downturn will cause an immediate drop in pension funding levels.

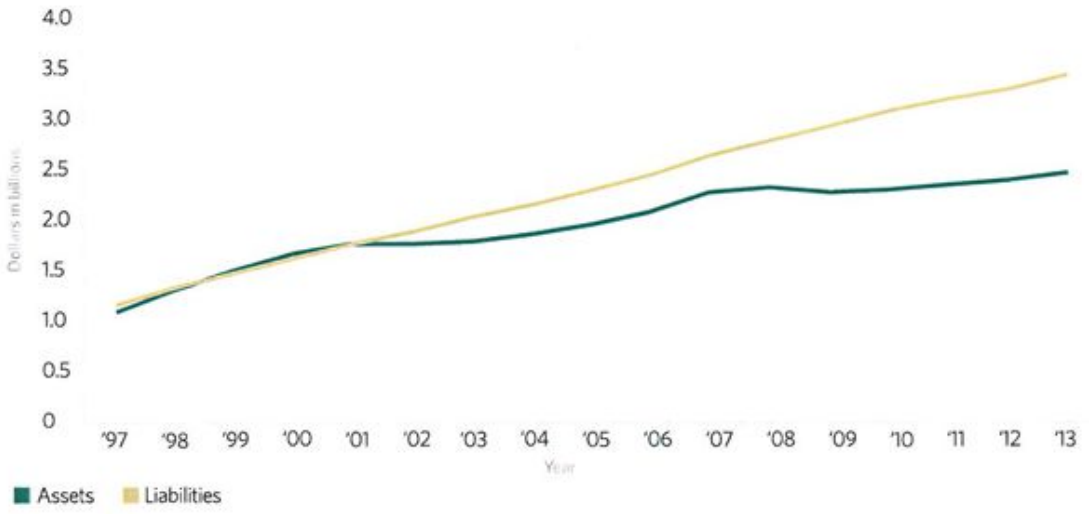
Although disclosure of ARC calculations is no longer mandatory, many plans are expected to continue to do so—or to produce a similar metric known under the new GASB standards as the "actuarially determined contribution." The evidence shows that while the actuarial required contribution has been a useful disclosure and comparison tool, meeting this reporting standard never ensured that states and cities were actually paying down their pension debts. Because employers were essentially free to use their own assumptions and methods to calculate their ARC, it was a minimum reporting standard rather than a model approach for pension funding.[6]

The new disclosure requirements allow for the development of new metrics to determine whether annual pension payments are sufficient to reduce unfunded liabilities. Among them is net amortization, which measures whether funding policies in force in state and local governments are sufficient to reduce pension debt in the near term. Many states, including some that pay the full ARC, contribute less to their pension funds than the combined cost of new benefits as they are earned and interest on their pension debt—allowing their unfunded liability to grow.

The National Association of State Retirement Administrators accurately notes that net amortization may not always measure short-term funding policies that are sustainable and may reduce pension debt over the long term. That may be, but measuring net amortization builds on recent work by Moody's[7] and is consistent with the recommendation of the Society of Actuaries Blue Ribbon Panel to pay down pension debt over a fixed time period.[8] As a supplement to the ARC, net amortization may be helpful in evaluating funding policies based on the annual contribution. In order to be effective, contribution policies must eventually achieve positive amortization; the net amortization measure provides an important benchmark to states and cities on when their policy will do so.

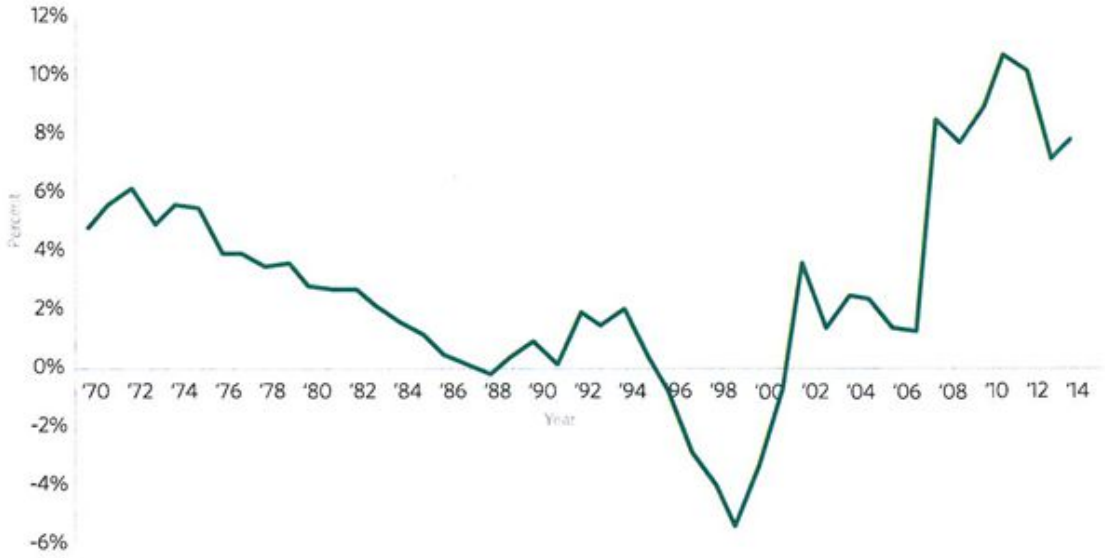
Figure 3

State Pension Funding Gap



Sources: Comprehensive Annual Financial Reports (CAFRs), actuarial reports and valuations, or other public documents, or as provided by plan officials

State and Local Pension Debt as a Share of Gross Domestic Product



Sources: The Federal Reserve and U.S. Department of Commerce Bureau of Economic Analysis

Conclusion

The gap between the pension benefits that state governments have promised workers and the funding to pay for them remains significant. Many states have enacted reforms in recent years and have benefited from strong investment returns. But investment returns are uncertain, and government sponsors in many states have continued to fall short of making recommended contributions in 2013. New reporting standards will provide policymakers with additional information to evaluate the effectiveness of their policies and ensure that plans can achieve full funding and that pension promises are kept over time.

Methodology

All figures presented are as reported in public documents or as provided by plan officials. The main data sources used for this report were the Comprehensive Annual Financial Reports (CAFRs) produced by each state and pension plan; actuarial reports and valuations; and other state documents that disclose financial details about public employment retirement systems. In total, Pew collected data for 238 pension plans. Because of lags in financial reporting, fiscal year 2013 is the most recent year for which comprehensive data are available for all 50 states. Pew was able to obtain fiscal year 2014 data for about 90 of the 100 largest state plans.

Because each state retirement system uses different key assumptions and methods in the presentation of its financial information, Pew makes no adjustments or changes to any system in the presentation of aggregate state data. Assumptions underlying each state's funding data include the expected rate of return on investments and estimates of employee life spans, retirement ages, salary growth, marriage rates, retention rates, and other demographic characteristics. States use various approved actuarial cost methods and also may smooth gains and losses over time to manage volatility.

Determination of retirement systems for inclusion in data collection

The pension systems included in this data collection are those listed in the state CAFR in which the state is a sponsor, administrator, employer, or funder. Local pension systems with no direct state involvement are not included.

Acknowledgment

Pew's work on public-sector retirement systems is conducted in partnership with the Laura and John Arnold Foundation.

Endnotes

1 Most state pension plans' reported 2013 data include both the market value of pension assets and a smoothed actuarial value that spread out investment gains and losses over time. In plans for which we have both values, the majority had higher funded ratios on a market value basis by about 4 percentage points on average. However, a number of larger plans had lower funded ratios on a market value basis due to larger unrecognized losses. In total, we found that pension liabilities were 72 percent funded on both a market and actuarial basis. In other years, particularly in 2009, right after the financial crisis, the difference between market funding and smoothed funding has been substantial.

2 Society of Actuaries, "Report of the Blue Ribbon Panel on Public Pension Plan Funding" (2014), https://www.soa.org/blueribbonpanel.

3 Employers participating in Tennessee's state pension plans are legally obligated to fund the actuarially required contribution. In West Virginia, employers participating in the Public Employees Retirement System are required to pay contribution rates as established by the PERS board, which should be sufficient to fund the actuarially determined contribution. Keith Brainard and Alex Brown, *Spotlight on the Annual Required Contribution Experience of State Retirement Plans, FY 01 to FY 13,* National Association of State Retirement Administrators (March 2015), http://www.nasra.org/files/JointPublications/NASRA_ARC_Spotlight.pdf.

4 The Retirement System of Alabama, which includes the Employees' Retirement System, the Teachers' Retirement System, and the Judges' Retirement System, switched to a closed funding schedule in 2013, as did the Arizona State Retirement System. The Arizona Public Safety Personnel Retirement System was already using a closed funding method. 2014 and 2013 Arizona State Retirement System actuarial valuation; 2013 Alabama Employees' Retirement System actuarial valuation. Contribution policies and investment gains and losses were just two of the factors that increased unfunded liabilities in Alabama and Arizona—unfunded cost of living adjustments in Alabama also played a role.

5 Pension debt payments are known as amortization payments—the total employee and employer contributions into the plan less the amount required to pre-fund new benefit promises, commonly referred to as either normal cost or service cost. The interest on pension debt reflects the expected annual increase in the pension plan's unfunded liability if plan assumptions are met, before the impact of amortization payments. The service cost and associated contributions increase plan assets and liabilities by the same amount, while paid benefits reduce both assets and liabilities at equal levels.

6 Governmental Accounting Standards Board, "Summary of Statement No. 27: Accounting for Pensions by State and Local Governmental Employers" (November 1994), http://www.gasb.org/resources/ccurl/44/286/GASBS-27.pdf.

7 Moody's Investors Service, "New Pension Accounting Increases Clarity of Plan Funding Trajectories" (March 2015).

8 The report recommends amortization periods of 15 to 20 years for unfunded pension liabilities, which is generally consistent with achieving positive amortization. See: Society of Actuaries, "Report of the Blue Ribbon Panel."

For further information, please visit:

pewtrusts.org/publicpensions

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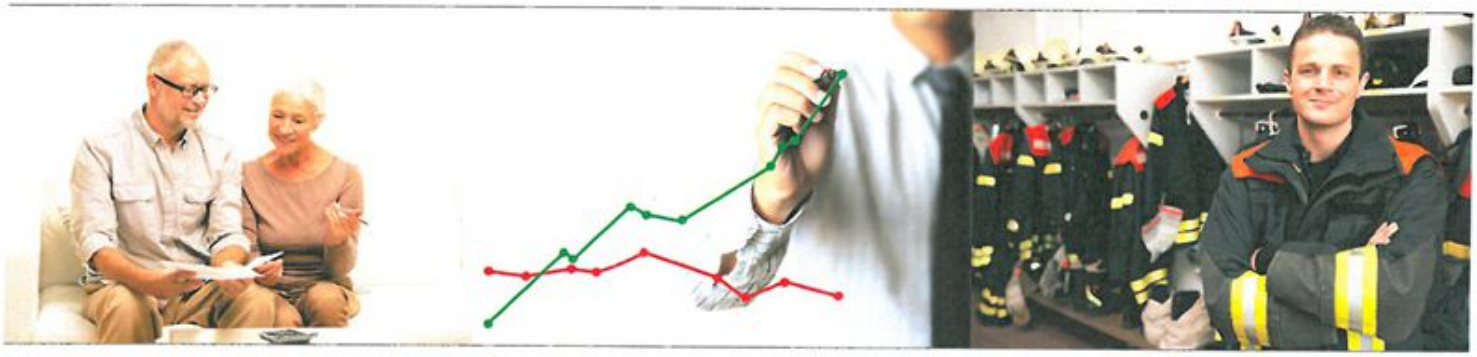
Issue Brief

Retirement Security Risks: What Role Can Annuities Play in Easing Risks in Public Pension Plans?

By Diane Oakley, Executive Director of NIRS

August 2015



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Diane Oakley is executive director of the National Institute on Retirement Security (NIRS) and leads the organization's research, education and strategic planning initiatives. Before joining NIRS in 2011, Ms. Oakley worked on Capitol Hill where she played a key staff role in formulating legislative strategy on pension, tax, Social Security, financial services and workforce issues. Ms. Oakley held leadership positions with TIAA- CREF, a leading financial services provider. During her 28-year tenure with the organization, she held a number of management, public policy and technical positions. She began there as an actuarial assistant and was promoted to positions including vice president for special consulting services and vice president for associations and government relations. She holds a B.S. in Mathematics from Fairfield University and an M.B.A. in Finance from Fordham University. She is a member of the National Academy of Social Insurance.

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ABOUT NIRS

The National Institute on Retirement Security is a non-profit research institute established to contribute to informed policy making by fostering a deep understanding of the value of retirement security to employees, employers, and the economy as a whole. NIRS works to fulfill this mission through research, education, and outreach programs that are national in scope.

I. EXECUTIVE SUMMARY

Over recent decades, America's retirement infrastructure has shifted dramatically. Significantly fewer private sector companies offer traditional defined benefit (DB) pension plans, having replaced them with defined contribution (DC) 401k-type accounts. This shifts much of the responsibility for reaching retirement age with adequate savings more squarely on employees. In the public sector, while maintaining DB pension plans has remained commonplace, the public retirement systems that cover police, firefighters, teachers, and other state and local employees have shifted more of the obligation onto employees as well, either through increased employee contributions or cuts to plan benefits. This means that employees must assume more of the risk and cost.

For DB plans, DC plans, and plan participants, there are four key risks are inherent to financial security:

- Investment risk – the risk that retirement assets earn less than anticipated, or decline in value.
- Adequacy risk – the risk that retirement savings are not enough to meet financial needs.
- Longevity risk – the risk that money runs out while the retiree is still living.
- Inflation risk – the risk that higher prices will erode the purchasing power of retirement income.

From the public DB plan's perspective, the different retirement security risks break down as follows:

1. **Investment Risk:** Public pension plans have historically demonstrated their ability to invest retirement assets and achieve target returns over a long time horizon, based on employees' working careers and expected years in retirement. This enables plans to take advantage of the risk premium generated by equity investments in their diversified fund portfolios over time.

