



Getty Images/Joel Sartore

# 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.<sup>1</sup> 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](http://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%
<b>Total</b>	<b>3,434,158</b>	<b>968,383</b>	<b>91,941</b>	<b>74%</b>	<b>72% ↓</b>	<b>72% →</b>	<b>77%</b>	<b>76%</b>	<b>80%</b>

\*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](http://www.pewtrusts.org/pensiondata).

Source: The Pew Charitable Trusts

© 2015 The Pew Charitable Trusts

## Four states' experiences

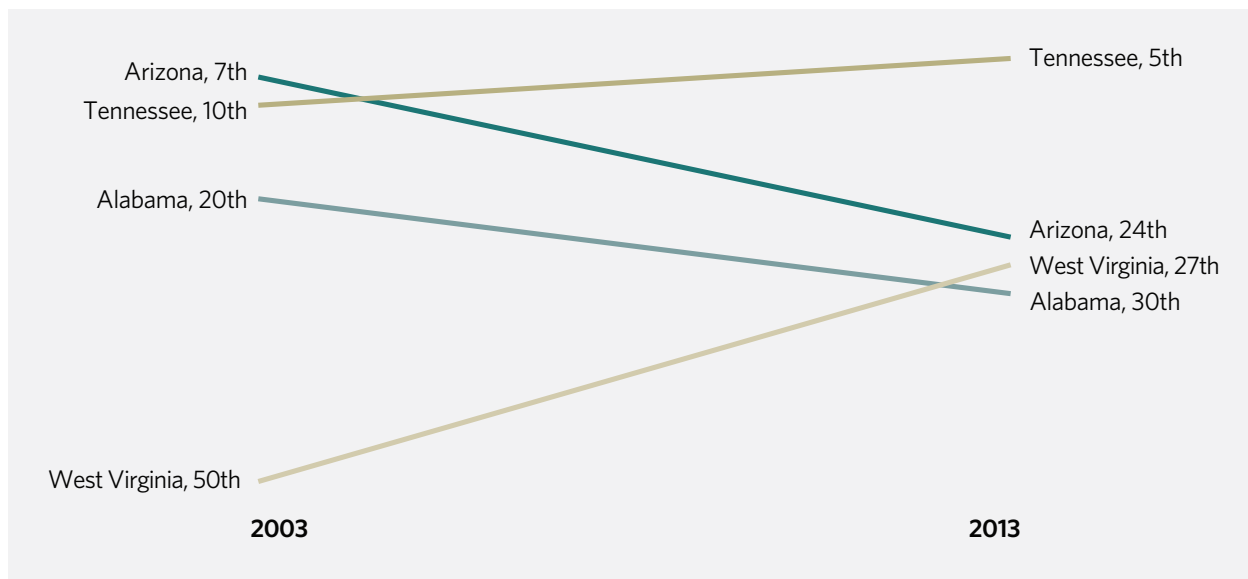
Four states illustrate the limitations of the ARC and why stronger measures of contribution policies may be useful. Alabama, Arizona, Tennessee, and West Virginia all contributed on average 100 percent or more of their ARC from 2003 to 2013. Tennessee and Arizona had nearly fully funded retirement systems 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

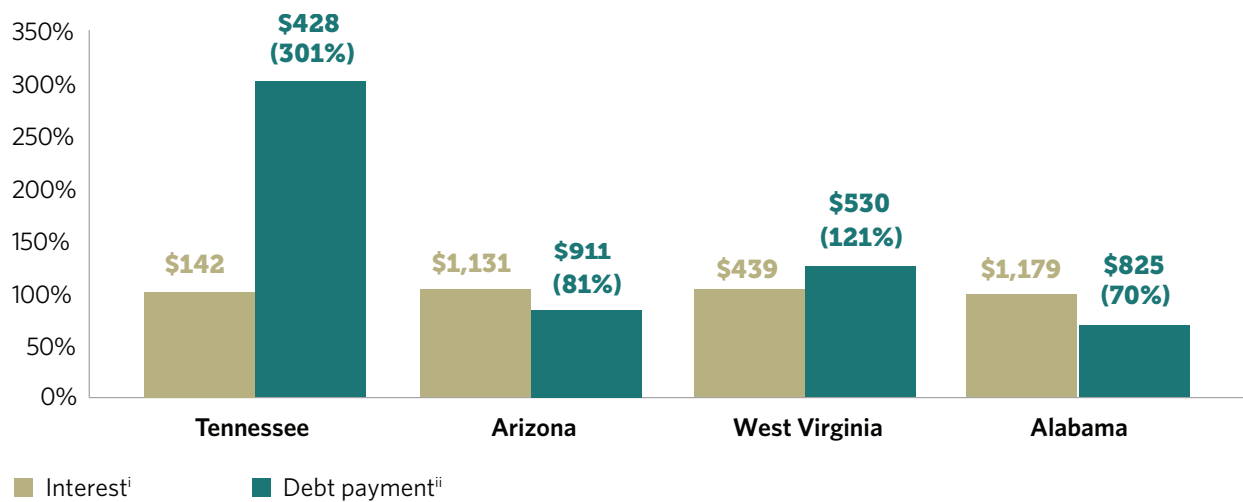
© 2015 The Pew Charitable Trusts

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<sup>2</sup>; 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.<sup>3</sup> 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.<sup>4</sup>

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.<sup>5</sup>

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

© 2015 The Pew Charitable Trusts

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.

