DECEMBER 2021 UPDATE

# State of Pensions 2021

## Equable Institute's Second Annual Report

## Pension Trends in an Era of Accelerating Volatility

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EQUABLE

# STATE OF PENSIONS 2021: MID-YEAR UPDATE

On the surface, the top story of 2021 for public retirement systems would appear to be record setting investment returns. With average returns at 27.5%, this year will always be notable for generating such large asset gains. But the real story is how, even after a $400-500 billion surge in assets, state pension plans as a whole still face a large funding shortfall and might have billions more in unfunded liabilities not yet recognized on their books.

Over the past few months financial markets have generally continued to climb, notwithstanding a dip in the third quarter and inflation concerns taking a dent out of performance in early December. As the year comes to a close, our updated estimate for 2021 unfunded liabilities is $1.12 trillion, reflecting a funded ratio of 80.8%.

This funding status might look good relative to the past few years of worse figures. But compared to a 100% funded ratio target with no funding shortfall, the numbers are remarkably mediocre considering such a historic investment year.

Plus, the actual level of unfunded liabilities for state retirement systems is likely worse than is currently reported. Here's why: Consider where actual investment returns are likely heading. This was a great investment return year, and 2022 might be strong too.  But for the most part, state pension plans are riding the same financial market waves as all other institutional investors. Any given pension fund might have its own special investment mix, but, as a whole, state retirement systems and their investment returns are subject to the same investment climate that influences others. The outlook for capital markets over the next decade suggests that anyone thinking they'll make over 6% returns is either going to have to take excessive risk or perform well above the average.

With lower investment performance on the horizon, it would be wise for state retirement plans to make meaningful reductions in assumed rates of return. There already have been a few dozen systems making moves, such as New York Common Fund dropping their assumption to 5.9%, and CalPERS announcing a gradual reduction to 6.8%. And these moves have made the 67 plans with investment assumptions at 7.25% or higher look like extreme outliers for being above the 7% average assumed return.

If (and hopefully when) more state retirement systems make the necessary adjustments to investment assumptions, they will simultaneously have to revalue their liabilities. And this should mean recognizing several hundred billion more in unfunded liabilities. For example, if the average assumed return fell to 6% that might mean adding an addition $700 billion in unfunded liabilities and drop the national average funded ratio back to the 70% range.

It is unlikely that state plans will move *en masse* to an average 6% assumed rate of return, so such a revaluation isn't going to happen overnight. But over the next decade, it is reasonable that the average investment assumption will continue to fall. And as it does more unfunded liabilities will be uncovered and put on the books.

A spike of actual investment returns this year was a positive shot in the arm that quickly improved asset levels; but it was no vaccine. It only got the collective funded status for state plans back up to where they were in 2008, which isn't a high measure of success. Meanwhile the fragility of being around 81% funded is that the numbers are based on an average investment assumption that has less than a 33% chance of being realized over the next decade. An honest look down the road shows a lot of downward pressure points on state funded ratios that all stakeholders for public retirement systems should understand and work to counteract before they drive up costs in a further uncontrolled manner.

**STATE OF PENSIONS 2021** is Equable Institute's second annual report on the status of public pensions put into a historical context. State and local governments face a wide range of challenges – growing, and unpredictable pension costs are some of the largest. The report, and this mid-year update, assess the scale and effects of these challenges within the view of the multi-decade financial and policy trends that have brought us to this point.

Visit Equable.org/StateofPensions to read the original report.

## WHAT IS INCLUDED IN THIS UPDATE?

When we published State of Pensions in August 2021, there were still roughly 25% of state pension plans that had not released complete data for the fiscal year ending 2020. This report updates our estimated 2020 figures with actual numbers that have since been released. Similarly, since our publication a number of additional state plans have released preliminary investment returns for the fiscal year 2021; including these in our dataset means we have actual (or partial year actual) returns for 94% of the plans in our dataset.

Overall, the figures in this report include the following:

- Revised figures to reflect updated FY 2020 actuals data reported by state pension plans.
- Updated 2021 funding estimates based on actual investment returns reported by state pension plans.
- Updated figures that include the addition of 6 small state plans to our database, improving the scope of the picture of public plans nationwide that our data reflects.

## HOW THESE UPDATES HAVE CHANGED OUR FINDINGS

The trendlines are largely unchanged from our August 2021 report. This is because the majority of data updates in this report reflect changing FY 2020 data for 35 plans from estimates to actuals. There are some aggregate total changes as a result from adding plans to the dataset, but they are minor and don't change the trendline findings in State of Pensions 2021. Our funded status figures for fiscal year 2021 will be refined with actual actuarial data with the release of State of Pensions 2022.