2. **Adequacy Risk:** A challenge for public retirement systems is appropriately funding promised benefits. The fundamental principle underlying sustainable funding is ensuring that pension sponsors pay the full actuarial required contribution (ARC) or as currently called the actuarial determined contribution (ADC). While a few states have failed to adequately meet their ADC payments, most states have made a good-faith effort to fund their pension plans (paying 95 percent or more of the ADC).

3. **Longevity Risk:** DB pensions provide lifetime protection for participants' retirement income. Advised by professional actuaries, public pensions appear to anticipate changes in mortality experience successfully.

4. **Inflation Risk:** Over time, the purchasing power of a fixed income stream diminishes. To protect retirees against this risk, many public pension plans offer cost of living adjustments (COLAs). While this shifts some inflation risk onto the plan, limits on COLAs and investment strategies that deliver higher rates of return than inflation help public pensions provide these benefits while managing future liabilities.

Most public sector DB pension plans have successfully managed these risks in different ways, while also delivering retirement benefits that help to attract, retain, and manage the public sector workforce. Public retirement systems regularly review their investment, economic, and demographic assumptions and trends to assess how these trends impact funding and retirement readiness.

One such trend is increasing life expectancy in the United States. For retirees, living longer means more years over which inflation can erode the amount of goods and services they can afford. For plans, improvements in longevity mean that more monthly income will be paid to retirees over their longer lifetimes.

In light of improvements in life expectancy, market-based tools, such as annuities, may help manage longevity risk—for both individuals and plans themselves. Annuities are products offered by insurance companies in which a certain amount of money is paid up front in order to provide a regular income stream for the remainder of one's life, or a set number of years.

However, while economists find value in the use of lifetime income annuities to address longevity risk, they are puzzled because only a small share of individuals use annuities to provide life long income protection. This implies that many workers nearing retirement may not fully understand the need for income protection in retirement.

This paper considers the role that annuities might play in providing a secure retirement to public employees. It finds that:

1. **Public DB pensions are highly cost efficient.** They provide the same amount of monthly retirement income at a much lower cost than both a typical DC plan and a pension plan funded exclusively with fixed annuities purchased over a career. Because fixed annuity products deliver investment returns related to bond investments, it is difficult to generate a given level of monthly income from fixed annuities than from public DB pensions.[1] Depending on the interest rate used in the pricing of the annuity, the cost of using fixed income annuities to fund DB pension benefits can be anywhere from 57 percent to over 175 percent more than the cost under a public pension's diversified portfolio.

2. **Public DB pension plans provide significant consumer protections in state law, while annuities have different consumer protections in state regulation and insurance law.** Pension benefits of public employees and retirees are protected in various ways, including state constitutions, state laws, court decisions on contract law, and collective bargaining agreements. Consumer protections for insurance annuity contracts differ from those for public pension benefits. Under state guaranty funds, annuity protections have low coverage limits, lack prefunding, and can vary dramatically from state to state. In addition, state insurance laws generally provide insurance companies with tax credits for assessments they incur to support these funds, thus shifting the ultimate cost of protection against insolvency to state taxpayers.

3. **Longevity annuities focus on the insurance value and are less expensive than fixed income annuities.** Longevity annuities start income payments at much older ages, typically in the 80s. This allows individuals to capture most of the insurance value of immediate annuities, but at a fraction of the cost. The relatively lower cost of longevity annuities may be attractive to some public plan sponsors who might seek to reduce their longevity risk exposure. Further analysis with actual participant data, and a clarification about the use of longevity annuities, would be helpful for plans considering their use.

II. INTRODUCTION: PARTICIPANTS AND PLANS FACE SPECIFIC RISKS IN RETIREMENT

A. More Americans Face Individual Risks in DC Plans

As they look at their financial risks in retirement, many working Americans might agree with Bette Davis, who proclaimed "old age ain't no place for sissies." Among Americans between age 30 and 64, retirement—specifically, not having enough money to last—is their top financial worry, according to the Gallup organization. As far back as 2000, retirement has been the top money worry in Gallop's list of top financial problems.[2]

Americans' concern suggests that families realize that the amount saved in their 401(k) accounts is not enough for their future, and research confirms that these worries are valid. The Boston College Center for Retirement Research (CRR) National Retirement Risk Index indicates that as of 2013, more than half of U.S. households lack sufficient retirement income to maintain their standard of living, even if they work longer than average and retire at 65.[3] The National Institute on Retirement Security (NIRS) calculates that the typical working family has only a few thousand dollars saved for retirement, and four out of five families have retirement savings equal to less than one times their annual income.[4] While growing numbers of Americans over age 65 continue to work,[5] the majority of households have a key financial goal to replace their monthly paychecks with a secure, predictable cash flow that will last for as long as they live. However, it is becoming clear that they may need additional help in achieving this goal.[6]

Coverage by a private sector DB pension fell from 88 percent of workers with a workplace retirement plan in 1975 to just 18 percent in 2011.[7] Using data from the Survey of Consumer Finances, NIRS found that households between ages 55 and 64 represent the last ten-year cohort of working families to enjoy widespread (57 percent) DB pension coverage. With the Baby Boom generation moving into retirement, Figure 1 shows that more and more households will be covered by only DC retirement accounts in the future, and fewer will have the security of a monthly income check arriving in their bank accounts.[8]

The shift from traditional DB pensions to DC plans in the private sector initially appeared well-timed, as investment gains from the 1980s and 1990s bull markets helped 401(k) account balances grow rapidly. However, the investment losses resulting from the two recessions since 2000 clearly demonstrated the reality of investment risk to DC plan participants. Swings in financial markets are not the only retirement risks working families face.

In the *Harvard Business Review*, Nobel Prize winning economist Robert C. Merton noted that "the relevant risk is retirement income uncertainty." For Merton, the saver's primary concern remains: "Will I have sufficient income in retirement to live comfortably?"[9] As 401(k)s became the dominant form of retirement plan for private sector employees, workers' focus tended toward the accumulations in their accounts, rather how long would their money last when their paychecks stopped. A shift in focus to "retirement income" may help more Americans plan for retirement, but also highlights the other retirement security risk factors beyond investment risk, including longevity, adequacy, and inflation risks. These are daunting challenges individually, and they all interact, compounding workers' overall financial risk in retirement.

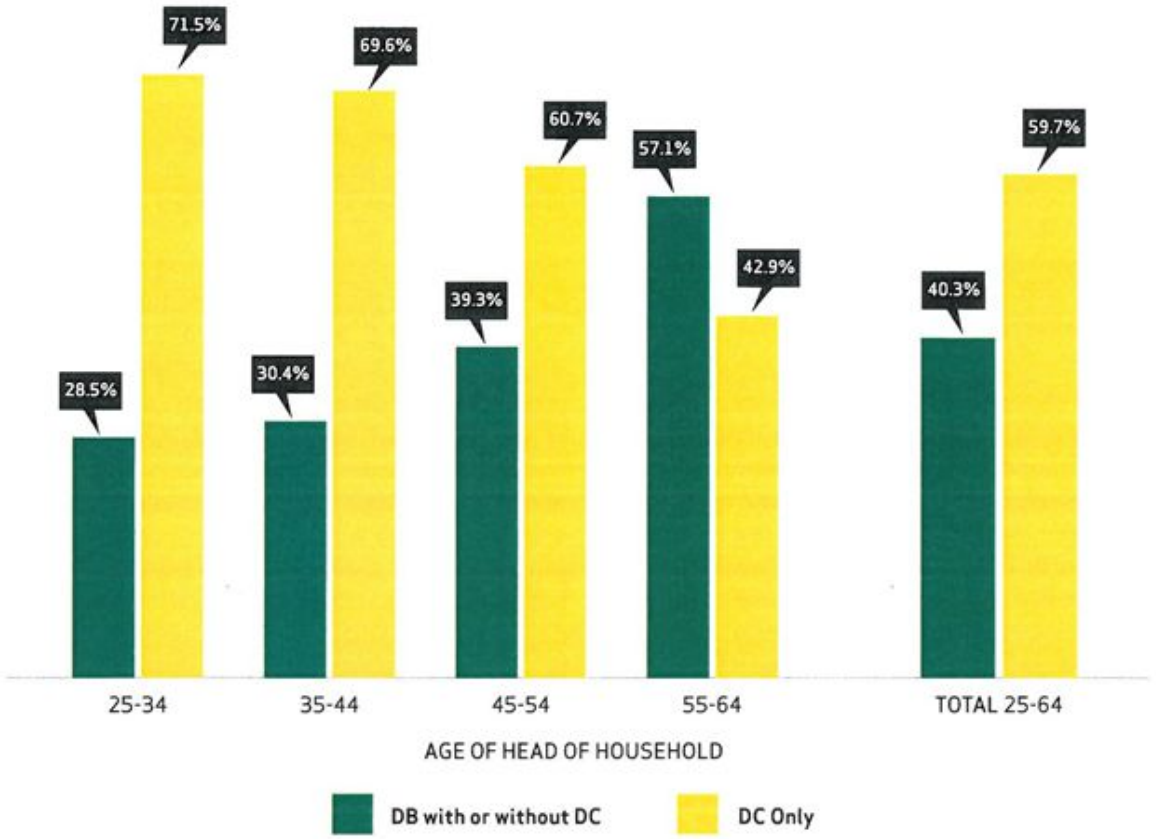
B. Public Pension Plans Stayed Focused on Retirement Income

For more than one hundred years, the overwhelming majority of public sector employers have maintained DB coverage, and have focused on income security in retirement. New York City created the first public pension for its police officers in 1878,[10] and Massachusetts offered the first state-wide pension plan to its employees in 1911. The Massachusetts plan required public employees to contribute 5 percent of salary into the pension fund while working and purchased annuities when workers retired.[11]

Such shared responsibility—joint funding of retirement plans by employers and employees—has remained a hallmark of public pensions. Contributions deducted from employees' paychecks have always been a key source of funding, while public employers contributed their portion of the funding on a more varied basis. Through the mid-1970s, pension plans were not fully funded in either the public or private sectors.

Figure 1: **Young Households with Workplace Retirement Benefits Are Half as Likely as Near-Retirement Households to Have a DB Pension**

DB and DC plan coverage among households covered by an employer-sponsored retirement plan, by age of head of household, 2013



Source: N. Rhee and I. Boivie, 2015, "The Continuing Retirement Savings Crisis," NIRS, Washington, DC.

The Employee Retirement Income Security Act of 1974 (ERISA) established minimum funding practices for pensions in the private sector. While ERISA does not apply to public pensions,[12] most public sector employers developed a strong appreciation for the value of prefunding pension obligations. Reporting standards from the Governmental Accounting Standards Board (GASB) also encouraged prefunding. As a result, by 2000, public pension systems reached more than 100 percent funding in aggregate, without federal regulation or oversight.[13]

Over the last century, cost sharing with employees and providing benefits as monthly income remained steadfast features of public pensions, and helped to mitigate some of the adequacy risk for retirees by assuring that their income would last as long as they lived. Public pension systems use their large numbers of participants to work to their advantage in two ways that address retirement security risks. First by pooling assets to obtain better investment results, and also by looking at the longevity of the whole pension population; these help to generate predictable costs and benefit cash flows.

In terms of pooling assets, over time public pension systems have developed greater investment expertise, allowing plans to optimally invest and diversify plan assets. Plans have gradually increased their allocation to equities and other asset classes over time, which adds more investment risk, but also generates higher returns than earlier, more limited investment strategies, which helps to mitigate adequacy risk.[14]

In terms of pooling longevity risk, this is beneficial because public pensions only need sufficient assets to last for the average life expectancy of all plans members. As a result, a public pension plan can pay lifetime income benefits at a significantly lower cost than a private market annuity.[15]

As financial markets have undergone two major downturns recently, all states have adopted DB plan changes to maintain long-term sustainability. Changes include including increased employee contribution rates, increased employer contributions, reduced cost of living adjustments, and/or reduced future benefits. Thus, these plans continue to share cost and risk responsibility between employees and employers. In contrast, as private-sector employers have embraced DC plans, they have transferred most of the retirement security risks directly onto workers. Unfortunately, research shows that individuals are ill prepared to develop the sophisticated solutions needed to address these varied retirement risks. Specifically, they do not appear to understand and value longevity protection provided in annuities.[16] However, according to Jafor Iqbal of the life insurance research organization LIMRA, life annuities "can create almost pension-like income in retirement,"[17] as they provide protection from outliving one's savings.

Outliving retirement savings is not just a personal financial issue; it impacts society as a whole. Recently, retirement policy discussions and activities have focused on ways to generate predictable retirement income from DC plans. Both the Obama administration and Republican leaders in the U.S. Senate have looked at insurance company annuity products as possible tools to help achieve greater retirement income security, reflecting concerns that public safety-net programs could be strained if large numbers of Americans run out of money in their old age.[18]

The remainder of this issue brief is organized as follows. First, it identifies the key retirement security risks for both the DB pension plans and participants, and considers how these risks are managed and addressed. Second, the paper considers life annuities,[19] reviewing the findings in the literature on the value of annuities and their role in the retirement marketplace. Lastly, the paper considers how policy proposals to encourage the use of annuities might benefit public retirement systems as tools to ease retirement security risks.

III. RISKS TO RETIREMENT INCOME SECURITY FOR PUBLIC SECTOR WORKERS

To answer the important retirement security question: "Will I have sufficient income in retirement to live comfortably?" employees and retirees must consider a number of risk factors that impact their financial security. Retirees with DB plans receive monthly pension checks, making it much easier for them to answer this question than those with only a DC plan.

From the viewpoint of public employers and retirement systems, the question takes on a slightly different two-pronged form: "Will the pension plan have sufficient assets to pay its promised retirement benefits to retirees and employees, and will retirees be able to retire in a way that enables effective workforce management?" For employers providing DC plans, retirement risks are not entirely bypassed, because they may find their ability to manage an aging workforce limited. Older workers may be unable to afford to retire and will therefore continue to work longer than expected; this can create roadblocks in the career paths of younger workers.

