Steady Improvement Amid Risk: A Five-Year Study Of U.S. State Pension And OPEB Obligations

February 28, 2024

*(**Editor's Note:** This commentary originally misstated California Public Employees' Retirement System [CalPERS] assumptions in the Appendix. Below is a corrected version.)*

Key Takeaways

- Debt and liabilities for U.S. states, while still high, decreased 12% in aggregate for states from fiscal 2017 to fiscal 2022.

- Net OPEB liability across states decreased significantly from 2017-2022, primarily due to plan funding and liability management.

- Funded ratios for the largest U.S. state pension plans improved by 5% between 2017 and 2022 thanks to better funding discipline.

- Real return assumptions, a market risk indicator, have increased for some poorly funded plans and the associated market volatility could lead to contribution escalation.

- An aging population magnifies the risk that annual costs could increase because of market volatility.

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Pension Contributions And OPEB Cuts Spur Five-Year Drop In Debt And Liabilities

S&P Global Ratings notes progress being made on the debt and liability burden as total U.S. state debt and liabilities per capita decreased 12% per capita from 2017-2022, to approximately $5,171 from $5,901. The aggregate decline was spurred primarily by a 25% drop in net other postemployment benefit (OPEB) liability (NOL) to $1,574 from $2,086 per capita and a 10% decrease in net pension liability to $2,074 from $2,304 per capita, offset partially by a 1% increase in state debt to $1,523 from $1,510 per capita.

Chart 1

Change in state debt plus liabilities per capita from 2017 to 2022
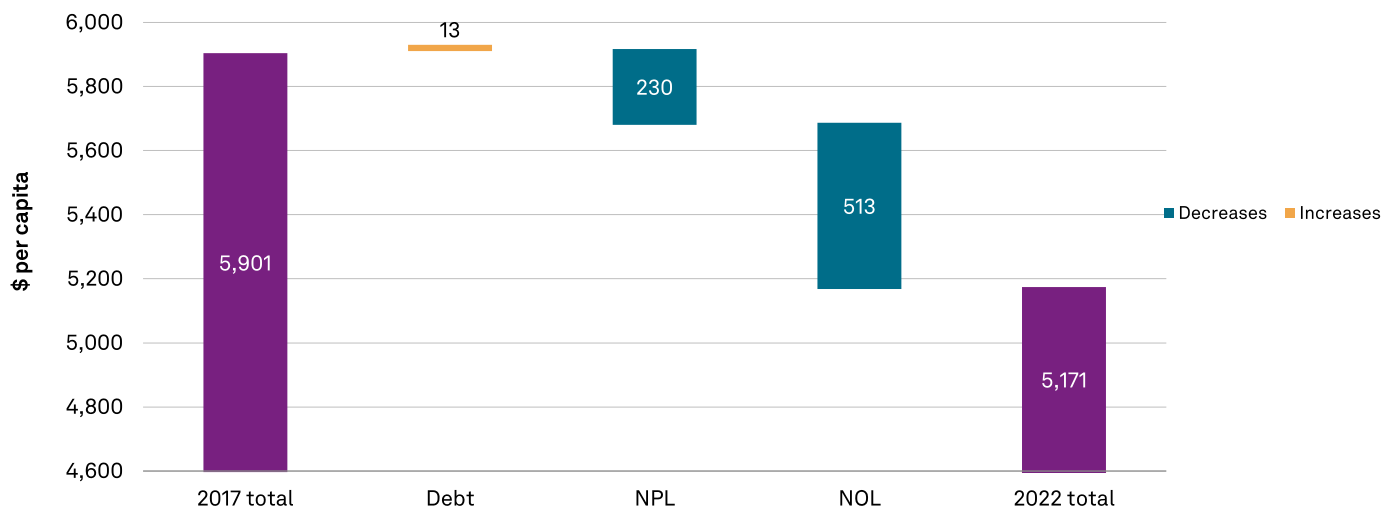
OPEB--Other postemployment benefits. NPL--Net pension liability. NOL--Net OPEB liability. Source: S&P Global Ratings.

States with minimal debt, pension, and OPEB liabilities as a share of per capita gross state product (GSP) in 2017 remained at the lower end of the scale in 2022, with 26 states having total debt and liabilities amounting to less than 5% of GSP in 2022 (chart 2) and only nine states greater than 10%. Notable states with a differential in total liabilities from 2017 to 2022 include New Jersey and Kentucky. In the past, these states have experienced significant pension funding stress due to years of underfunding, and both made pension contributions in excess of their actuarially determined contribution in the past five years.