Here is a brief rundown of changes resulting from the updated data:

- The overall actual funded ratio for statewide plans shifted from 71.0% to 70.9% in 2020. Our estimated ratio for 2021 is effectively unchanged, decreasing only slightly from 80.9% to 80.8%.
- Unfunded liabilities for 2020 totaled $1.49 trillion across all plans, an increase of $12.1 billion from our initial report as a few more published reports for the fiscal year were added to the dataset.
- Preliminary returns for more state pension plans rolled in. The average of those who have reported their actual full year 2021 return is 27.5%; based on returns through September 2021, our forecast for what the actual average investment return will be for this fiscal year has changed from 20.7% to 25.7%.

## Looking Forward: Trends to Watch in 2022

There will be two big stories to watch for in 2022:

- First, **inflation**. Social Security is making its largest cost-of-living adjustment in years, with a 5.9% increase due to rises in consumer prices. But there is wild variation in whether or not public pension retirees have COLA's built into their benefits. This is particularly important and worth monitoring because the retirement security of a guaranteed, but fixed, income can be threatened without regular adjustments for price inflation.
- Second, how will state retirement systems (and legislatures) adapt to the **changing investment return environment**. Will state retirement systems see a year of strong returns as an opportunity to adjust their investment assumptions down (using the investment inflows to effectively "buy down" their assumed rate of return); OR will states primarily look to reduce contribution rates because of the positive effects of strong returns on unfunded liability levels?

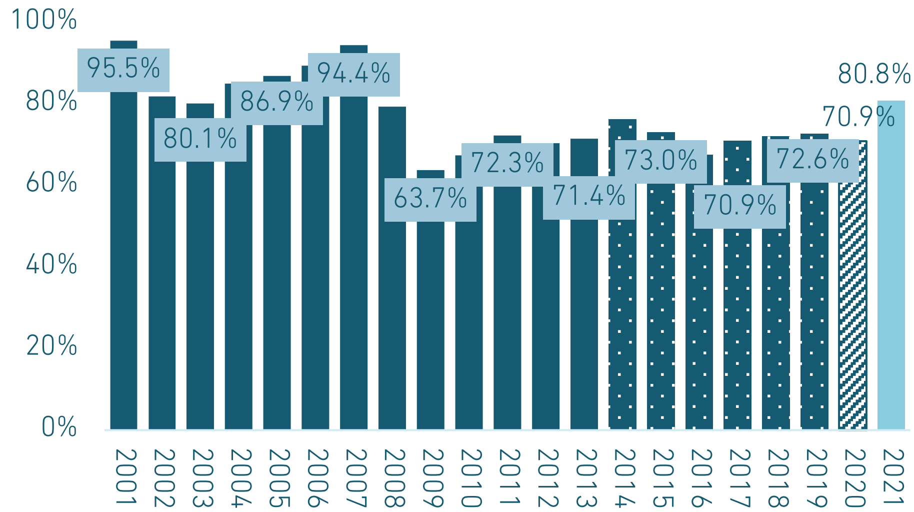
# Funded ratios for 2021 are still only hovering around a fragile 80%

## Even after record returns, state pension plans as a whole are many steps away from fiscal resilience

The funded status for state retirement systems has improved notably from where it hovered over the past decade. But it only looks good due to the anchoring bias of comparing 80.8% to recent experience. Despite a decade long bull market and historic surge this past year, the national funded ratio is barely back at levels from 2008. And the status quo is far off from 100% funded.

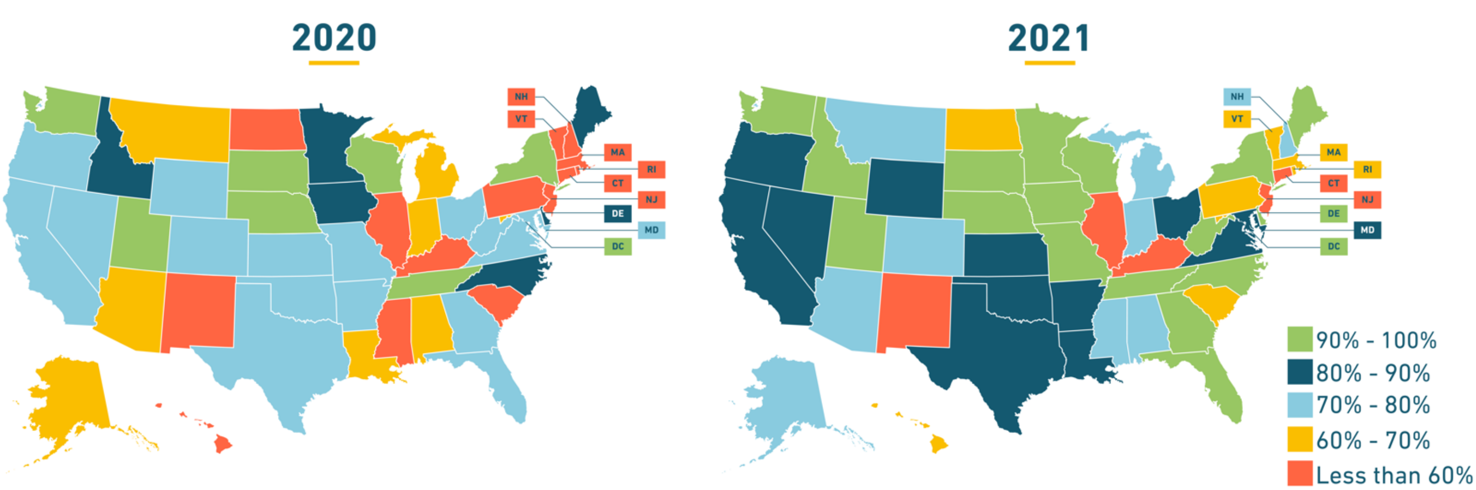
Being fully funded is important because it means pension funds have a large enough asset base to build investment returns from that — combined with contributions — are sufficient to pay all promised benefits. Plus, it means avoiding expensive unfunded liability amortization payments.