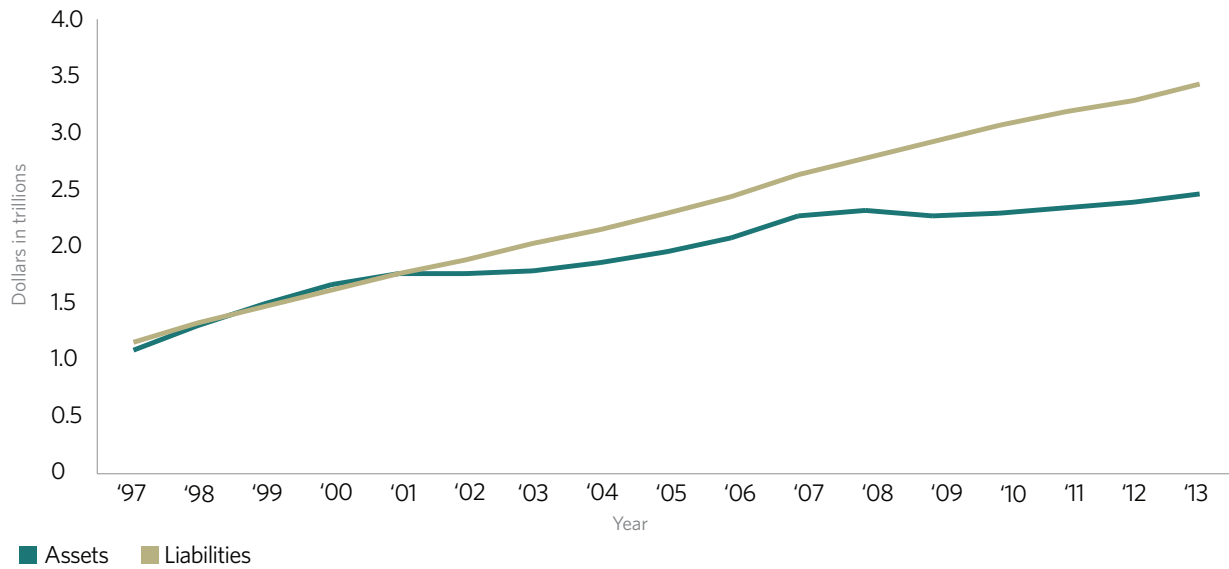
Reporting of these net liabilities will be based on the market valuation of assets rather than smoothing investment gains and losses over time, which will cause an uptick in reported funding levels in 2014 as recent strong returns are fully incorporated. It will also make direct comparisons between plans 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.<sup>6</sup>

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<sup>7</sup> and is consistent with the recommendation of the Society of Actuaries Blue Ribbon Panel to pay down pension debt over a fixed time period.<sup>8</sup> 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.

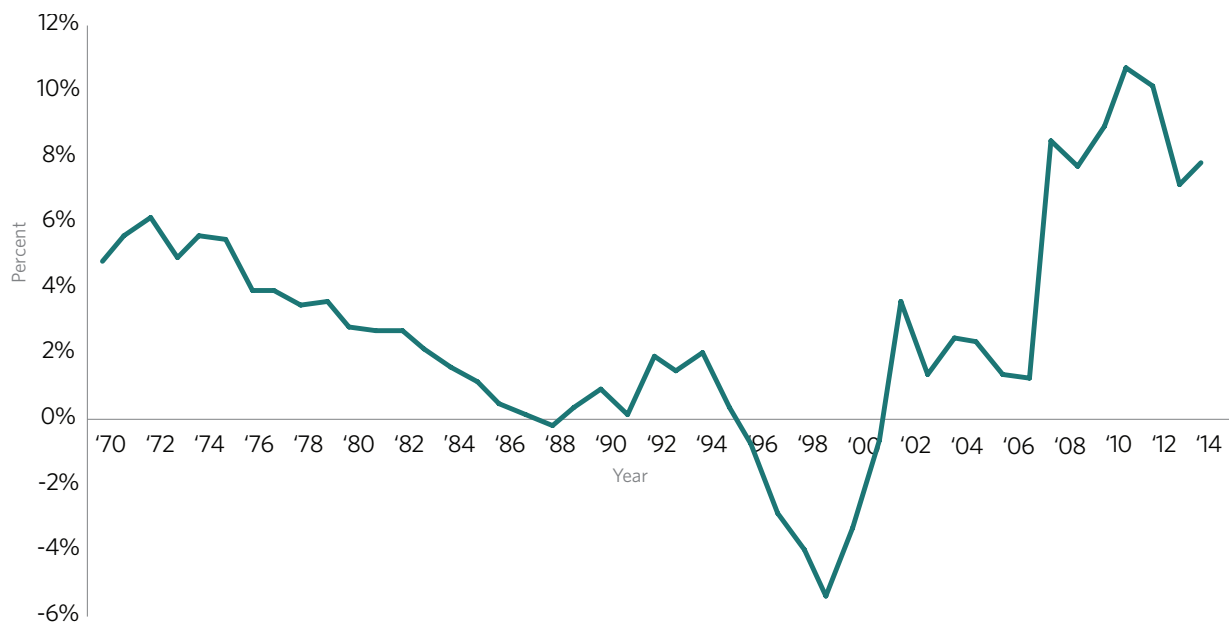
Figure 3  
State Pension Funding Gap



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

© 2015 The Pew Charitable Trusts

### 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

© 2015 The Pew Charitable Trusts



## 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.

**Note: Figure 3 was updated to correct "billions" to "trillions."**

## 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](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](http://pewtrusts.org/publicpensions)

---

**Contact:** Ken Willis, communications officer  
**Email:** [kwillis@pewtrusts.org](mailto:kwillis@pewtrusts.org)  
**Project website:** [pewtrusts.org/publicpensions](http://pewtrusts.org/publicpensions)

---

**The Pew Charitable Trusts** is driven by the power of knowledge to solve today's most challenging problems. Pew applies a rigorous, analytical approach to improve public policy, inform the public, and invigorate civic life.