Chart 2

U.S. state debt and liabilities generally decreased from 2017 to 2022 compared with GSP
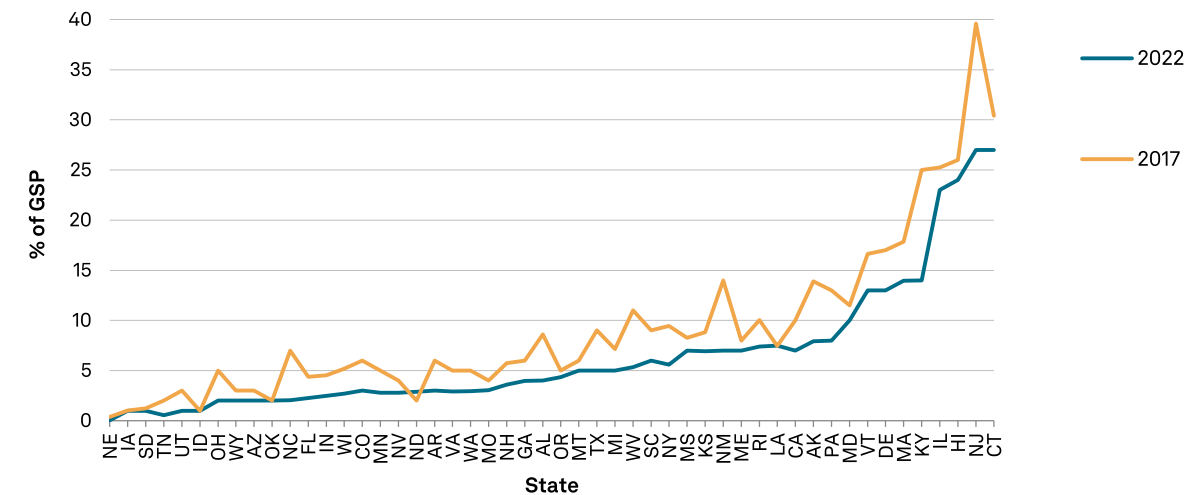

GSP--Gross state product. Source: S&P Global Ratings.

We note that the U.S. population increased 2.0% during the 2017-2022 period, as per the Bureau of Economic Analysis; however, while we captured these changes in our analysis, we consider this increase marginal in terms of its effects on quoted per capita statistics.

Chart 3 splits out 2022 debt and liabilities by type for each state. The states with the highest per capita debt and liabilities typically include pension and OPEB burdens that grew unchecked for decades due to weak funding discipline. Six states have debt and liabilities notably higher than the rest, above $10,000 per capita. Thirty-six states have per capita debt and liabilities below $5,000.

Chart 3

Fiscal 2022 state debt and liabilities per capita
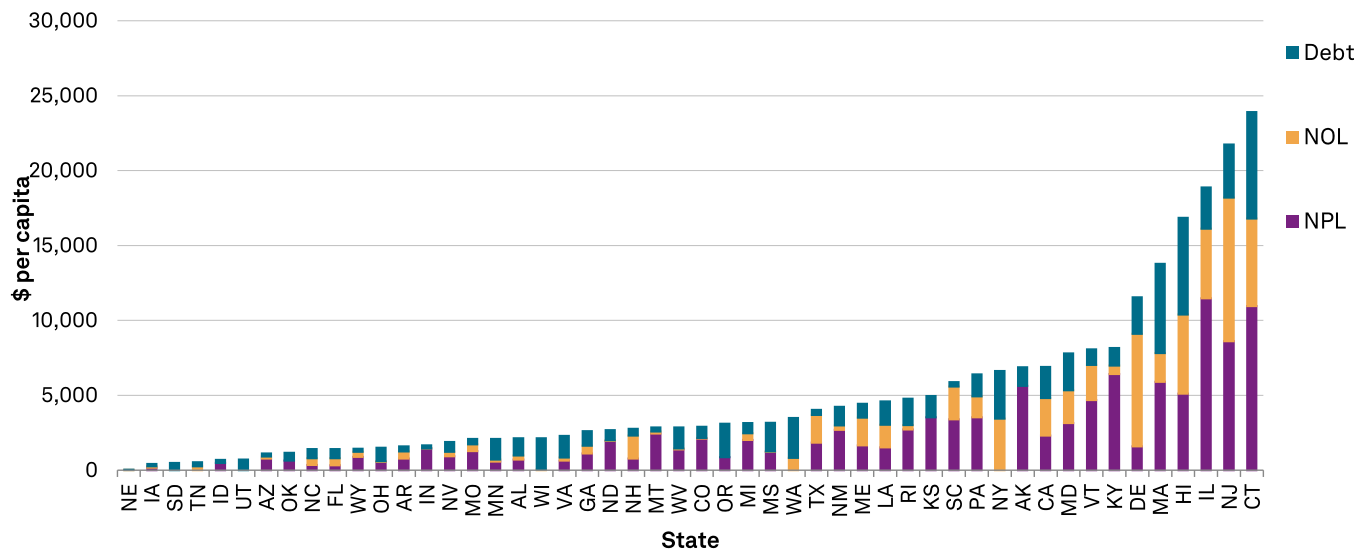
OPEB--Other postemployment benefits. NPL--Net pension liability. NOL-- Net OPEB liability. Source: S&P Global Ratings.