Understanding the nature of the financial risks in retirement and then developing a plan to address these risks is the first step toward achieving retirement security. Various strategies are available to manage these risks, including taking advantage of risks that deliver financial gains in the marketplace, purchasing insurance to protect against the risks, or planning for eventual contingencies. Table 1 outlines the key risks[20] faced by public employees and public DB pension plans.

Table 1. **Risks Faced by Employers, Pension Plans, and Individuals**

Retirement Risk	Public Employees/Pension	Public Employee
Investment Risk	The risk that the plan will not earn its expected rate of return over the long- and short-term.	For the DB benefit, employees have no investment risk but they face the risk that personal savings funds in DC accounts might decline in value.
Adequacy Risk	The risk that contributions made to the pension will not be adequate to fund the benefits promised.	The risk of not having sufficient income from Social Security, employer-sponsored retirement plans, and personal savings to maintain one's current standard of living.
Longevity Risk	The risk that the DB plan might run short of funds because participants, as a group, are living longer than expected.	The risk that an individual (and spouse) will live longer than expected and deplete retirement assets.
Inflation Risk	The risk that inflation will increase at rates greater than expected, reducing plan funding and the real value of benefits.	The risk that the purchasing power retirement income will decline over time, reducing one's living standard.

For workers with only a DC plan, determining how much income to withdraw each year from their accounts can be challenging, because they must anticipate and manage all of these risks on their own.

We will next consider how both public pension plans and public employees attempt to manage each of these risks, at times offering contrast with their private sector counterparts.

A. Investment Risk

Most investments present risks, but financial markets tend to provide higher returns over time, especially for those investors able and willing to take greater risk. Retirement assets held in trust grow substantially over time due to compound interest. The longer the time horizon—for example, when the time frame covers the multiple decades employees spend in the workforce and through their retirement years—the more that compounding can work to the plan's advantage.

As an asset class, equities involve higher risk and more short-term volatility than do bonds and other fixed investments. Investors willing to ride out the market's ups and downs get a premium return, called an "equity premium." Since public pensions are paid as a lifetime income, retirement systems invest the assets for all covered individuals in pooled funds that have very long investment horizons. Over such long time periods, the volatility of equity returns tends to smooth out. Historically, stocks have delivered higher returns than bonds over time, but plans have encountered shorter periods of one, five, and ten years, where losses in the stock market generated lower or even negative returns. When losses occur, plans often become underfunded, and actuarially determined contributions increase to gradually make up for the investment losses.

i. Investment Risk and Public Pensions Plans

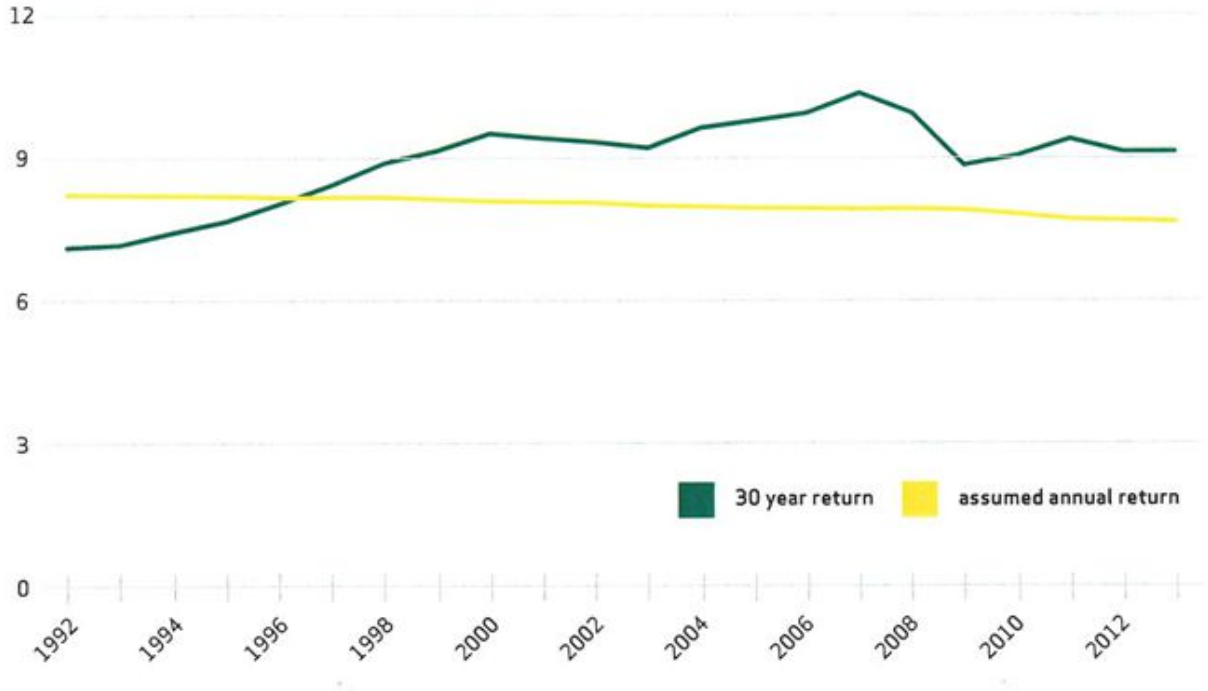
Trustees of public pensions, with the assistance of professional money managers and actuaries, establish an investment policy for the fund, taking into account the cash flow needed to pay benefits and administrative costs over time, as well as the appropriate level of risk that the pension can assume. This investment policy determines the asset allocation of the pension fund.[20] Over time, public retirement systems have adjusted their approach to investing, as economic theory on financial risks has informed investment practices and as employers have changed plan structures and levels of risk tolerance.[22]

More than 60 years ago, Teachers Insurance and Annuity Association (TIAA) asked the best academic experts to consider the economic theory about returns from fixed and equity investments. According to its former Chairman William Greenough, the experts found that a combination of investments in equities and bonds was a better way than only using fixed deferred annuities for teachers to achieve retirement income adequacy.[23] Using these results, TIAA addressed concerns about funding an adequate retirement income by using just fixed annuities and launched the first variable annuity in 1952, creating the College Retirement Equities Fund (CREF).

This greater understanding of the risks and rewards of investment diversification persuaded states to relax the legislative restrictions on allowed investments. Gradually, public pension plans increased allocations to equity investments, following the lead of private sector DB pensions.[24] Incorporating the modern portfolio theory understanding that diversification into broad asset classes with different risk profiles can reduce overall risk, pension fund trustees now prudently diversify pension assets across asset classes to balance risk while appropriately maximizing returns. Public pension funds currently hold about 60 percent of assets in corporate equities on average, consistent with other institutional investors.[25]

Research shows that this portfolio diversification has increased public pension plan returns substantially. Stubbs calculated compound annual real returns of a hypothetical pension portfolio for various rolling periods between 1926 and 2010 based on return data from Ibbotson Associates. Assuming an overall 58 percent equity position, the compounded real (above inflation) return is 5.71 percent over 30 years, which is similar to the average for public pension funds after adjusting for expenses.[26] Using Callan Associates' data, NIRS calculated the 25-year average real return for public pension funds to be 5.4 percent.[27] Also, the National Association of State Retirement Administrators (NASRA) analyzed investment returns over rolling 30-year periods ending between 1992 and 2013 and compared the nominal investment results to the assumed return used by plans. Figure 2 shows that typically state and local plans achieved investment returns above the assumed rate, and exceeded a return of 9 percent, over the majority of 30-year periods.[28]

Figure 2: **Rolling 30-year Investment Return for State and Local Pensions, 1992-2013**



Source: Census of Governments and Public Fund Database.

The experience of public pension has demonstrated how diversification theory works in practice. Earnings on investments from broadly diversified funds have historically made up the bulk of pension fund receipts, even though 2001-2010 saw two very large market downturns within a single decade. Between 1993 and 2012, investment earnings supported 63.2 percent of public pension fund receipts, while 24.5 percent came from employer contributions, and 12.3 percent were from employee contributions.[29]

The recent downturns lowered the value of plan assets and increased funding shortfalls. Table 2 summarizes CRR's analysis of the factors that impacted the underfunding of public plans from 2001–2013. It breaks down the extent to which investment returns, inadequate contributions, actuarial experience, and other circumstances factored into the lower funding levels of public pensions. CRR finds that lower than expected investment returns was the major reason for the increase in the unfunded pension liability.[30]

ii. Investment Risk and Individuals

Those individuals with DB plans do not have to worry about investment risk per say, because investment returns do not affect the benefits paid out of the DB plan. Those with DC accounts, on the other hand, must consider investment risk, because each participant will achieve a different amount of retirement income depending on the actual investment performance in his or her individual account.

When making investment decisions in DC accounts, workers take into account their personal risk tolerance. Risk-averse workers tend to choose more conservative allocations, such as money market and stable value funds. While such employees have assurances against investment risk, the corresponding lower returns could increase their adequacy risk (meaning the risk of not having enough money to meet expenses when they retire).

Table 2. **Reasons for Change in the Unfunded Liability, 2001-2013**

Investment return lower than assumed	Contribution lower than normal cost + interest on UAAL	Actuarial experience worse than assumed	Benefit changes	Changes to assumptions and methods	Other	Total
60.4%	23.7%	2.4%	(0.8%)	7.2%	7.1%	100.0%

Sources: A. Munnell, J.P. Aubry, and M. Cafarelli, 2015 (Jan.), "How Did State/Local Plans Become Underfunded?" CRR, Chestnut Hill, MA. Also calculations from the Public Plans Database, various actuarial valuations, and Comprehensive Annual Financial Reports.

Thus, some allocation to equity is recommended in DC plans in order to achieve a higher return than conservative investments can provide. However, DC investment strategies are a bit more complicated than the constant optimal asset allocation strategy that DB pensions maintain.[31] This is due to the fact that individuals have much shorter time horizons than pension plans, which basically exist in perpetuity. Generally, advisors recommend that individuals adjust their investment allocations as they age, gradually shifting to more conservative portfolios as they near retirement. Specific lifecycle investment funds have been developed to help employees invest with their retirement date in mind; these are often called target date funds (TDFs).[32] The U. S. Department of Labor (DOL) has established such funds as a qualified default investment alternative (QDIA) for employers who wanted to use auto-enrollment in DC plans. The DOL's press release indicated that aggregate 401(k) plan account balances would increase between $45 billion and $90 billion because of the change to TDFs.[33]

In target date funds, stocks comprise 80-100 percent of the retirement portfolio at the beginning of a working career, depending on the risk parameters of the fund. A mid-career worker who is about 20 years away from retirement will likely have 60-70 percent of their portfolio invested in equities. By retirement age, the share that is invested in stocks gradually decreases to about 40 percent of the portfolio (again, with some variation). While TDFs guide savers to diversified retirement accounts and automatically rebalance based on age, studies have documented that individual control of retirement accounts, the most typical plan design, can serve to produce lower returns due to ill-timed participant decisions.[34]

B. Adequacy Risk

Numerous surveys indicate that not having enough money for retirement is the top financial worry among working American families.[35] With the typical working household age 55-64 having just $14,500 saved in retirement accounts, adequacy risk is an issue of major concern.[36] As discussed earlier, adequacy risk has different dimensions depending on the type of retirement plan. For a DC participant, the question is whether they have enough assets to sustain their lifestyle for as long as they live. For public employees and employers under a DB plan, the question is whether the amounts contributed are enough keep the plan sustainable.

i. Adequacy Risk and Public Pensions

The first adequacy risk challenge for employers is appropriately funding the promised benefits, and the second challenge is delivering a pension benefit that helps the employer manage its workforce. This includes attracting and retaining qualified employees, and then allowing them to stop working and retire in an orderly manner.

As mentioned earlier, GASB's accounting and reporting standards have encouraged public pensions to meet their actuarially determined funding obligations.[37] Governments acted to prefund pension benefits to take advantage of compounding investment returns and reached full funding by 2000. States report annually on the status of pension plan assets and liabilities, and track payments needed to adequately fund retirement plan liabilities.

Shortly after the recent financial crisis eased, NIRS evaluated six well-funded retirement systems and produced a case study report on their financial situation. The most fundamental principle underlying public pensions that achieved sustainable funding was ensuring that the sponsors pay the entire amount of the ADC each year.[38] These case studies and a more recent analysis by NASRA illustrate that the ADC is an important measure of whether or not a pension plan is on track to fund its pension promises.[39]

Not surprisingly, Munnell found that not adequately funding the retirement promises in public pensions was the second largest factor contributing to the recent increase in public pension underfunding. Specifically, contributions of less than the cost for current benefits plus interest on the unfunded liability accounted for a fourth of decline in pension funding.[40]

NASRA also looked at the role of ADC payments made from 2001-2013, and found that most states made a good-faith effort to fund their pension plans (paying 95 percent or more of the ADC). Only a few states have conspicuously failed to adequately fund their pension plans, and thus their plans are more likely to accrue larger unfunded liabilities.[41] Across the states from 2001 to 2013, ADCs grew by 239 percent, from $27.7 billion to $93.8 billion. Actual public pension contributions grew more slowly, albeit significantly: by 174 percent, from $27.8 billion to $76.2 billion.[42]

Pensions represent a relatively small portion of overall governmental budgets, at just 3.9 percent of all state and local government spending. Over the 30-year period from 1984-2013, pension costs have remained within a narrow range of spending, between 2.3 to 5.0 percent.[43]

In terms of the workforce management concerns and benefit adequacy risk, public employers have done a better job than private companies, in that they have retained their DB plans which, as explained earlier, allow for more efficient retirement among employees. In recent years, Mercer has witnessed an important change in the retirement discussion amongst leading corporate employers that are taking a broader view of retirement-related risks. The financial crisis has underscored the unintended consequences of a wholesale shift to DC plans. Workforce management-related issues are now becoming apparent. For example, unforeseen costs are emerging as employers pay a high price to incentivize retirement among employees who otherwise cannot afford to leave. So-called "build organizations" are seeing the speed of promotions slow dramatically, as choke points emerge with older workers who would have retired in a DB world.[44]

ii. Adequacy Risk and Individuals

Income in retirement from a DB pension, a DC savings plan, and Social Security are often referred to as the "three-legged stool" leading to a stable lifestyle in retirement. Typically, public employees are required to participate in their DB pension, contributing on average about 5 percent of their salary to the public pension plan. This leads to significantly higher coverage rates than in the private sector, where DC plan participation is voluntary, and many individuals work for employers who do not offer a retirement plan at all.