FIGURE 1: FUNDED RATIO AVERAGE FOR STATEWIDE PENSION PLANS | 2001 - 2020 + 2021 ESTIMATE



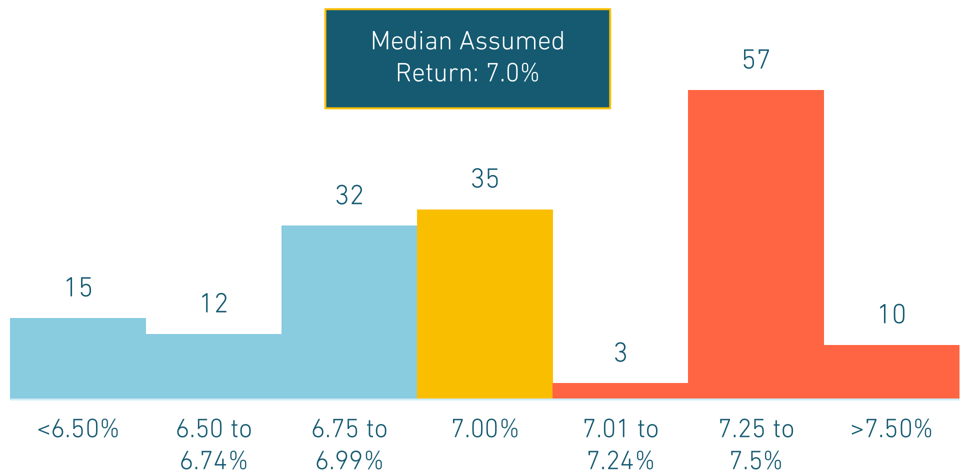

NOTE: *Funding estimates for 2021 are based on actual investment returns and actuarial data as of November 23, 2021. Investment return data are as of September 2021 for plans with fiscal years ending on December 31.*

FIGURE 2: AGGREGATE STATEWIDE FUNDED RATIOS | 2020 ACTUAL V. 2021 ESTIMATE



The average assumed rate of return for state pension plans has fallen from 8% in 2008 to 7% as of recent announcements. While most states have not released fiscal year 2021 valuation reports, a review of pension board meeting minutes and press releases shows that already dozens are planning to use lower investment assumptions when they release their next financial updates. The most significant of these announcements are the largest pension plan in the county, CalPERS, lowering its assumed return to 6.8% and the third largest fund, New York Common, moving down to 5.9%.

FIGURE 3: DISTRIBUTION OF ASSUMED RATES OF RETURN BY PLAN, AS OF AUGUST 2021




The chart to the left shows the distribution count of retirement plans using different assumed returns. The dollar number within each bar reflects the market value of assets combined for the plans at each of those return assumptions. The table below shows some of the highest and lowest returns that have been reported to-date (as of November) for fiscal year 2021.