Funding Efforts And Benefit Reform Helped Reduce NOL

NOL decreased for most U.S. states in the past five years (chart 4). Since most U.S. OPEB plans fund retiree medical benefits on a pay-as-you-go basis, they are exposed to higher liability and cost volatility than pensions that are generally prefunded. Bond rates from 2017 to 2022 only increased marginally and we expect accounting changes implemented in 2017 will also have generally limited effect. Therefore, states that had notable improvements achieved this result by either adding assets, reducing liabilities, or both. States differ in their legal flexibility to manage liabilities, limiting the options of some to manage OPEB liabilities while other states are limited in their ability to prefund an OPEB trust (for more information, see "OPEB Brief: Risks Weigh On Credit Even Where There Is Legal Flexibility," May 22, 2019, on RatingsDirect).

Selected states with notable decreases in NOL (see chart 4) include:

- Alaska: Retiree medical benefits are constitutionally protected, limiting the state's ability to reduce liabilities. In addition, Alaska is required by statute to fund the annual contributions to the pension system at the actuarially recommended level. We view the state's commitment to prefunding OPEB obligations as a key contributor to full actuarial funding of the OPEB trust since 2020, with a net asset of $1.2 billion reported for fiscal 2022.

- Ohio: Recent benefit structure changes for both the Ohio Employees' and Police/Fire plans, to a stipend from a coverage model, have reduced both costs and cost volatility due to health care claims costs (for more information, see "Pension Spotlight: Ohio," July 31, 2023).

- West Virginia: The state eliminated the retiree medical subsidy in 2010 and added $30 million of

personal income tax revenue annually to the OPEB trust starting in fiscal 2017.

- Alabama: The state has implemented benefit limitations and cost-saving reforms that allowed it to reduce OPEB liabilities in recent years.

- Massachusetts: The state has dedicated a portion of tobacco settlement revenues toward its OPEB trust fund to provide a permanent funding source.

- Vermont: In 2022, pension reform legislation created prefunding schedules for both of the state's OPEB plans, which contributed to a significant decline in the calculated liability for the most recent plan valuations because the liabilities are discounted at the 7% expected long-term rate of return.

- New Jersey: The state switched to a lower-cost health care provider for a one-time cost savings. This is not a lever that New Jersey can pull repeatedly to reduce OPEB liabilities in the future.

Chart 4

## 2017 versus 2022 net OPEB liability per capita
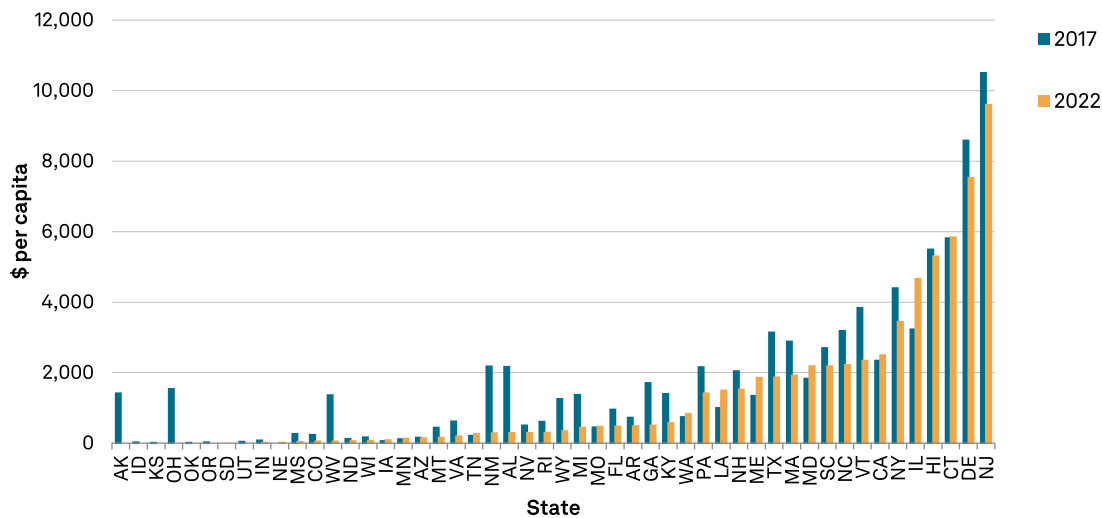
OPEB--Other postemployment benefits. Source: S&P Global Ratings.