Many public employees also contribute their own additional savings to DC plans such as 403(b) plans, 457 deferred compensation plans and, in some limited states, even 401(k) plans. To estimate the potential income generated by their DC accounts, employees have to make complex calculations. By contrast, the benefit formula in a DB pension plan clearly spells out how much of an employee's pre-retirement earnings will be replaced by the pension, as benefits reflect years of service multiplied by a benefit factor for each year worked. For example, the pension for an employee retiring after 30 years with a 1.5 percent formula would replace 45 percent of final average salary.

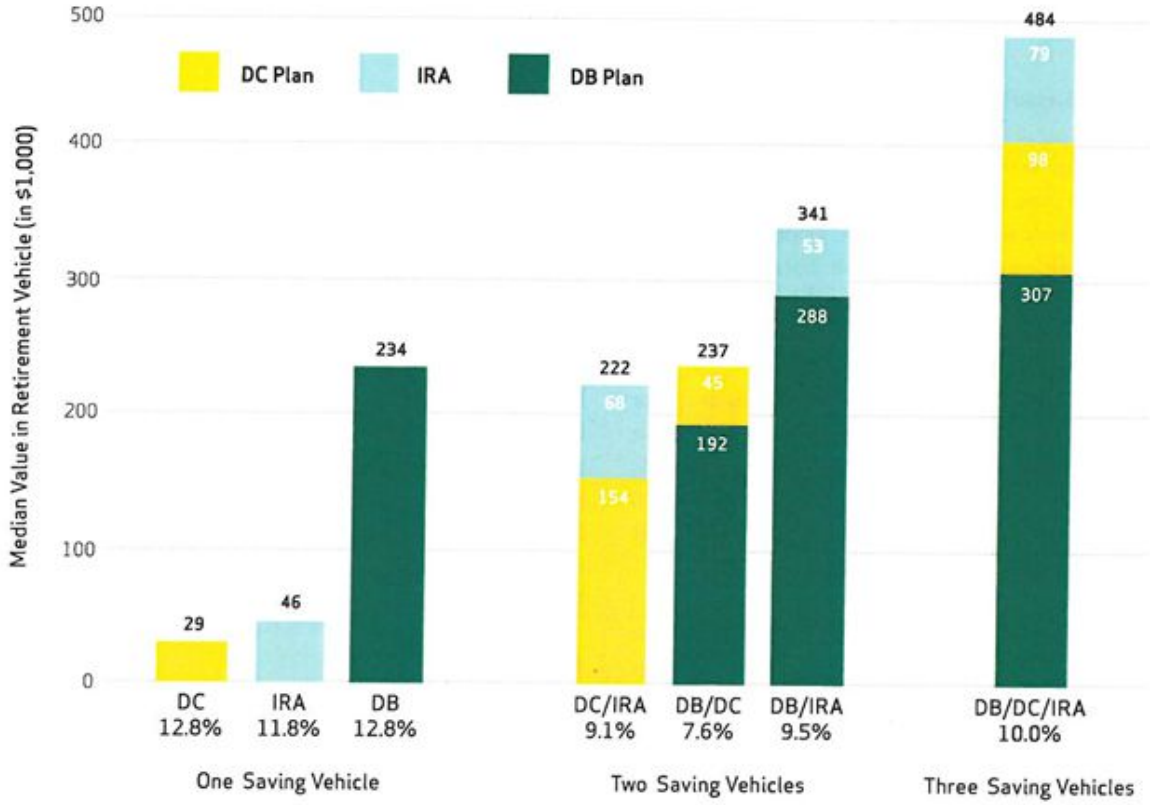
Multiple sources of income in retirement build greater financial security. Research by Poterba illustrates how households near retirement age with income from one, two, or three sources—DB pension, DC retirement account, and personal savings in Individual Retirement Accounts (IRAs)—tend to fare. Figure 3 illustrates how Poterba's findings indicate that those with the most saved for retirement have all three.[45]

Also, it should be noted that about 6.5 million public employees are exempt from coverage under Social Security, and must rely even more heaving on their public pension in order to make up for the lack of Social Security benefits that are provided to all other Americans.[46]

C. Longevity Risk

According to a 2011 Government Accountability Office (GAO) analysis of retirement income, a husband and wife both

Figure 3: **Median Retirement Plan Value for Near Retirement Households (age 55-64)**



Source: Tabulations of 2010 Survey of Consumer Finance, copyright J. Poterba in "Retirement Security in an Aging Society," 2014 (Feb.), NBER Working Paper.

aged 65 have approximately a 47 percent chance that at least one of them will live to his or her 90th birthday, and a 20 percent chance of living to his or her 95th birthday.[47] Social Security provides lifetime income that increases with the cost of living, and DB pensions also provide guaranteed retirement income that cannot be outlived. Individuals drawing their retirement savings from DC plans, however, face the risk of outliving their assets. Data show a decline in non-Social Security income occurs at older ages; retirees over age 80 experience significantly higher rates of poverty when compared to retirees between ages 65 and 69.[48]

It should be noted that life expectancies are projected to grow longer. Improved life expectancies mean that DB pensions will cost more to provide lifetime income in the future, and individuals in 401(k) plans will have to either save more while working or withdraw less from their retirement accounts each year in retirement.

Turner found that over the four decades since 1960, the life expectancy for both men and women increased about one year each decade.[49] Most recently, the Society of Actuaries (SOA) released new mortality tables to reflect the improvement in life expectancy since 2000. The data show that by 2014, among males age 65, overall longevity rose 2.0 years to age 86.6, and among women age 65, overall longevity rose 2.4 years to age 88.8.[50] IRS regulations will establish how private DB pensions must use this new longevity data, which is expected to increase the value of their liabilities by between 3% and 8%.[51] While not subject to these IRS rules, public pensions will have to

consider the impact living longer in their plans as well. Of course, increased longevity could make it more difficult for those with DC accounts to predict how much money to withdraw each year.

i. Longevity Risk and Public Pensions

While DB plans take on the longevity risk on behalf of participants, the plans are better equipped to manage longevity risk than individuals with DC accounts. Traditional pensions pool the longevity experience of their larger numbers of participants, and can predictably project the cost of benefits based on the average life expectancy of the group.

Advised by professional actuaries, public DB pensions appear to be correctly anticipating mortality experience. In fact, most public pensions plans use mortality tables that automatically build in an expectation of increased longevity. Thus, Munnell noted that changes in actuarial experience accounted for only very modest changes in plans' funding status since 2000.[52]

In a 2015 analysis of plan liabilities, CRR looked at how public pension plans address improvements in mortality experience. They found if public pensions were to adopt the new SOA mortality tables, liabilities would barely increase, and that projecting ongoing mortality improvements in the future would mean only modest increases in liabilities. They concluded that public sector plans seem to be making a serious effort to keep their life expectancy assumptions up to date.[53]

ii. Longevity Risk and Individuals

When households with only DC accounts retire, they need to develop drawdown strategies to assure that their retirement income lasts for as long as they live. This is a complex challenge involving multifaceted risks. In addition to the demands of investing wisely, retirees must anticipate their lifespans to calculate how much to draw down each year, or use tools to provide lifetime income.

To properly manage the drawdown of savings, a bit of actuarial skill is needed. While accurate life expectancy is a starting point, it is also important to understand that lifespans will vary for each individual. Thus, such analysis is difficult for many. A study of pre-retirees by a large life insurance company finds that 70 percent overestimate how much they can withdraw while still ensuring that their money will last.[54] To assure that they do not run out of money, workers using DC accounts must save more than the amount needed to last until their life expectancy since half will be among the "lucky ones" who will live longer than average.[55]

One alternative retirees can use to offset the risk of outliving their assets is to purchase an immediate income annuity from an insurance company. These annuities, with lifetime income guarantees, can protect retirees from both investment and longevity risk. Researchers have determined that annuities have important benefits, but are puzzled by the lack of traction that annuities have received in the retirement product marketplace.

Recently, the Department of Treasury and the Department of Labor developed regulations to encourage plans and participants to seek out the longevity protections of annuities. Additionally, the Chairman of the Senate Finance Committee Senator Orin Hatch (R-UT) has proposed legislation encourage the use of annuities in both public DB plans and DC accounts. Sections IV and V look at annuities in greater detail.

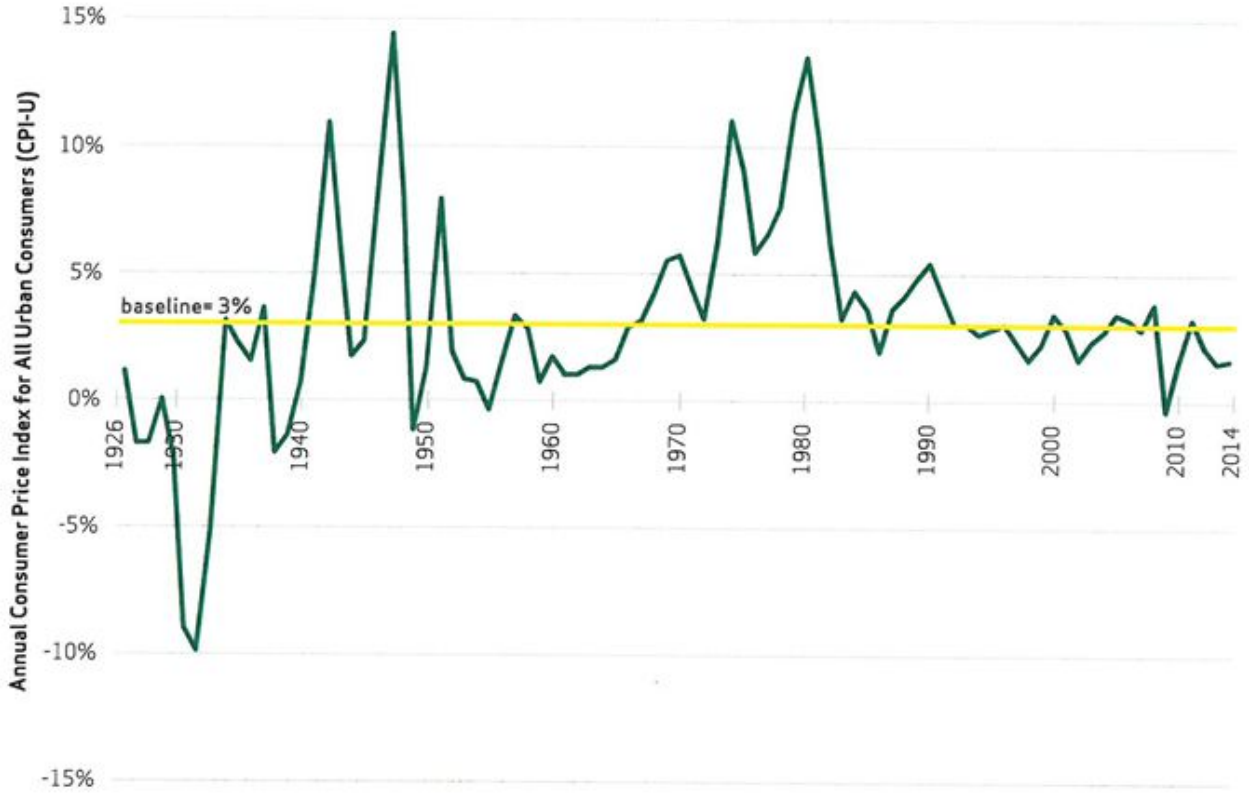
D. Inflation Risk

Over the years, the purchasing power of a fixed income stream diminishes. Even at relatively low levels, such as a three percent uptick in prices each year, over the typical 23-year retirement period inflation will erode purchasing power by half.[56] Simply put, these older retirees are able to buy only half of what they could when they first retired. Also, it is important to note that health costs for retirees often increase at higher rates than overall prices. By eroding a retiree's purchasing power, inflation risk impacts benefit adequacy over time. Inflation risk also interacts with improvements in longevity, as each additional year in retirement is more time for inflation to exert an eroding effect on retirement checks.[57]

The effective rate of inflation experienced by a retiree will depend on the period over which pension benefits are paid. The historical probability of any particular year experiencing inflation greater than 3 percent is captured in Figure 4.[58]

Inflation and interest rates play somewhat complementary roles in retirement plans, as they tend to move in the same direction. For example, in a low inflation/ interest rate period, a DB pension will likely become less well-funded due to lower than anticipated investment returns; however, at the

Figure 4. **Annualized Inflation Rates, 1926-2014**



Source: Bureau of Labor Statistics, 2015, "CPI Detailed Report: Data for May 2015," BLS, Washington, DC.

same time, the value of the pension benefits to participants will increase due to the low inflation. Alternatively, high inflation tends to reduce retirees' spending power, while the associated higher returns will likely improve the DB plan's funded level.[59]

Many public pensions have cost of living adjustments (COLAs), but nearly all plans with COLAs also have a 'cap' on the amount by which they can increase, in order to help make funding more sustainable and predictable.[60] Thus, over the long term, high inflation accompanied by high interest rates should cause public pension funding levels to improve.

For DC plans, conventional wisdom states that investing in equities will produce returns that outpace inflation, but Hueler and others indicate that this has not worked out well in reality. In addition, few insurance carriers provide inflation-adjusted annuities.[61]

E. Interplay Between Risks

To achieve financial security in retirement, it is important to recognize that investment risk, adequacy risk, longevity risk, and inflation risk all interact with each other.