TABLE 1: HIGHEST AND LOWEST REPORTED INVESTMENT RETURNS IN FISCAL 2021

| HIGHEST 2021 INVESTMENT RETURNS | | | LOWEST 2021 INVESTMENT RETURNS | | |
|---|---|---|---|---|---|
| Rank | State, Plan, FYE Date | Return (Assumed) | Rank | State, Plan, FYE Date | Return (Assumed) |
| 1 | Delaware SEPP (6/30) | 38.4% (7.00%) | 120 | D.C. POFRP & D.C. TRP (9/30) | 20.8% (6.50%) |
| 2 | Louisiana TRS (6/30) | 35.7% (7.40%) | 119 | CalPERS (6/30) | 21.3% (6.80%) |
| 3 | Louisiana LASERS (6/30) | 35.6% (7.40%) | 118 | South Dakota RS (6/30) | 22.0% (6.50%) |
| 4 | New York SLRS Plans (3/31) (2 plans - PFRS and ERS) | 33.6% (5.90%) | 117 | Indiana 1977 P&F (6/30) | 23.1% (6.25%) |
| 6 | Oklahoma TRS (6/30) | 33.0% (7.00%) | 116 | Indiana TRF Plans (6/30) (2 plans - Pre-1996 and 1996) | 23.1% (6.25%) |
| 7 | Mississippi PERS (6/30) | 32.7% (7.55%) | 115 | Indiana PERF (6/30) | 23.1% (6.25%) |
| 8 | Louisiana SPRS (6/30) | 32.1% (7.00%) | 114 | Illinois SURS (6/30) | 23.8% (6.50%) |
| 9 | Arkansas TRS (6/30) | 31.9% (7.25%) | 113 | New Mexico PERA (6/30) | 24.0% (7.25%) |
| 10 | Oklahoma Firefighters (6/30) | 31.8% (7.50%) | 112 | Connecticut SERS (6/30) | 24.3% (6.90%) |
| 11 | Arkansas PERS (6/30) | 31.5% (7.15%) | 111 | Connecticut STRS (6/30) | 24.4% (6.90%) |
| 12 | Missouri DOT (6/30) | 30.8% (7.00%) | 110 | Connecticut MERS (6/30) | 24.4% (7.00%) |
| 13 | Iowa MFPRS (6/30) | 30.7% (7.50%) | 109 | California JRF II (6/30) | 24.4% (6.50%) |
| 14 | California URS (6/30) | 30.5% (6.75%) | 108 | Vermont STRS (6/30) | 24.6% (7.00%) |

NOTE: *Figures reflect preliminary reported plan returns for fiscal 2021. Table shows the fiscal year end date that state pension plans measure their annualized returns on. Ranking is based only on those plans that have reported actual investment returns for a completed fiscal 2021.*

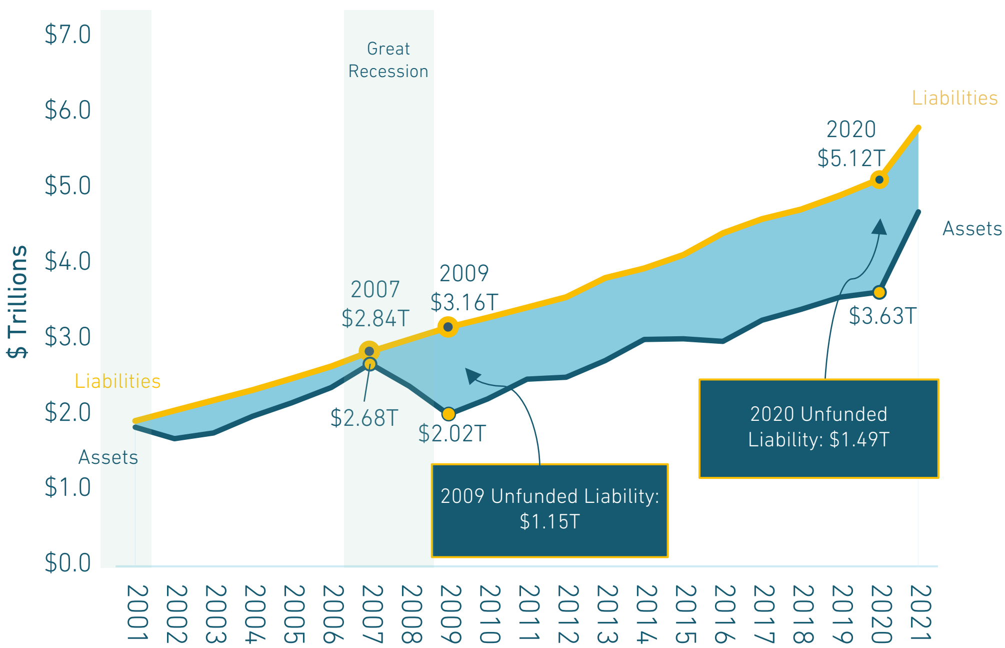
*To see all investment returns by state, please reference our open-source data here.*

# Unfunded liabilities for 2021 now estimated at $1.12 trillion

## States will still have to deal with high contribution rates

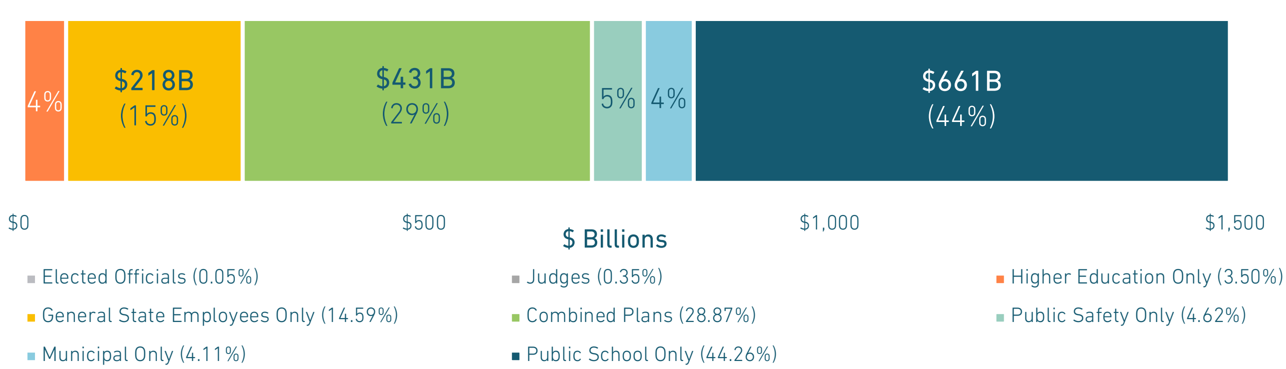
Our updated figures show that the unfunded liabilities reported by statewide pension plans for the 2020 fiscal year are $1.49 trillion (up slightly from our previously reported $1.48 trillion). This change is due to the inclusion of newly released actuarial reports for 35 plans that replace estimates, and also due to the addition of six small state plans to our database. We project unfunded liabilities will be $1.12 trillion once all 2021 figures are published (a slight increase over our previous estimate of $1.08 trillion).