The Past Five Years Have Seen Slow Yet Positive Movement In Funded Ratios

Funding discipline improvements and the steady acceptance of higher pension costs within government budgets are primary reasons U.S. pension funded ratios improved from 2017 to 2022. The largest U.S. statewide pension plan saw an average improvement of 5% over the five-year period to 75% in 2022 from 70% in 2017. Charts 5 and 6 show how funded ratios changed and highlight the largest movers (see Appendix for more detail).
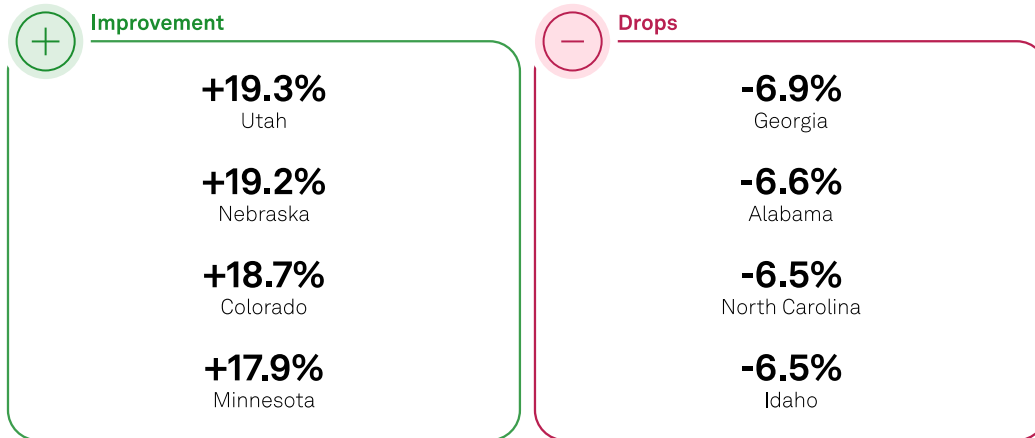
Chart 5

U.S. states: Funded ratios for the largest pension plans generally improved from 2017 to 2022
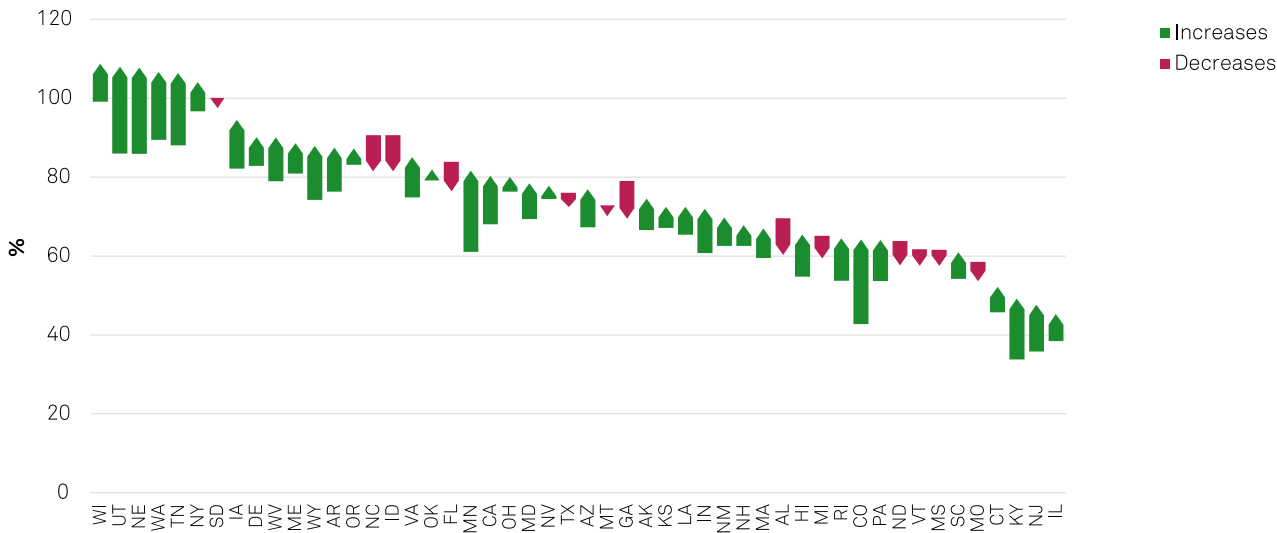
Sorted by 2022 funded ratio. Source: S&P Global Ratings.