While longevity improvements increase longevity risk by adding more years to life expectancy, such improvements also increase inflation risk, as each additional year in retirement makes it more likely that income will not keep up with ever-increasing inflation.[62] Investing assets conservatively lowers investment risk, but can lead to adequacy risk if assets do not build up enough value to provide sufficient income.[63]

While no one strategy has been developed to effectively deal with all of these risks, many public plans effectively manage them, delivering retirement security to workers and retirees in a cost-efficient manner for workers and taxpayers.[64]

IV. ANNUITIES ARE DESIGNED TO ADDRESS CERTAIN RETIREMENT RISKS

DB pensions and insurance company annuities are similar in that both can provide lifelong financial security when employees retire. In purchasing life annuities, employees, or plans on their behalf, pay lump sums or make contributions over a career to an insurance company, and in exchange the insurer agrees to pay a steady income amount at a specified age, guaranteed to last over a lifetime.

An annuity has an accumulation period and a payout period. Fixed annuity contracts provide income benefits based on contributions and fixed interest rates set by the insurance company. Annuities may earn a higher interest rate for a certain period of time such as a year, but the minimum rate is the only one guaranteed long term. When a fixed annuity starts monthly payments shortly after the purchase is complete, it is referred to as an immediate fixed income annuity; however, if annuity payments start two or more years in the future, then the product is called a deferred fixed income annuity.[65]

A retirement plan must be a "qualified plan" under the federal tax code so that employees do not face immediate tax liability on benefits when they retire. One of the requirements for a "qualified plan" is that its plan assets must be held in trust, or by an insurance company. Annuities from insurance companies are available in tax qualified DB plans both as accumulation products and as income payout products.[66] While the first statewide public retirement system predated the creation of the federal tax code, it made use of annuities to reduce plan risks.[67] Stiefel notes that historically, qualified DB plans have used many insurance products, including deposit administration; immediate participation guarantee contracts; and guaranteed investment contracts. His historical analysis also illustrates how some once-popular products fell out of favor, due to reasons such as increases in interest rates, superior performance in equities, and regulatory changes.[68] Nevertheless, some plans do offer annuities, and plan sponsors can either hold the annuities within the plan or distribute them outside of the plan.[69]

A. The Annuity Puzzle: Why Don't People Purchase Annuities?

Many economic studies have demonstrated the value of lifetime annuities. Brown, Warshawsky, and others have favorably cited annuities for providing a decumulation path in retirement that balances longevity and adequacy risks:

> If an individual does not have access to annuitization then she must allocate her wealth in a manner that trades off two competing risks. The first is the risk that if she consumes too aggressively, she increases the likelihood of facing a future period in which she is alive with little or no income. The second is that if she self-insures by setting aside enough wealth to be certain it cannot be outlived, then she risks dying with assets that could have been used to increase consumption while alive.[70]

Despite the value that economists attribute to immediate fixed income annuities, the market for the product is surprisingly small and underdeveloped. The GAO found that only 6 percent of retirees with a DC retirement plan purchase an annuity at retirement, leaving many middle income retirees to draw down their savings gradually on their own instead.[71] Moreover, the Bureau of Labor Statistics reports that in 2012 only about 17 percent of private-sector workers with retirement savings plans had an annuity option available, an almost 50 percent decrease in availability since 2000.[72]

Economists frame the disparity between the theoretically predicted take-up rates for lifetime annuities and the low observed level of actual annuitization as the "annuity puzzle." Financial research on the annuity puzzle offers several explanations, including: adverse selection, pricing, liquidity concerns, framing of benefits, lack of financial skills to value annuities, and other behavioral factors.[73] To some retirees, buying an annuity can appear as betting with an insurance company using the retiree's premium as a wager on the value of protecting his or her lifestyle over decades in the future.[74]

Pooling the longevity risk allows the insurance company to deliver income benefits reflecting a return higher than the underlying investments of the insurance company, because annuities generate credits from those who die before their life expectancy. In spite of strong support for annuities in the literature by economists, Reichling and Smetters suggest that annuities may not be optimal for most households.[75]

B. The Annuity Market and Retirement Savings

Of the $24.6 trillion in dedicated retirement assets held for U.S. investors as of December 31, 2014, $2.1 trillion are annuity reserves outside of retirement accounts.[76] As of December 31, 2013, the American Council on Life Insurance (ACLI) reported that insurance companies held $3.3 trillion in reserves for annuity contracts, of which $2.2 trillion were allocated to individual annuities and $1.0 trillion were allocated to group annuities. Most recently, employers paid insurance companies $108 billion for group annuities in 2013.[77]

Insurance companies offer a wide range of annuity products, which generated $235.8 billion in total annuity sales in 2014. (See box below.) According to the LIMRA Secure Retirement Institute, sales of immediate fixed income annuities to individuals totaled $9.7 billion in 2014. These "payout" annuities are about one-tenth of total fixed annuity sales, and represent less than one-twentieth of total U.S. annuity sales.[78]

Tax benefits that defer taxing investment income and contractual income guarantees drive the marketing of variable and indexed annuities. However, less than one percent of those who buy annuities based on tax benefits turn their contracts in for a fixed income stream.[79]

Longevity annuities, which are a new type deferred income annuity started at older ages in retirement, experienced strong growth in 2014, with sales of $2.7 billion. Insurance companies developed this product in response to individuals' hesitancy to use all of their retirement savings to purchase immediate annuities. Longevity annuities provide guaranteed fixed income payments 2 to 40 years in the future, and offer individuals protection against outliving savings at a lower cost than traditional annuities. They also allow retirees to keep control over most of their retirement assets.

TYPES OF ANNUITIES

An **annuity** is a contract with an insurance company in which payment(s) buy a promised amount of income on a regular basis, usually for life.

If annuity income payments begin shortly after buying the product, it is an **immediate annuity**. If payments begin two years later or more, it is a **deferred annuity**. Deferred annuities have both an accumulation period and a payout period.

Fixed annuities guarantee that the money will earn at least a minimum interest rate that is guaranteed by the insurance company, and **fixed income annuities** also guarantee a stated payout amount of income that the insurance company will pay each month for life.

A **fixed indexed annuity** is a specific type of fixed annuity that earns interest based on changes in a market index.

Variable annuities earn investment returns based on the performance of the investment portfolios, known as "sub-accounts," which can go up and down in value. The return earned in a variable annuity isn't guaranteed. Some variable annuities offer the option of guaranteed investment gains for an extra cost.

More information on annuities can be found in the Buyer's Guides published by the National Association of Insurance Commissioners: http://www.naic.org/prod_serv_consumer.htm

C. The Prices of Fixed Income Deferred Annuities Are Tied to Bond Rates

Deferred fixed income annuity contracts are one the longest-lived financial agreements in the U.S. system of contract law. Spanning both a working career and the remaining lifetime of a couple once they retire, the contract could easily involve 80 or more years. The interest rate used during the deferral period for these annuities is fixed for some period, usually a year, and the insurance company will set another fixed interest rate after that period ends.[80] The annuity purchase rate is determined by the interest return, mortality expectations, and other factors. State insurance law also specifies a minimum guaranteed interest rate of at least one percent for early cash-outs of annuity contracts, under NAIC Model Laws for Standard Nonforfeiture Minimum Interest Rates.[81]

Insurance companies approach the pricing of annuities with caution. While a lower guaranteed interest rate pushes up the cost of the policy, low rates also make it easier for the insurer to meet or exceed the guarantee return. Greenough reported on TIAA's experience in promising to deliver fixed income annuity investment returns since 1918: "When guarantees may stretch 50 to 70 years into the future, it seemed the part of prudence to guarantee lower rates of interest over that period."[82] TIAA and other companies adopted participating annuities, setting the guaranteed interest rate in the annuity contract at a lower level and then using dividends to adjust rates regularly to respond to changes in investment returns.

The GAO recently summarized the process insurance companies use in pricing annuities. They compare the interest rates used to returns from bond-based investments, and how that differs from public pensions. They find that the difference results in a higher cost:

> Annuities, generally offered by life insurance companies that would typically guarantee lifetime streams of benefit payments to beneficiaries, are priced with regard to current market or bond-based interest rates but also typically include the addition of various fees, which include the insurer's administrative and marketing expenses, the cost of capital and surplus, and profit to the insurer. Additionally, annuity pricing typically includes allowance for longevity and other demographic risks. These differences generally result in annuity prices being higher than pension liabilities calculated based on high-quality bond rates (i.e., in implied annuity interest rates that are lower than high-quality bond interest rates).[83]

Others support GAO's understanding of the bond-related nature of annuity interest rates. Specifically, Munnell finds that investments supporting annuities "would be limited to those acceptable for underwriting annuities, a requirement that means essentially an all-bond portfolio."[84] James Poterba also graphically illustrated the bond-related pricing trend to the American Economics Association in January 2014.[85] The fixed interest rate has a significant impact on the amount of retirement income a deferred fixed income annuity will provide. (See Appendix C for more detail.)

While there is some transparency in annuities' accumulation interest rates, the payout interest rate is built into the annuity purchase rate. Mulvey and Purcell calculate that the historical average real rate of return for annuities is 2.8 percent.[86] This figure is comparable to the real rate of return for corporate and treasury bonds used by Social Security in 2007.[87]

When individuals consider purchasing an annuity, the decision not only requires investment knowledge, but also typically requires them to have transparent data on mortality and fees. However, Hueler finds that with multiple uncorridinated regulations of annuity sales gaps occur such as having no fee disclosure requirements for lifetime income annuity products.[88] This lack of transparency is perhaps surprising, considering that these retirees are ostensibly entering into a lifelong contract with an insurance company.

D. Financial Soundness of Insurers

Concerns about the financial soundness of the insurance company may generate some reluctance to buy an annuity, given the long duration of contracts. To address this, state insurance law provides regulation and consumer protection for life insurance, annuity, and health coverage. State insurance commissioners regulate insurance companies and promote a more uniform protection for annuity products. The National Association of Insurance Commissioners (NAIC) develops model laws and encourages each state to adopt them. In addition, credit rating agencies such as A.M. Best Company, Standard and Poor's Corporation, Moody's Investors Service, and Fitch Ratings evaluate insurance companies' financial soundness and ability to pay claims.

From the consumer protection viewpoint, the present values of benefits in an annuity contract are covered in every state by Guaranty Funds. Should an insurance company become insolvent, the state insurance commissioner acts to protect policyholders first seeking possible transfers of their annuity policies to other insurers, or turning to the state's Guaranty Fund to provide benefits.

Recently, the DOL's ERISA Advisory Council held a hearing about DB plans purchasing annuities and thereby shifting the longevity risks to insurance companies.[89] In 1999, the General Accounting Office (as GAO was known then) found life insurance company failures hurt many pension plans and retirees, with as many as 170 failures occurring between 1975 and 1990. GAO cited several administrative and regulatory gaps in state Guaranty Funds, including long time lapses before final settlements, and low limits on the level of protection. In addition, Guaranty Funds do not maintain reserves, and assessments levied on insurance companies to pay fund claims are fully offset by state tax breaks.[90]

In fact, the final court order for the liquidation of Executive Life's New York subsidiary, Executive Life Insurance Company of New York (ELNY), reflected GAO's concerns about long time lapses. The court order for ELNY exhausted the assets of the Guaranty Fund, and left 16 percent of policyholders with benefits less than fully covered.[91] While the experience of insurance company failures in 1991 helped to increase Guaranty Fund limits, some states today still have the same statutory $100,000 limit and regulatory gaps in annuity protections identified by the GAO at the time.

Every state limits the amount of annuity benefits protected by the Guaranty Funds. The most common limit now is $250,000; four states have limits as high as $500,000. (Appendix A contains a summary.) Most states also limit the aggregate coverage from the Guaranty Fund on a per individual basis.

Munnell agrees with the GAO assessment that "state insurance funds are quite weak and would provide little support"[92] because Guaranty Funds only receive funds by charging an assessment from the remaining insurance company members once an insurance company becomes insolvent. Moreover, all but four states (Alaska, Maryland, New Mexico, and West Virginia) allow the assessed insurance companies to offset the amount of their assessment from the Guaranty Fund directly against their state tax liability. Perun and the GAO suggest that this leaves the ultimate cost of an insurance company failure to be borne by taxpayers or other policyholders.[93] Thus, state Guaranty Funds differ from the Federal Deposit Insurance Corporation (FDIC) or the Pension Benefit Guaranty Corporation (PBGC), which has some level of prefunding, and premiums are paid solely by plan sponsors.

In fact, while banks prominently display the FDIC logo and advertise its protection of bank accounts, in all but two states, insurance law prohibits mentioning the Guaranty Fund in sales of annuity products. A possible concern of state regulators is that any reference to the Guaranty Fund might undermine the incentives for insurance companies to ensure their own financial soundness.[94]

Under ERISA, the PBCG protects private sector employees in the event that their employer is unable to pay pension benefits due to bankruptcy. Additionally, a private employer may transfer the responsibility for future benefit payments to an insurance company by purchasing an annuity. The insurer establishes reserves to meet future annuity payments. In the unlikely event that an insurer experiences financial difficulties, a multi-layered regulatory process begins, with the goal that contract holders receive the benefits stipulated in their contracts. At a 2015 DOL hearing, insurance companies asserted that benefits from a highly-rated company with protection from state guaranty funds offers many participants at least as much, and perhaps more, protection as that provided by the private DB plans and PBGC, while other witnesses expressed different views.[95] (Of course, it should be noted that public pensions are not subject to ERISA, nor are their benefits protected by the PBGC.)

In support of the state Guaranty Funds, the National Organization of Life and Health Insurance Guaranty Associations has asserted that between 1991 through 2009, holders of annuity policies written by companies that failed received 94 percent on the value of their claims, and the current assessment capacity is $10 billion per year.[96] Only 13 life and health insurers were placed in liquidation between 2008 and November 2011 indicating that the insurance industry fared well through the financial crisis. The economic situation of low interest rates creates less of a challenge to insurers' balance sheets than do periods of rising interest rate when book values of invested assets decline. On balance, public employers using insurance annuity contracts seem to offer less secure promises than those for current public DB pensions benefits.