FIGURE 4: TOTAL UNFUNDED LIABILITIES FOR STATEWIDE PENSION PLANS | 2001 - 2020 + 2021 ESTIMATE




A plurality of this funding shortfall is for retirement plans that cover teachers and public school employees. In the figure below, we break out the national unfunded liability figure for 2020 into categories based on the type of employees covered by a given retirement plan. Some plans cover a distinct set of job descriptions, but a few plans combine employee types — such as states that enroll teachers, state agency employees, and municipal workers in the same plan.

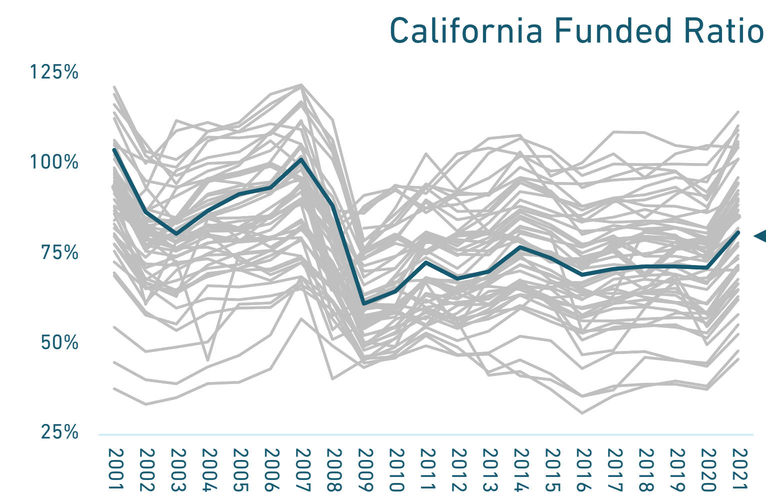
FIGURE 5: SHARE OF UNFUNDED LIABILITIES, BY PLAN TYPE | 2020



# LOOKING BACK: STATE FUNDED RATIO HISTORIES

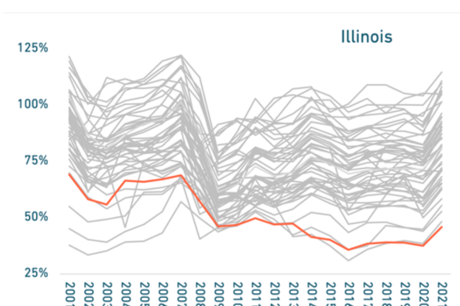
## SOME STATES HAVE FIGURED OUT PENSION MANAGEMENT, MOST STATES HAVE STRUGGLED

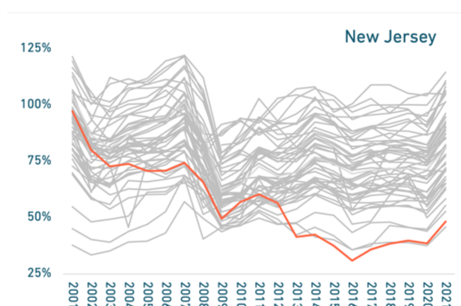
One way to check-in on a pension plan's health is to look at the funded ratio. This isn't the only way to measure the health of a pension fund, and we've outlined a more comprehensive way to assess resilience. But it is a common benchmark to use for comparing states against each other. Funded ratio trendlines for select states over the past two decades are below.

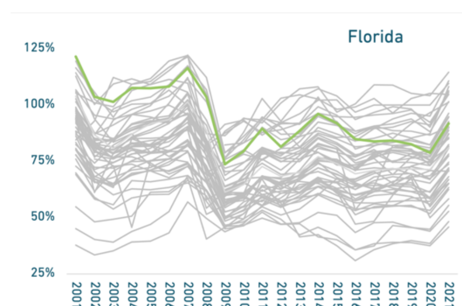



California and its large pension funds are a bellwether for the country as a whole. At the turn of the century its statewide retirement systems were 100% funded. But over the past decade they've struggled at around **71.8%** funded.