Chart 6

Largest funded ratio changes

Improvement	Drops
+19.3% Utah	**-6.9%** Georgia
+19.2% Nebraska	**-6.6%** Alabama
+18.7% Colorado	**-6.5%** North Carolina
+17.9% Minnesota	**-6.5%** Idaho

Source: S&P Global Ratings.

The four states with the lowest funded ratios (Illinois, New Jersey, Kentucky, and Connecticut) made some improvement over the past five years through increased contributions. Many states have improved pension funding discipline in recent years, but only 16 states met our minimum funding progress (MFP) metric on average over the 2017-2022 period (chart 5). Twenty-six states contributed at or above MFP levels in 2022, although we note that assets performed extremely well in fiscal 2022 with pension assets measured during the market spike in fiscal 2021. For comparison, only eight states contributed MFP in fiscal 2017. (For a view of the MFP in our most recent U.S. states' survey, see "U.S. State Pension And OPEBs: Funding Progress Is Likely To Pick Up In 2023 After Slipping In 2022," Sept. 7, 2023.) Although there appears to be some general contribution variability, we note that the large variance for some states reflects recent improvements to funding discipline that we expect will continue. For example:

- New Jersey's contributions increased to 84% of MFP in 2022 from 34% in 2017 as the state ramped up to full funding of the actuarially recommended contribution.

- Colorado's contributions increased to 81% of MFP in 2022 from 51% in 2017, dipping as low as 39% in 2018 and 2019. The state's improvement could be largely due to the Senate Bill 18-200 pension reforms that suspended cost-of-living adjustments (COLAs) and increased employee and employer contributions, while adding $225 million per year from the state.

- Minnesota's contributions increased to 86% of MFP in 2022 from 36% in 2017, largely due to a 2018 law that adjusted plan assumptions, reduced COLAs, and increased employer and employee contributions.

- Oregon's contributions increased to 145% of MFP in 2022 from 42% in 2017. A 2019 law redirected contributions from high earners from a supplemental defined-contribution account to fund the defined-benefit trust and implemented other risk-sharing measures that shifted costs to active members, as well as identified other resources to make supplemental payments. (For more detail, see "Pension Spotlight: Risk Sharing Dilutes Pension Burden For Five States," April 21, 2021.)

Chart 7

Five-year average state pension contributions as a percentage of MFP
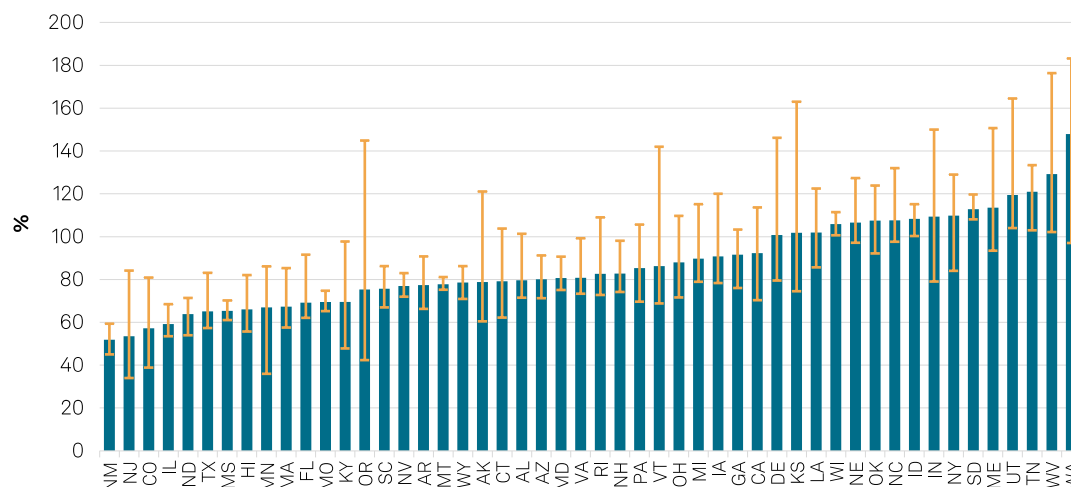
Note: Error bars point to high and low over the past five years. MFP--Minimum funding progress.
Source: S&P Global Ratings.