V. PROPOSALS TO EXPAND ANNUITY USE IN RETIREMENT PLANS

A. SAFE Retirement Act of 2013

On July 9, 2013, Senator Orrin Hatch (R-UT) introduced the SAFE Retirement Act of 2013 (S. 1270), which would expand the use of annuities by public pension plans. "It cannot be denied that people are living longer. And as wonderful as that is, it also means we need to find new ways to stretch our monthly pension dollars over longer lifetimes," Senator Hatch explained in his statement introducing the bill, which would create "SAFE Retirement Plans" for state and local governments.

According to the Senator's announcement, this bill creates a new voluntary pension plan, "with stable, predictable costs that state and local governments may use to deliver secure pension benefits."[97] Under the SAFE Retirement Plan, public employers would purchase fixed annuities from state-regulated insurance companies, and state guaranty associations would provide the consumer safety net. Key features of the proposal[98] as described by Senator Hatch include:

- Employees receive secure monthly income at retirement for life.
- Pension plan underfunding is not possible.
- The life insurance industry invests the assets, pays the retirement benefits, and bears the risks.
- Retirement benefits are protected by the state's life insurance guaranty associations.

Similar to the current nature of tax regulations on public retirement systems, the Hatch proposal envisions the federal role in SAFE plans limited to certifying the tax-qualified status of the plan. The bill, however, appears to create several new requirements that the SAFE plan would need to be certified. According to the text of S. 1270, these requirements would include:

- Requiring annuity benefit payments to start at age 67 for general employees and age 57 for public safety employees, or for employees working at older ages, on the first day of the following year;
- Vesting of employees' benefits immediately;
- Operating a complex structure so that benefits provided comply with both the state guaranty fund law and state procurement laws;
- Limiting employers' annual contributions to 20 percent of compensation for general employees and 30 percent for public safety employees, with an additional 5 percent permitted for employees over age 50;
- Paying benefits only as a single life annuity, which provides no benefit protection for spouses;
- Restricting benefits to equal monthly installments that are fixed at the time of purchase; and,
- Not allowing employee contributions.

SAFE plans would not provide an easily estimable benefit for employees, as DB plans currently provide, because the value of each year's annuity will vary with private market annuity prices. In addition, the bill provides that public employers may reduce or stop making contributions for all employees in any year, with an announcement at the start of the plan year. Public employees would have the risk that when employers suspend or reduce contributions, that loss would leave them with an inadequate amount of retirement income. The level of adequacy risk would increase with each year that employers do not make SAFE contributions, as missed contributions cannot be funded at a later date.

Moreover, as the experience with states that switched from DB pensions to DC plans has illustrated, switching to SAFE plans will do nothing to address the underfunding of existing

pension obligations. In addition, the closed DB pensions might end up with even lower funding levels for already promised benefits, as has happened in Alaska and Michigan.[99]

B. Fixed Annuity Retirement Plans Are More Expensive than DB Plans

The lifetime annuity in the SAFE plan addresses longevity risk, but the other risks would fall more heavily on public sector workers than they do under DB plans. Buying a deferred fixed income annuity, such as under a SAFE plan, involves a guaranteed investment return, but as Munnell indicates this bond-related guaranty rate comes at an additional cost.[100] Paying monthly guaranteed income from a fixed income annuity based on bond-related interest rates would require additional plan contributions to generate the same benefits employees currently receive from public pension plans. Alternatively, if the employers wanted to keep the cost of benefit at the current level, then the amount of retirement income would be significantly less.[101]

The interest rate guaranteed in the deferred fixed income annuity is important. While the SAFE plan requires competitive bidding to achieve the best rates, the annuities' extremely long duration will likely result in rates that reflect conservative pricing, and are difficult to predict until this new product might come to market.[102] Due to the nature of compounding, small differences in rates of return matter a lot. Almeida and Fornia demonstrate that, over a 30-year career, just a one percent difference in the rate of return can change the cost of a retirement benefit by 26 percent.[103] As mentioned previously, public DB pension plans have effectively used their long-term time horizons to capture a significant equity premium by diversifying their investment portfolios. Fixed Annuity Retirement plans would almost certainly lower the investment return that plans achieve, due to their ties to bond rates. The historical real rate of return over 25 years earned in public pension plans is 5.4 percent, while the historical real rate of return for fixed annuity products calculated by Mulvey and Purcell was just 2.8 percent.[104]

Poterba's tabulations (in Table 3) of the cost to buy an annuity that replaces half of final earnings also can help one understand how the difference between a 2 percent real rate of return and a 4 percent real rate of return over a 40-year career translates into a significantly higher cost. For a male to replace half of his income at age 65, he would have to contribute 14.8 percent of salary each year for 40 years based on a 2 percent real rate of return. But if his investment fund generated a 4 percent real return, then he can contribute much less—just 9.4 percent of pay—to reach the same retirement income goal. In other words, earning a real return of just 2 percent means his savings rate must increase to a percent of pay equal to 157 percent of that needed at a 4 percent real return to make up for this difference.[105]

Table 3. **Annual Saving Rate Required to Support Annuity Stream Equal to Half of Final Earnings at 65**

Working Career	Real Return	Men		Women	
		Nominal Annuity	3% Increasing Annuity	Nominal Annuity	3% Increasing Annuity
20	.02	32.7%	44.3%	35.3%	48.2
30	.02	20.7	28.1	22.4	30.5
40	.02	14.8	20.0	15.9	21.7
20	.03	27.7	37.5	29.9	40.8
30	.03	17.6	23.9	19.0	26.0
40	.03	11.9	16.1	12.8	17.5
20	.04	26.4	35.7	28.4	38.8
30	.04	14.9	20.2	16.1	22.0
40	.04	9.4	12.8	10.2	13.9

Source: J. M. Poterba, "Retirement in an Aging Society," National Bureau of Economic Research, 2014.

Financial retirement experts consulted by GAO indicated that retirees would find it preferable to purchase lifetime retirement income from DB plans over purchasing insurance company annuities, because DB pension plans typically base payments on a higher investment rate than is available through an insurance annuity outside of the plan.[106]

NIRS research on teacher choices in retirement plans noted this to be true. Specifically, a female teacher purchasing a lifetime retirement income from the Washington State Teachers Retirement System (TRS), using $100,000 of her DC account balance, would obtain an income of $625 per month (indexed) at age 65. Had she instead used that $100,000 to purchase the best-priced similar annuity product from an insurance company, it would provide her only $409 per month. Thus, the annuity provided by the TRS is 50 percent higher than that provided by the insurance company.[107] The cost difference is substantial because in addition to the bond-related pricing of private annuities, insurance companies have inherent costs that employer-sponsored DB plans do not, such as profit margins, risk charges, and marketing costs.

In "Still a Better Bang for a Buck," Fornia and Rhee compare buying a hypothetical immediate fixed annuity for a female teacher at age 62 to the cost of providing the same $2,760 monthly income through both a DB pension and modeled DC plans, which used a gradual withdrawal of payments designed to assure only a one out of five chance of outliving retirement savings. Fornia and Rhee calculate[108] the cost of buying the immediate fixed income annuity at both current interest rates, estimated to be about 3.7 percent, and at a significantly higher interest rate of 5.2 percent.[109]

Table 4 compares the contribution that would be needed as a percent of pay for each of the plan and annuity options. At both current annuity market interest rates and potentially higher interest rates, buying an immediate annuity after investing in a target date fund while working would cost significantly more than the DB pension:[110]

Under a SAFE plan design, the plan would purchase deferred fixed income annuities over a somewhat longer career based on a teacher retiring at age 67 rather than the model's thirty-two year career. Additionally, the model used by Fornia and Rhee differs as it invests contributions in the teacher's DC retirement account in a target date fund (TDF). Fornia modified the model, adding the option of purchasing a deferred

Table 4. **Cost to Fund the Same Benefit Under Different Plan Designs**

Plan Description	Cost to Fund Benefit as a Percent of Pay
Defined Benefit Plan	16.3%
Ideal Defined Contribution Plan with withdrawals based on 80 percent life expectancy	23.0%
Ideal DC plan with Immediate Annuity at current interest rates of 3.7%	25.4%
Ideal DC plan with Immediate Annuity at a higher interest of 5.2%	20.9%
Self-Directed Defined Contribution Plan with withdrawals based on 80 percent life expectancy	31.3%

Source: W. Fornia and N. Rhee, 2014, "Still a Better Bang for the Buck," NIRS, Washington, DC.

Table 5. **Cost to Fund the Same Benefit Under DB and Fixed Annuity Plans**

Plan Description	Cost to Fund Benefit as a Percent of Pay
Defined Benefit Pension	16.3%
Fixed Annuity Retirement Plan at current interest rates (3.7 percent)	44.8%
Fixed Annuity Retirement Plan at improved interest rates (5.2 percent)	29.3%

Fornia calculation based on Average April 2014 purchase rates from AnnuityShopper.Com, adjusted for projected mortality tables to age 62 female.

fixed income annuity each year while working although he maintained the shorter time frame to compare cost. Table 5 illustrates the cost to fund the same $2,670 benefit in a Fixed Annuity plan at both current market rates (3.7 percent) and a higher (5.2 percent) rate. The cost of the benefit from a DB pension is significantly less than purchasing deferred fixed income annuities over the 32-year career, at both current rates and improved rates.

While annuities protect the plan against longevity risk, purchasing only fixed income annuities instead of using returns generated from a well-diversified investment portfolio in a DB pension involves a significant cost—45 percent of pay, or nearly three times the 16 percent of pay cost for the DB pension. While an improved interest rate of 5.2 percent would cost quite a bit less than the cost at current annuity rates, the DB pension cost continues to provide a significant cost efficiency. The Fixed Annuity plan's cost based on interest rate of 5.2 percent is 29% of pay, or 180 percent of the cost of the DB plan.

C. Benefits Are More Secure Under DB Pensions

Because of the long-term nature of DB pension promises, protections to assure that benefits will be paid are important. Public pension plans represent deferred compensation and worker and retiree benefits are protected in various ways including state constitutions, state laws, court interpretations of contract theory, and collective bargaining.[111] Plan participants have access to significant amount of data to access pension's financial health, such as its funding level and the ongoing commitment to funding. Despite the new GASB standards moving away from the ARC, public plans will continue to calculate and disclose progress towards a similar actuarially determined contribution (ADC) for plan funding.[112] As state governments and most local governments cannot declare bankruptcy, the overwhelming percentage of public pension participants have further protection of promised benefits. Chapter 9 of the bankruptcy law allows local governments to only reorganize their debts while continuing to provide services. Municipal bankruptcy is rare because only 12 states allow Chapter 9 filings.[113]

A SAFE plan is designed to transfer plan's longevity risk to insurance companies. However, this means that benefits would no longer be backed by government, but by the assets and the financial strength of the insurance company. In the event that the insurance company became insolvent, promised benefits represent a possible claim for the state Guaranty Fund. As noted earlier, unlike protection from the PBGC, no Guaranty Fund promises are funded before an insolvency occurs, causing some experts and the GAO to consider these funds weak. Also, insurance company assessments directly offset the state taxes paid by insurance companies, which means that these cuts in state revenue will need to be made up by taxpayers. In short, in all but four states, the ultimate payer in the event of a default of an insurance company would be that state's taxpayers—the same as the traditional public DB pension.

The SAFE Retirement Plan promotes using fixed annuities to mitigate longevity risk. Some smaller public pensions with fewer employees to spread longevity risk among may find that using insurance annuities could be helpful. Those plan trustees will need to fully evaluate the additional costs that would be involved in moving to more conservative annuity investments. As mentioned earlier, the SAFE plan would be significantly more costly than the DB structure, and thus governments looking to constrain costs are likely to offer much lower benefit levels under the SAFE design. Policymakers should consider the impact on recruiting and maintaining a productive public workforce, should retirement benefits be cut drastically.

D. Longevity Annuities Can Mitigate Some Risk at Lower Costs

Insurance companies have responded to the annuity puzzle by developing "longevity annuities," which are designed to allow individuals to obtain the important longevity protection of life annuities without requiring them to turn over the full balance of their retirement accounts when they retire. Rather than starting income payments from the annuity shortly after an individual retires, as would be the case in purchasing an immediate annuity, payments from a longevity annuity are delayed until a later age, such as 80, when the risk of outliving assets is greater.

A longevity annuity is a lower cost alternative to an immediate annuity. Abraham finds longevity annuities an attractive addition to a retirement portfolio because their cost is low enough that savers can hold onto other assets to address other retirement risks.[114]

Turner indicates that longevity insurance may allow retirees in their sixties and seventies to consume more of their other assets, since they know that they have protection if they live

longer than their life expectancy. He cites a specific example: "A deferring annuity starting at age 85 provides more than half of the longevity insurance of an annuity starting at age 65, and at a fraction of the cost—roughly 15 percent."[115]

While purchased at an age close to retirement, the longevity annuity still allows a long deferral period, possibly until age 80 or 85. This means that the insurance company has more years for compound earnings to build, and a larger credit could be included for surviving annuitants from those who die before the deferral age. Thus, the amount of longevity payments beginning at older deferral ages becomes more significant. Table 6, prepared by actuaries from a leading U.S. life insurer, illustrates how the deferral period selected affects the monthly income amount.

Monthly Income Payments from a $100,000 premium at age 65 for a longevity annuity would purchase a longevity annuity of $1,729 per month, starting at age 80. An increase in the deferral period of just 5 years—so that the annuity starts at age 85—provides a benefit of almost double that amount, $3,352 per month. Adding a death benefit reduces the amount of monthly benefit. However, insurance companies have found that many individuals, especially those with families or dependents, are more comfortable with a product that offers a death benefit during the deferral period.