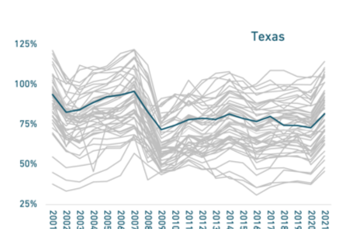
Other large states have struggled for decades, some were hit hard by the 2008 financial crisis, others only have returned to their pre-Great Recession status with 2021 returns.

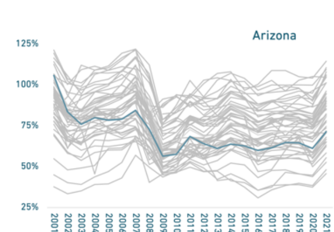


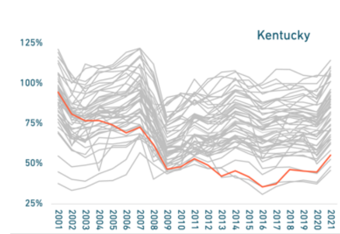



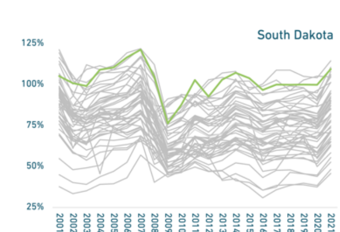




Some states have witnessed steady erosion of pension funding status, others have had persistently low funded ratios for more than two decades, and still others have maintained a consistently strong funded ratio.