Asset Allocations Increase Risk For Some Poorly Funded Pension Plans

Relatively lower risk investments such as Treasury bonds and long-term bonds are now yielding above 4%; as a result, real returns (defined as total return minus inflation) for that asset class and others have remained more or less the same given that inflation since mid-2021 has been above 3%, and well above 3% for most of 2022 and the first half of 2023. While inflation underscores the return assumption and corresponding discount rate used to measure pension and OPEB liability, market risk is generally associated with the assumed real return, defined as assumed return less assumed inflation.

Specific changes to the assumed real return from 2017 to 2022 are outlined below for the largest state plans (see chart 8). We color coded the states by funded ratio since states that are poorly funded might be seen as grasping at returns and could be viewed negatively in credit analysis. Some notable examples include:

- New York State and Local Retirement System - the largest decrease in assumed real return: This system is a fully funded plan that has lowered its total assumed return assumption and corresponding discount rate by 1.1%, indicating a proactive approach to managing market risk.

- Massachusetts Teachers Association - the largest increase in assumed real return: This plan is 60% funded and the reduction to its high 7.5% assumed return and corresponding discount rate was less than the reduction to assumed inflation.

For more detail on the effects of inflation on U.S. public pensions as well as more on the increasing risk within pension asset portfolios, see "Five U.S. Public Pension And OPEB Points To Watch In 2024," Jan. 29, 2024.

Chart 8

Increasing real return assumption indicates increased market risk
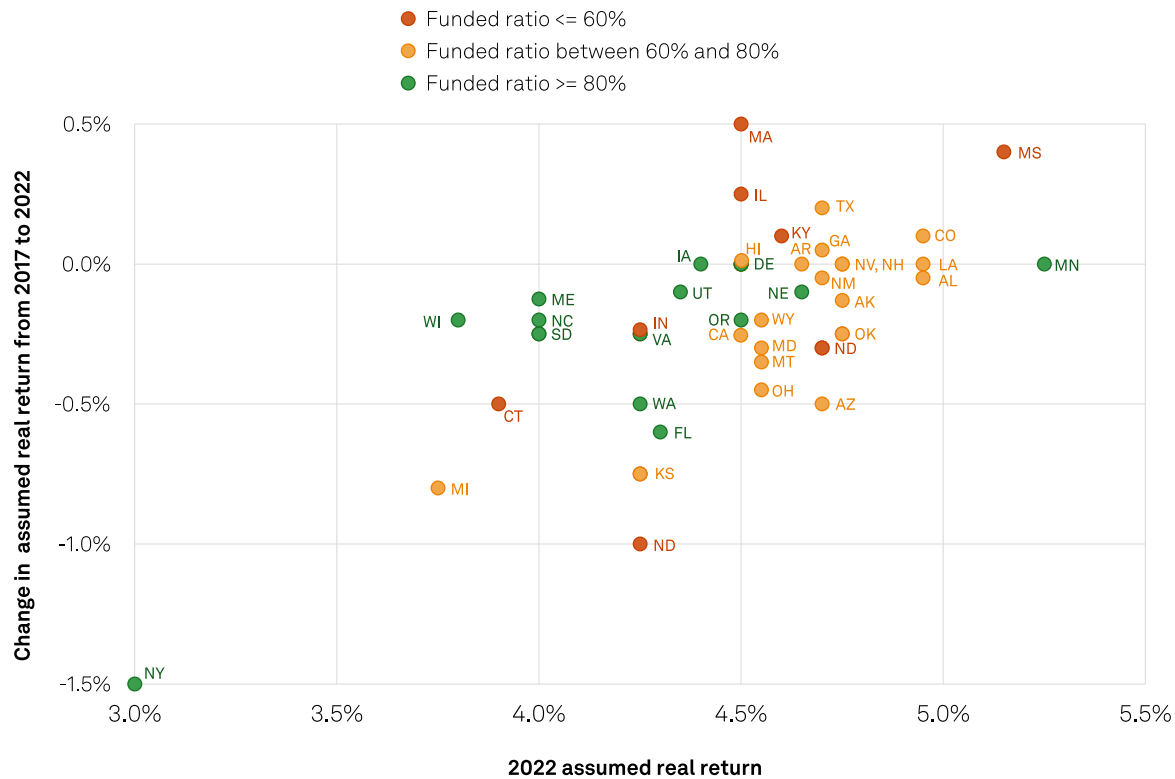
Source: S&P Global Ratings.
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Aging Demographics Magnify Market Risk

As baby boomers continue to reach retirement age, and persistent budgetary concerns have slowed hiring and reduced replacements, pension plans have seen their active-to-beneficiary ratios (A/B ratio) decrease over the past five years. The adverse impact of market risk on contribution volatility and escalation risk is exacerbated by aging demographics, due in part to the comparative reduction in active plan contributors to help offset the budgetary effect of negative market movements. (For more detail, see "Five U.S. Public Pension and OPEB Points To Watch In 2024," referenced earlier.)