Viewed through the model of utility used by economists, longevity annuities are especially valuable. Abraham estimates that a person who buys a longevity annuity at age 65 with the first benefit starting in 20 years will purchase roughly 70 percent of the insurance value of an immediate annuity, but at just one seventh of the cost. If the deferral period is pushed out five more years (so the first payments begin at age 90 instead of age 85), the value of the insurance falls to 50 percent of the insurance value of the immediate annuity, and the cost of the protection falls to just one twentieth of the immediate annuity cost.[116] This longer deferral would leave nearly 95 percent of the value accumulated to provide retirement income intact to produce income over the intervening 25 years.

E. Addressing Minimum Required Distribution Rules

Turner and Abraham identify a problem for longevity annuities, in that Minimum Required Distribution (MRD) tax rules require individuals to withdraw income from DC accounts once they reach age 70. Because longevity annuities, by design, do not pay out until well after this age, this rule could potentially be problematic. However, both the Department of Treasury and S. 1270 address this tax issue for individual retirees by providing relief from the MRD rules.

Having sought information from the public on how lifetime income could be encouraged in DC plans, in 2014 the Department of Treasury and the Internal Revenue Service published final regulations to make "Longevity annuities accessible to the 401(k) and IRA markets." J. Mark Iwry, Senior Advisor to the Secretary of the Treasury and Deputy

Table 6. **Monthly Annuity Benefit Amounts at Various Commencement Ages**

Commencement Age	Deferral Period	Premium	Monthly Benefit	
			Without Death Benefit	With Death Benefit
65	0	$100,000.00	$546	N/A
70	5	100,000.00	686	$630
75	10	100,000.00	1,035	861
80	15	100,000.00	1,729	1,218
85	20	100,000.00	3,352	1,719

Source: A large U.S. life insurance company estimates of Longevity Annuity benefits purchased with a $100,000 premium to an institutional Guaranteed Income Builder.

Assistant Secretary for Retirement and Health Policy, said that longevity annuities are "an important option to help Americans plan for retirement and ensure they have a regular stream of income for as long as they live."[117]

The final Treasury regulations changed MRD regulations so that longevity annuity payments will not need to begin prematurely. Retirees may use up to 25 percent of their account balance or (if less) $125,000 to purchase a qualifying longevity annuity contract (QLAC) without concerns about the age 70 1/2 minimum distribution requirements. If elected, the amount used to purchase the longevity annuity could be returned to retirees' accounts if they die before the age when the annuity income starts.

Similarly, S.1270 would bring relief from the MRD rules permanently as part of the tax code to give older individuals even more certainty in purchasing longevity annuities. Section 231 of the bill[118] would exempt from the MRD rules up to 25 percent of an employee's retirement account value to buy a single or joint and survivor annuity that commences payments no later than age 85.

F. Longevity Annuities May Make Sense for Some Small DB Plans

Given their ability to capture a large share of the economic value of an immediate annuity at a fraction of the cost, some DB pension plans might find value in longevity annuities. Smaller public pensions might use them as a cost-effective way to transfer tail-end mortality risk to an insurance company. At the same time, longevity annuities would also preserve the bulk of the plan assets to invest in a broadly diversified portfolio. However, more research into this application for longevity insurance is needed.

The Longevity Annuity provision in S.1270 and the regulation issued by Treasury focused of the use of the product by individuals with DC retirement accounts. Given the ability to capture a large share of the economic value of an immediate annuity at a fraction of the cost, some DB pension plans might also find value in Longevity Annuities. The final Treasury regulation mentioned that a number of commenters favored allowing defined benefit plans to offer QLACs. They might offer smaller public pensions a cost effective way to transfer the tail-end mortality risk in their DB pension to an insurance company. Meanwhile, the plan would control the bulk of the plan assets to invest in a broadly diversified fund generating returns of approximately 200 to 300 basis points higher those from the fixed annuity. This would preserve the cost efficiency of the DB pension while reducing the longevity risk exposure. More research into this application for longevity insurance would be needed.

Should a DB pension buy longevity annuities as assets of the plan, the retiree should not have MRD tax issues since they will still receive monthly benefit checks for the accrued pension. Nevertheless, clarification on this issue as well on the possible later starting age for DB plans would be helpful to plans as they consider longevity annuities.

Table 7. **Insurance Value of Longevity Annuity Purchased at Age 65**

Age Longevity Benefits Start	Percent of Insurance Value of Immediate Annuity	Percent of Wealth at 65 Required to Purchase Longevity Annuity
80	88.5%	28%
85	69.2%	14%
90	50.5%	5%

Source: Abraham and Harris, op. cit. and G. Gong and A. Webb, 2007, "Evaluating the Advanced Life Deferred Annuity- An Annuity People Might Actually Buy," Working Paper 2007-15, Center for Retirement Research at Boston College, Chestnut Hill, MA.

CONCLUSION

The shift in the retirement landscape from DB to DC plans means that more Americans must pay more attention to their own retirement risks. The key risks faced by individuals and DB plans include investment, adequacy, longevity, and inflation risk.

These four risks interact with each other. Understanding the nature of the financial risks in retirement and then developing a plan to address these risks is the first step toward achieving retirement security.

Recently, several policy proposals have attempted to equip Americans with tools that can help assure that their retirement savings will provide them with lifetime income. While fixed annuities protect against longevity risk, their cost due to lower investment returns based on bond related investments can eventually result in much lower retirement income than that from a typical public DB pension. Longevity annuities allow buyers to focus on the insurance benefits of annuities while better managing costs and maintaining control over investment to achieve higher returns from retirement assets.

Public pension plans have historically demonstrated their ability to achieve target returns over their long time horizon. While fixed annuities provide a steam of predictable, stable income to retired workers, their lower investment returns can significantly add to the cost of providing retirement income.

If the same level of benefits is funded with annuity purchases over a working career, the cost can be anywhere from 57 percent to over 175 percent more than that of the DB pension plan. Analysis of the funding experience of public pensions since 2000 indicates that plan actuaries have adequate tools to address their mortality exposure. After considering the significant up-front cost of funding retirement benefits with only fixed annuities, most large public pension plans will likely continue to maintain their DB pensions, which they can ensure with adequate contributions as plans amortize investment gains and losses as well as longevity improvements over time.

Smaller DB plans might consider using longevity annuities within the plan to protect against increased longevity risk. Policymakers may want to verify that longevity annuities may be used by DB pension plans, as this strategy could serve to stabilize the plan's funding cost, and thereby encourage employers to maintaining their existing DB pension plans.

APPENDIX A

Summary of Key State Guaranty Fund Law Provisions

State	General Annuity	Government Plan Guaranty	Aggregate Guaranty	Tax Credits for Fund Assessments	Marketing Restriction
Alabama	$250,000		$300,000	Yes	No
Alaska	$100,000	$100,000	$300,000	No	Yes
Arizona	$250,000		$300,000	Yes	Yes
Arkansas	$300,000	$300,000	$300,000	Yes	Yes
California*	$250,000		$300,000	Yes	Yes
Colorado	$250,000		$300,000	Yes	Yes
Connecticut	$500,000	$500,000	$500,000	Yes	Yes
Delaware	$250,000	$250,000	$300,000	Yes	Yes
District of Columbia	$300,000		$300,000	Yes	Yes
Florida	$250,000		$300,000	Yes	Yes
Georgia	$250,000, $300,000 c.w.**		$300,000	Yes	Yes
Hawaii	$250,000		$500,000	Yes	Yes
Idaho	$250,000		$300,000	Yes	Yes
Illinois	$250,000	$250,000	$300,000	Yes	Yes
Indiana	$250,000	$250,000	$300,000	Yes	Yes
Iowa	$250,000	$250,000	$300,000	Yes	Yes
Kansas	$250,000		$300,000	Yes	Yes
Kentucky	$250,000		$300,000	Yes	Yes
Louisiana	$250,000		$500,000	Yes	Yes
Maine	$250,000		$300,000	Yes	Yes
Maryland	$250,000		$300,000	No	Yes
Massachusetts	$100,000		$300,000	Yes	Yes
Michigan	$250,000	$250,000	$300,000	Yes	No
Minnesota	$250,000	$250,000, except defined benefit	$500,000	Yes	Yes
Mississippi	$250,000	$250,000	$300,000	Yes	Yes
Missouri	$250,000		$300,000	Yes	Yes
Montana	$250,000	$250,000	$300,000	Yes	Yes
Nebraska	$250,000		$300,000	Yes	Yes
Nevada	$100,000		$300,000	Yes	Yes

Summary of Key State Guaranty Fund Law Provisions (continued)

State	General Annuity	Government Plan Guaranty	Aggregate Guaranty	Tax Credits for Fund Assessments	Marketing Restriction
New Hampshire	$100,000	$100,000	$300,000	Yes	Yes
New Jersey	$500,000, $100,000 c.w.**		$500,000	Yes	Yes
New Mexico	$250,000	$250,000	$300,000	No	Yes
New York			$500,000 individual, $1,000,000 group annuity	Yes	Yes
North Carolina	$300,000	$300,000	$300,000	Yes	Yes
North Dakota	$250,000	$250,000	$300,000	Yes	Yes
Ohio	$250,000	$250,000	$300,000	Yes	Yes
Oklahoma	$300,000		$300,000	Yes	Yes
Oregon	$250,000	$250,000	$300,000	Yes	Yes
Pennsylvania	$300,000, $100,000 c.w.**	$300,000, $100,000 c.w.**	$300,000		Yes
Puerto Rico	$100,000		$300,000	Yes	
Rhode Island	$100,000	$100,000	$300,000	Yes	Yes
South Carolina			$300,000	Yes	Yes
South Dakota	$250,000		$300,000	Yes	Yes
Tennessee	$250,000		$300,000	Yes	Yes
Texas	$250,000	$250,000	$300,000	Yes	Yes
Utah	$500,000	$250,000	$500,000	Yes	Yes
Vermont	$250,000	$250,000	$500,000	Yes	Yes
Virginia	$250,000	$250,000	$350,000	Yes	Yes
Washington	$500,000	$100,000	$500,000	Yes	Yes
West Virginia	$250,000	$250,000	$300,000	No	Yes
Wisconsin	$300,000		$500,000	Yes	Yes
Wyoming	$250,000		$300,000	Yes	Yes

** California limits payments state guaranty fund equal to 80% of the contractual benefit, subject to statutory limits.*

*** c.w. - separate limits on cash withdrawals*

APPENDIX B

Comparison of Safe Retirement Plan to Current Public Pensions

SAFE Retirement Plan (per S.1270)	Current Practice in Public Pension
Requires benefit payments to start at age 67 for general employees and age 57 for public safety employees, or for those working at older ages on the first day of the following year.	Retirement age set by plan based on age, service, or both. Drawing benefits from a plan while still employed could conflict with state laws restricting double dipping.
Immediate vesting of benefits.	Nearly every state uses some delay in vesting of between 5 to 10 years.
Operating a complex structure so that benefits provided comply with both the state guaranty fund law and state procurement laws.	Competitive bidding would bring the cost benefits of a Market Based Delivery Platform to SAFE plans. However individuals with personal insurance policies would present problems since the NOLHGA summary indicates nearly every state maintains an aggregate limit in guaranty fund for each life covered.
Limiting employers' annual contributions to 20 percent of compensation for general employees and 30 percent for public safety employees, with an additional 5 percent permitted for employees over age 50.	In 2001, Congress eliminated percent limits on overall contributions for DC plans while it maintained only the dollar limit of $53,000 or $59,000 if over age 55. The current maximum benefit allowed in a DB plan is $210,000.
Prohibits benefit protection for spouses.	31 states have adopted requirements similar to those in the Retirement Equity Act for spousal notification and provision of joint and survivor benefits in public pension plans. List of States: AK, AZ, AR, CA, CT, DE, FL, HI, ID, IL, IA, KS, LA, ME, MA, MI, MN, MO, NV NH, NJ, NM, OH, OK, OR, SD, TX, VA, WA, WI, and WY. (Pension Rights Center, "Fact Sheet: State Retirement System Rules on Spousal Consent")
Benefits must be paid in equal monthly installments that are fixed at the time of purchase.	Most public pensions offer some cost of living adjustment to protect against inflation risk.
Accept only non-elective employer contributions.	In most states, employees contribute directly to the pension; this has been a fundamental feature of public pension plans for over 100 years and a key component of adequate funding of benefits.

APPENDIX C

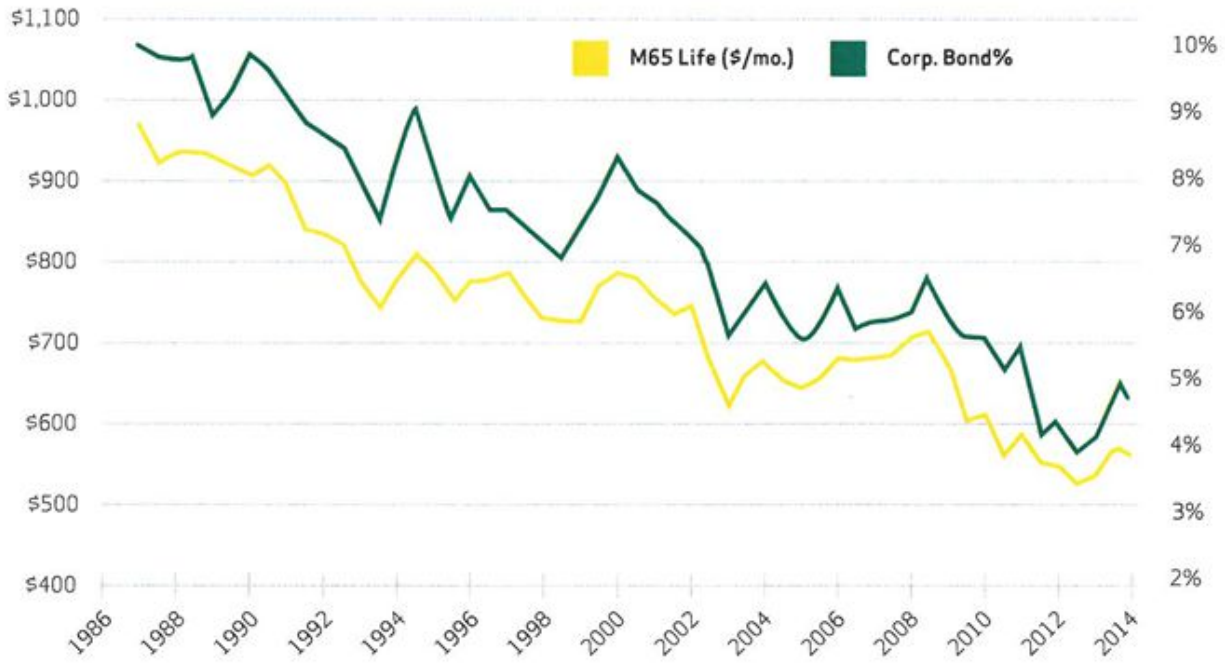
Interest Rates Used in Annuity Pricing

Annuity contracts typically provide an "annuity purchase rate," which combines the interest rate with the benefits of mortality gains from those annuitants who die early in their payout period. Because deferred fixed annuities can span periods of 60, 70, 80 or more years, interest rates play a critical role in the pricing structure.