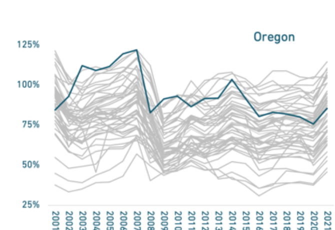


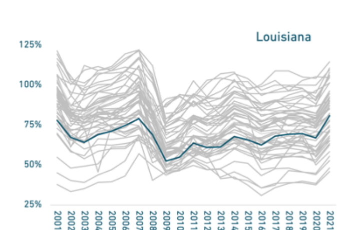



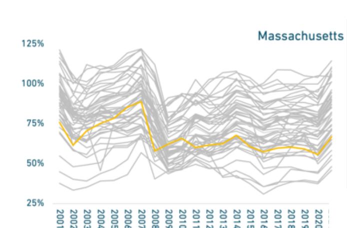




View and download all state graphics here: equable.org/stateofpensions

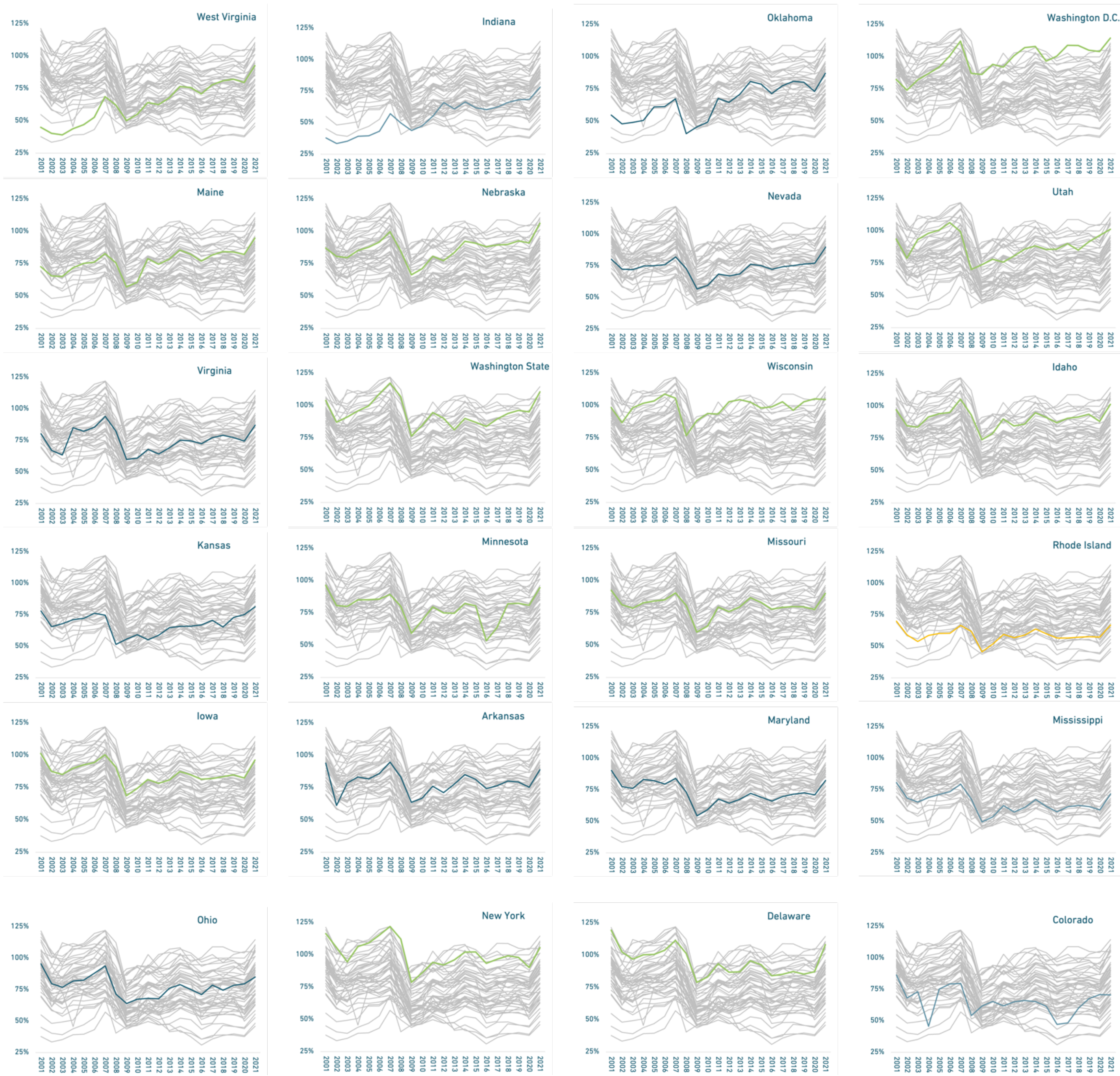


## Why "Funded Ratios" Matter:

When a state pension plan's funded ratio is below 100%, that means additional money is needed to ensure all promised benefits can be paid out in the future. Pension plans count on having a certain amount of money under management that they can use to generate investment returns, which are a critical resource of revenue for paying the retirement checks promised by states. The longer a pension fund remains below the 100% mark, the more expensive it can be for a state to get all the "pension debt" owed to the retirement system paid off, like interest accruing on a mortgage.




90% - 100% | 80% - 90% | 70% - 80% | 60% - 70% | Less than 60%

NOTE: *Color-coding reflects estimated 2021 funded ratio. States featured in this graphic are sorted by greatest to least absolute change in funded ratio.*

# Appendix

# METHODOLOGY

All data and analyses in this report for pension plans from 2001 through 2020 are based on data published by the retirement systems through their actuarial valuations, comprehensive annual financial reports, or other plan-specific publications.

Equable's estimates for assets and liabilities for fiscal year 2021 are based on reported actual plan returns for fiscal 2021 whenever available. We use either the reported or estimated investment returns to approximate figures for assets and liabilities to estimate unfunded liability and funded ratio levels for fiscal 2021.

For plans whose fiscal year 2021 ends on December 31, 2021, we use the most current reported preliminary investment returns (either through June 30 or September 30) and weight our estimated changes to plan liabilities based on the proportion of the year still remaining. Preliminary investment return data for fiscal year 2020 was not publicly available for 11 of our 164 plans (nine of which are plans within the Utah Retirement System). For those 11 plans we estimate their 2021 investment returns following the methodology used in our August publication of this report, using benchmarks for each plan's reported asset allocations to produce an approximate estimated return.

# PLAN ADDITIONS

The analytical focus of this report is on statewide retirement systems with defined benefit plans that hold at least $1 billon in accrued liabilities. Equable's dataset shows data at the "plan level," meaning we break apart the assets and liabilities of certain retirement systems into respective plans that have independently measured and reported assets liabilities, contribution rates, and other data (for example, Colorado PERA is one retirement system, but we count four different plans from with that system because each has independently measured liabilities worth over $1 billion). Since we released State of Pensions 2021 in August, we have expanded our dataset beyond the population of 158 plans across the 50 states and Washington D.C. to include an additional six plans.

These added plans increase the focus of our report to 164 defined benefit plans. They include a few plans that have only recently reached the $1 billion in accrued liabilities threshold, newly created plans, or a further breakout of plans that have been previously included in our data as part of a larger pension system but are now broken out with more specific detail (e.g. Michigan Public School Employees' Retirement System's Pension Plus Plan and Pension Plus Plan 2).

For a list of the plans previously included in our analyses, please see slides 81 through 83 of our State of Pensions Report. The plans that have been added to our analyses include the following:

- Arkansas Local Police and Fire
- Colorado PERA – Judges
- Louisiana Firefighters
- Oklahoma Firefighters
- Utah Judges
- Utah Governors and Legislators