A plan's population is primarily made up of active members contributing to the pension trust and retirees receiving benefit payments from the trust. A plan with a comparatively low A/B ratio indicates less flexibility to pass on costs and risks to the active contributing population. Plans with a low A/B ratio, coupled with a high assumed return, indicate high risk of budgetary stress on the plan sponsor since all market volatility translates directly into contribution movement with few options for relief through liability management. Chart 9 shows this risk for plans that assume a high asset return (red points in the chart) combined with either a low A/B ratio in 2022 or a rapid shift in the population toward retirees.

Chart 9

Active-to-beneficiary (A/B) ratio changes from 2017 to 2022 indicate pension plans are maturing
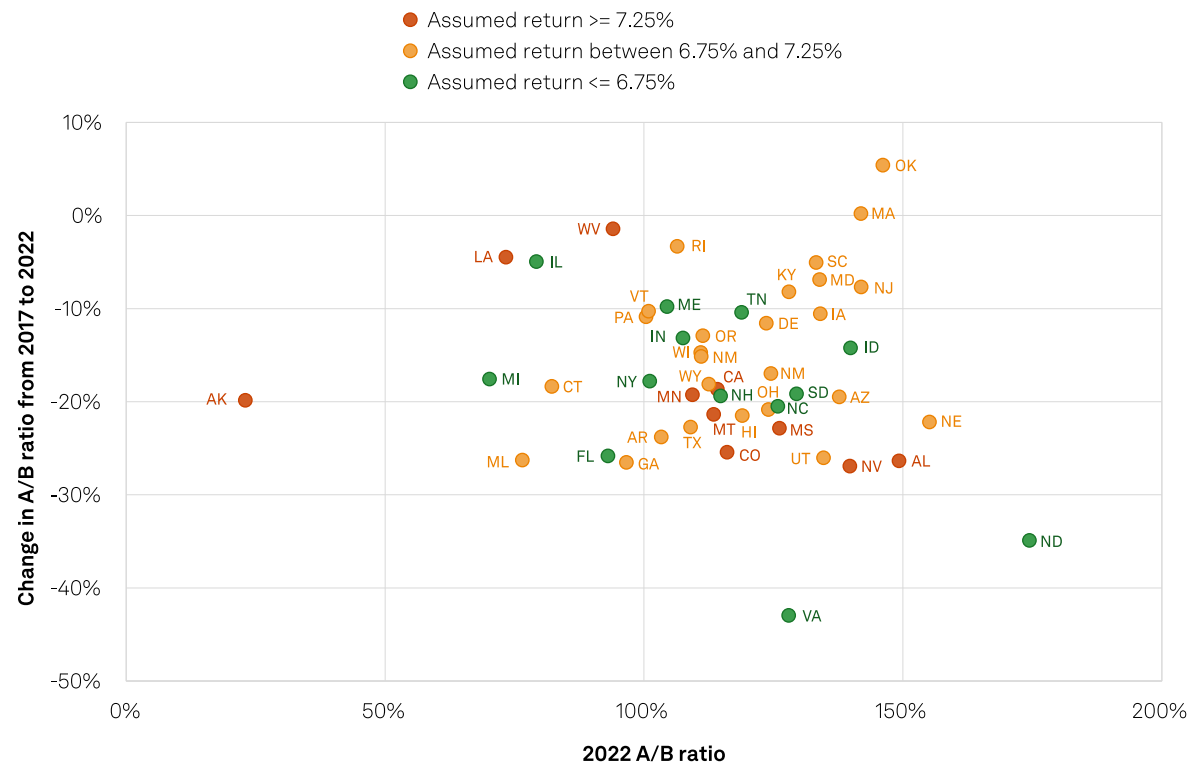
Note: Washington is off the map because, as the public employees retirement system (PERS) 2/3 plans are relatively new after PERS 1 closed to new entrants, the A/B ratio decreased to 230% from 310%. As the population continues to shift to the newer 2/3 plans, we expect this ratio will continue to drop toward the median, in line with its 7% assumed return.
Source: S&P Global Ratings.

Fiscal 2017 and fiscal 2022 data come from our published reports from 2018 and 2023, respectively.