In its tips to annuity buyers, the Annuity Shoppers Buyer's Guide speaks to interest rates and the period that is guaranteed: "Interest rates are structured very differently across the various types of annuities. Be sure you are clear on what you are buying and about all the different ways it can change across the life of the contract. With an immediate annuity you generally lock in today's rate for life."[119] For average individuals, finding that interest rate is challenging.

Model state insurance laws provide for annuity contracts to have a minimum guaranteed interest rate for early cash-outs.[120] Standard Nonforfeiture Minimum Interest Rate provisions cap this minimum interest rate at 3 percent, but the language allows lower interest rates when the five-year Constant Maturity Treasury Rate reported by the Federal Reserve Treasury interest rate falls below 4.25 percent.[121] The adjustable interest rate in the Model Law is reduced by 125

Figure 5: **Male Age 65 Single Life Annuity Monthly Income per $100,000 Premium (in left margin) and Yield on Moody's Seasoned AAA Corporate Bonds (in right margin)**



Source: Annuity Shopper Buyers Guide, April 2014.

basis points, but must be at least 1 percent. The Nonforfeiture interest rate, an absolute minimum rate of return, has remained at 1 percent since 2009.

According to the GAO, the market price of an annuity depends on many factors, including the duration of the liabilities, the size of the purchase, the average pension amount, capital market conditions, and competitive pressures in the group annuity market at the time of purchase.[122]

In a presentation to the American Economics Association in January 2014, James Poterba graphically illustrated the close relationship between bond rates and annuity payout prices for a single life annuity for a male age 65 over time.[123]

The GAO, Munnell and others have identified the role that bond returns play in determining the underlying interest rate for fixed annuities. The relationship between bond investment returns and annuity payout rate is also illustrated in Figure 5 published in Annuity Shopper, which compares Moody's seasoned AAA corporate bond yields to the immediate annuity purchase rate for a male age 65, based on a $100,000 premium.

Actuaries at the PBGC, which oversees annuity purchases when private defined benefit plans go through a voluntary plan termination, calculate the underlying interest rates used when plans buy annuities to replace pension benefits, based on payout rates offered in the marketplace. For example, as of July 2015, the annuity interest rate is 2.32% for the first 20 years following the date of plan termination, and 2.37% thereafter. The list of PBGC's historical annuity interest rates (http://www.pbgc.gov/prac/interest/ida.html) shows that current nominal interest rates are among the lowest levels in recent years. Interest rates more typically fall around 5 percent.

Those nominal rates appear to be consistent with Mulvey and Purcell's calculation that the historical average real rate of return for annuities is 2.8 percent.[124] Their estimated rate is similar to the real rate of return for corporate and treasury bonds used by Social Security in 2007.[125]

Table 8: **Real Returns on a Hypothetical Pension Portfolio 58% Equity/42% Fixed Income Rolling Periods, 1926-2010**

Time Frame (Years)	Number of Periods	Compound Annual Real Returns	
		Average (Mean)	Worse Observed Outcome
1	85	6.28%	-24.60%
5	80	7.30%	-4.56%
10	75	6.59%	-1.47%
20	65	6.14%	1.24%
30	55	5.71%	3.76%
40	45	5.42%	3.91%
50	35	5.47%	4.02%

Source: Stubbs 2012.

These investment rates are quite different from those earned by public pension plan investment managers. Stubbs calculated compound annual real returns of a hypothetical pension portfolio for various rolling periods between 1926 and 2010, based on return data from Ibbotson Associates. Table 7 illustrates that assuming an overall 58 percent equity position, the compounded real return (above inflation) is 5.71 percent over 30 years, which is similar to the average for public pension funds after adjusting for expenses.[126] Using Callan Associates' data, NIRS calculated the 25-year average real return (above inflation) for public pension funds to be 5.4 percent.[127] Also, the National Association of State Retirement Administrators reports in the Public Fund Data Base that over the majority of rolling 30-year periods between 1992 and 2013, pension funds achieved nominal investment returns of at least 9 percent.[128]

Thus, pension funds tend to outperform contract annuities by anywhere from 200 to 300 basis points. A difference of this magnitude—over a time horizon that comprises both a typical public employee's career and retirement—makes a substantial difference in the cost of providing retirement income.

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BN) Harvard Seen Forgoing $108 Million a Year Divesting Fossil Fuels

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Harvard Seen Forgoing $108 Million a Year Divesting Fossil Fuels
2015-09-04 10:00:00.1 GMT

By Michael McDonald

(Bloomberg) -- Harvard University would forgo $108 million of investment returns annually if it divested from the largest oil, gas and coal companies, according to a study funded by the petroleum industry.

The research is the latest in a debate about the best course for investors in the face of concerns about climate change. Opponents of divestment point to losses when institutions reduce diversification in their portfolios. Others warn of potential costs of holding shares in energy companies contributing to global warming.

While dozens of schools have committed to stop buying fossil fuel company stocks, most wealthier institutions such as Harvard declined, saying it goes against their fiduciary duty to rule out such investments. They said they contribute to a better understanding of global warming through research and teaching while cutting the carbon footprints of their campuses.

"If climate change is a first order problem, divestment is a very bad idea," said Bradford Cornell, a visiting professor at California Institute of Technology who authored the report released Thursday. "This solution not only has a cost, it has no benefit."

Annual Reports

He analyzed Harvard's existing portfolio using asset allocation information from the university's annual reports. He sought to replicate it by combining a number of different mutual funds as proxies for the $36.4 billion endowment, testing how those funds performed over 20 years if restricted from the publicly-traded energy companies targeted in the divestment campaign.

Based on his calculations, Harvard's loss of $108 million a year would equal about 7 percent of the $1.5 billion in endowment funds made available to the university's operating budget last year.

Paul Andrew, a spokesman for Harvard, declined to comment on the report.

The study used the same methodology to analyze four other prominent universities, finding that Yale would forgo $51.1 million a year in investment returns from divesting; Massachusetts Institue of Technology $17.8 million; Columbia
$14.4 million; and New York University $4.2 million. None of those institutions have committed to divesting despite demands and campaigns by students and some faculty and alumni. Spokesmen for the four universities declined to comment on Cornell's analysis.

Oil, Gas

The paper builds on a study earlier this year by Daniel Fischel, former dean of the University of Chicago Law School and founder of economic consulting firm Compass Lexecon. Fischel also

looked at performance over time, finding that the average portfolio would forego 0.5 percent in returns a year by ruling out oil, gas and coal companies that have the largest proven fuel reserves.

Both Fischel's and Cornell's papers were commissioned by the Independent Petroleum Association of America, which represents crude oil and natural gas explorers and producers. Cornell also works as a consultant at Compass Lexecon, a subsidiary of FTI Consulting.

The studies contrast with reports from groups such as the consulting firm Mercer that seek to measure the impact on portfolios under different global warming scenarios. Mercer found in June that fossil fuel companies will be the biggest losers in terms of market value, and encouraged investors to do a better job accounting and preparing for that risk.

Money managers such as NorthStar Asset Management and Aperio Group that specialize in sustainable investing have also done studies finding academics overstate the risk and costs. The academic debate over divesting dates back decades, following the anti-Apartheid campaigns in the 1970s and '80s that targeted companies doing business in South Africa.

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TO: **BOARD OF TRUSTEES**

FROM: **EDWARD SMITH, CHAIRMAN**

DATE: **SEPTEMBER 17, 2015**

SUBJECT: **BENEFITS COMMITTEE REPORT**

The Benefits Committee did not meet during the month of August. The following report reflects Benefits Department activities and projects that occurred in the months of July and August

Annuitant Verification Results

As a standard practice nationwide, public retirement systems conduct periodic verifications to ensure benefit payments are properly disbursed to annuitants in accordance with the rules governing their plans. To fulfill this responsibility, DCRB periodically sends verification letters to a random sampling of annuitants, requesting that they acknowledge receipt of their monthly benefit payments, verify their address, and update other information, where appropriate. Accordingly, on May 19, 2015, DCRB sent letters to 282 annuitants of various age levels above age 60. Failure to respond to DCRB's verification requests resulted in the suspension of the September 1, 2015 benefit payment of 13 annuitants.

Communications and Upcoming Health Benefits Open Enrollment

The Office of Personnel Management (OPM) has established a new enrollment type, Self Plus One, for annuitants eligible for benefits under the Federal Employees Health Benefits Program (FEHB). Pensioners enrolled in FEHB family plans with only one dependent may find this enrollment to be a cost savings. We currently have approximately 4,000 annuitants enrolled in family coverage. The annual Open Season will begin on November 9, 2015 and ends on December 14, 2015. The DC Human Resources Office has announced that the District's Open Enrollment period will take place during those same dates.

The Benefits Department is preparing a communication strategy for the next three months to ensure that our members receive adequate information about Open Enrollment and the new enrollment type. We are also developing several changes and improvements in our open season enrollment process to meet the anticipated increase in benefit coverage type changes due to the new enrollment option. Information on this year's Health Benefits Open Enrollment was included on the earnings statement sent to annuitants with their September 1 benefit payments.

Health Benefits Transmittal Files to OPM – One of the Benefits Department's improvements for the upcoming Health Benefits (HB) Open Season is the development of an automated transmittal of HB data from STAR to OPM. Benefits staff is working with ODCP (Office of DC Pensions) and DCHR (DC Human Resources) to transmit STAR benefits changes

electronically to OPM and the District, who will then submit the information to the health care providers. This process will eliminate the current paper-intensive process of our faxing and emailing changes directly to the providers. This project will reduce processing time between our receipt of HB change and the carriers' receipt of the change. Due to the expected number of changes for the new Self Plus One option that will be offered by FEHB this year, additional temporary staff will be needed for data entry in STAR before a transmission can be sent.

Disability Income Review Process

DCRB has engaged Aon Hewitt Investment Consulting, Inc. ("Aon") to assist DCRB in its review of certain provisions regarding the Disability Annuitant Income Review process for the Police/Fire and Teachers' Plans. Aon will review the Plan provisions and the current income review process, identify and recommend peer systems to be used in a comparative analysis of common and best practices, develop a quantitative survey and conduct interviews of peer systems regarding peer practices, and prepare a draft summary of the survey results and recommendations based on best practices. The project will culminate in a presentation to the Board around March 2016.

Upcoming Projects

Post-56 Compliance – Benefits staff is reinstating this project for calendar year 2015. They will be reaching out to DC Police Officers and Firefighters' Retirement Plan annuitants who received service credit in their retirement calculation, are reaching the Social Security full retirement age, and who may not have purchased military service. Employees who received service credit for active duty service performed after December 31, 1956, are required to purchase that service to retain credit for it once they reach Social Security full retirement age. Members who retired prior to November 22, 2003 retain the option to purchase their prior military service. Members who retired on or after November 22, 2003 must have completed the purchase prior to retirement. Annuitants who fail to purchase their prior service will see a reduction in their annuity once they reach Social Security's full retirement age.

Federal Max 80/Lookback COLA Errors Update (As of August 31, 2015)

Of the 568 affected Federal annuitants, 558 had the right to request reconsideration of the benefit change (the remaining 10 had their benefit adjusted and were informed of the decision to waive past overpayments). Due process rights have expired for 387 annuitants who did not submit a request for reconsideration within the 60 day timeframe. The following table shows the due process status for the benefit change through August 31, 2015:

	Request for Reconsideration	Appeal of Reconsideration Decision
Total Number Received	**171**	**52**
Number of Decisions Issued	**160**	**0**
Breakdown of Decisions Issued:		
• **Denied**	**145**	**0**
• **Granted**	**0**	**0**
• **Mixed** [a]	**15**	**0**

[a] Decision denied part of the request or appeal and granted part of the request or appeal.

Benefits Department Monthly Statistics

Processing volume by month:

Activity	July	August
Retirement Claims Received	205	238
Processed Retirements	117	118
Telephone Calls	1,805	1,831
Walk-in Customers	97	118
Scanned Documents	12,473 pages	9,488 pages
QDROs Approved	4 final, 1 draft	2 final, 1 draft
Purchase of Service	6 ($45,692.47)	6 ($23,317.88)

You will find more details of the Benefits Department statistics in the attached report.

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TO: BOARD OF TRUSTEES

FROM: LYLE BLANCHARD, CHAIRMAN

DATE: SEPTEMBER 17, 2015

SUBJECT: LEGISLATIVE COMMITTEE REPORT

The following report reflects activities of interest since the July Board Meeting.

COUNCIL OF THE DISTRICT OF COLUMBIA

A21-99, "Fiscal Year 2016 Budget Request Act of 2015"

This act would approve appropriation of $136,115,000 from local funds for the Police Officers and Firefighters' Retirement System; $44,469,000 from local funds for the Teachers' Retirement System; and $32,302,000 from the Teachers' and Police Officers and Firefighters' Retirement Funds for the District of Columbia Retirement Board.

Status: The bill, B21-157, was enacted with act number A21-99 and signed by the Mayor on July 9, 2015. The act was transmitted to Congress on July 17, 2015. The projected Law Date is September 30, 2015.