Appendix

State	Largest plan	Funded ratio (%)		Assumed return (%)	
		2022	2017	2022	2017
Alabama	Alabama Employees Retirement System	63	70	7.45	7.75
Alaska	Alaska Public Employee Retirement System	72	67	7.25	8.00
Arizona	Arizona State Retirement System	72	67	7.00	7.50
Arkansas	Arkansas Public Employee Retirement System	85	76	7.15	7.15
California	California Public Employees' Retirement Fund	78	68	6.80	7.50
Colorado	Colorado State	62	43	7.25	7.25
Connecticut	Connecticut School Employees' Retirement System	49	46	6.90	6.90
Delaware	Delaware State Employees	87	83	7.00	7.00

Appendix (cont.)

State	Largest plan	Funded ratio (%)		Assumed return (%)	
		2022	2017	2022	2017
Florida	Florida Retirement System	79	84	6.70	7.50
Georgia	Georgia Employees Retirement System	72	79	7.20	7.40
Hawaii	Hawaii Employees Retirement System	63	55	7.00	7.00
Idaho	Idaho Public Employee Retirement System	84	91	6.30	7.50
Illinois	Illinois School Employees' Retirement System	43	38	6.75	7.00
Indiana	Indiana Teachers	69	61	6.25	6.75
Iowa	Iowa Public Employee Retirement System	92	82	7.00	7.00
Kansas	Kansas Public Employee Retirement System	70	67	7.00	7.75
Kentucky	Kentucky Teachers	46	34	7.10	7.50
Louisiana	Louisiana School Employees' Retirement System	70	65	7.25	7.70
Maine	Maine State and Teacher	86	81	6.75	6.88
Maryland	Maryland Teachers	76	69	6.80	7.50
Massachusetts	Massachusetts Teachers Association	64	59	7.00	7.50
Michigan	Michigan Public Schools	62	65	6.00	7.05
Minnesota	Minnesota State Employees	79	61	7.50	8.00
Mississippi	Mississippi Public Employee Retirement System	60	62	7.55	7.75
Missouri	Missouri State Employees	56	59	6.95	7.50
Montana	Montana Public Employee Retirement System	73	73	7.30	7.65
Nebraska	Nebraska Schools	105	86	7.20	7.50
Nevada	Nevada Regular Employees	75	74	7.25	7.50
New Hampshire	New Hampshire Retirement System	65	63	6.75	7.25
New Jersey	New Jersey Teachers	45	36	7.00	7.50
New Mexico	New Mexico Educational	70	63	7.00	7.25
New York	New York State and Local Employees Retirement System	101	97	5.90	7.00
North Carolina	North Carolina Teachers and State Employees	84	91	6.50	7.20
North Dakota	North Dakota Public Employee Retirement System	60	64	6.50	7.75
Ohio	Ohio Public Employee Retirement System	77	76	6.90	7.50
Oklahoma	Oklahoma Teachers	79	79	7.00	7.50
Oregon	Oregon Public Employee Retirement System	85	83	6.90	7.20
Pennsylvania	Pennsylvania School Employees	61	54	7.00	7.25
Rhode Island	Rhode Island State and Teacher	62	54	7.00	7.00
South Carolina	South Carolina Retirement System	58	54	7.00	7.25
South Dakota	South Dakota Retirement System	100	100	6.50	6.50
Tennessee	Tennessee State and Teachers	104	88	6.75	7.50
Texas	Texas Employees Retirement System	74	76	7.00	8.00
Utah	Utah Noncontributory	95	86	6.85	6.95

Appendix (cont.)

State	Largest plan	Funded ratio (%)		Assumed return (%)	
		2022	2017	2022	2017
Vermont	Vermont Teachers	60	62	7.00	7.50
Virginia	Virginia Retirement System	82	75	6.75	7.00
Washington	Washington Public Employee Retirement System 2/3	104	89	7.00	7.50
West Virginia	West Virginia Teachers	87	79	7.25	7.50
Wisconsin	Wisconsin Retirement System	106	99	6.80	7.20
Wyoming	Wyoming Public Employees	76	74	6.80	7.00

Related Research

- Five U.S. Public Pension And OPEB Points To Watch In 2024, Jan. 29, 2024
- U.S. State Pension And OPEBs: Funding Progress Is Likely To Pick Up In 2023 After Slipping In 2022, Sept. 7, 2023
- Pension Spotlight: Ohio, July 31, 2023
- Pension Spotlight: Risk Sharing Dilutes Pension Burden For Five States, April 21, 2021
- OPEB Brief: Risks Weigh On Credit Even Where There Is Legal Flexibility, May 22, 2019

This report does not constitute a rating action.