# ADDITIONAL DATA

## ASSUMED V. ACTUAL RETURN BY PLAN, 2021

| Plan | Fiscal Year End Date | 2021 Investment Returns | Returns Valid as of Date | 2021 Assumed Return | 2021 Return on Assets v. Assumed |
|---|---|---|---|---|---|
| Alabama ERS | 9/30/21 | 22.49% (Partial Year) | 7/31/21 | 7.70% | 14.79% |
| Alabama TRS | 9/30/21 | 22.94% (Partial Year) | 7/31/21 | 7.70% | 15.24% |
| Alaska PERS | 6/30/21 | 27.62% | 6/30/21 | 7.38% | 20.24% |
| Alaska TRS | 6/30/21 | 27.65% | 6/30/21 | 7.38% | 20.27% |
| Arizona CORP | 6/30/21 | 27.10% | 6/30/21 | 7.30% | 19.80% |
| Arizona EORP | 6/30/21 | 27.10% | 6/30/21 | 7.30% | 19.80% |
| Arizona PSPRS | 6/30/21 | 27.10% | 6/30/21 | 7.30% | 19.80% |
| Arizona PSPRS Tier 3 | 6/30/21 | 27.10% | 6/30/21 | 7.00% | 20.10% |
| Arizona SRS | 6/30/21 | 25.10% | 6/30/21 | 7.00% | 18.10% |
| Arkansas PERS | 6/30/21 | 31.49% | 6/30/21 | 7.50% | 23.99% |
| Arkansas TRS | 6/30/21 | 31.90% | 6/30/21 | 7.50% | 24.40% |
| Arkansas DOT | 6/30/21 | 29.24% | 6/30/21 | 7.15% | 22.09% |
| Arkansas Local P&F | 12/31/21 | 4.21% (Partial Year) | 6/10/21 | 7.25% | -3.04% |
| CalPERS | 6/30/21 | 21.30% | 6/30/21 | 3.00% | 18.30% |
| CalSTRS | 6/30/21 | 27.20% | 6/30/21 | 6.50% | 20.70% |
| California URS | 6/30/21 | 30.50% | 6/30/21 | 6.75% | 23.75% |
| California JRF II | 6/30/21 | 24.40% | 6/30/21 | 6.80% | 17.60% |
| California JRF | 6/30/21 | 0.10% | 6/30/21 | 7.00% | -6.90% |
| Colorado Schools | 12/31/21 | 8.90% (Partial Year) | 9/30/21 | 7.25% | 1.65% |
| Colorado DPS | 12/31/21 | 8.90% (Partial Year) | 9/30/21 | 7.25% | 1.65% |
| Colorado State | 12/31/21 | 8.90% (Partial Year) | 9/30/21 | 7.25% | 1.65% |
| Colorado Local | 12/31/21 | 8.90% (Partial Year) | 9/30/21 | 7.00% | 1.90% |
| Colorado Judges | 12/31/21 | 8.90% (Partial Year) | 9/30/21 | 7.25% | 1.65% |
| Colorado P&F | 12/31/21 | 9.64% (Partial Year) | 6/30/21 | 7.25% | 2.39% |
| Connecticut MERS | 6/30/21 | 24.39% | 6/30/21 | 7.00% | 17.39% |
| Connecticut SERS | 6/30/21 | 24.28% | 6/30/21 | 6.90% | 17.38% |
| Connecticut STRS | 6/30/21 | 24.36% | 6/30/21 | 6.90% | 17.46% |
| Delaware SEPP | 6/30/21 | 38.40% | 6/30/21 | 6.50% | 31.90% |
| D.C. POFRP | 9/30/21 | 20.80% | 9/30/21 | 6.50% | 14.30% |
| D.C. TRP | 9/30/21 | 20.80% | 9/30/21 | 7.00% | 13.80% |
| Florida RS | 6/30/21 | 28.40% | 6/30/21 | 6.80% | 21.60% |
| Georgia ERS | 6/30/21 | 29.36% | 6/30/21 | 7.20% | 22.16% |
| Georgia TRS | 6/30/21 | 29.19% | 6/30/21 | 7.25% | 21.94% |

| | | | | | |
|---|---|---|---|---|---|
| Hawaii ERS | 6/30/21 | 26.15% | 6/30/21 | 7.00% | 19.15% |
| Idaho PERS | 6/30/21 | 27.60% | 6/30/21 | 6.30% | 21.30% |
| Illinois MRF | 12/31/21 | 11.76% (Partial Year) | 9/30/21 | 6.50% | 5.26% |
| Illinois SERS | 6/30/21 | 25.80% | 6/30/21 | 7.25% | 18.55% |
| Illinois SURS | 6/30/21 | 23.80% | 6/30/21 | 6.75% | 17.05% |
| Illinois TRS | 6/30/21 | 25.50% | 6/30/21 | 6.50% | 19.00% |
| Illinois JRS | 6/30/21 | 25.80% | 6/30/21 | 7.00% | 18.80% |
| Indiana 1977 P&F | 6/30/21 | 23.10% | 6/30/21 | 6.25% | 16.85% |
| Indiana PERF | 6/30/21 | 23.10% | 6/30/21 | 6.25% | 16.85% |
| Indiana TRF 1996 | 6/30/21 | 23.10% | 6/30/21 | 6.25% | 16.85% |
| Indiana TRF Pre-96 | 6/30/21 | 23.10% | 6/30/21 | 6.25% | 16.85% |
| Iowa MFPRS | 6/30/21 | 30.70% | 6/30/21 | 7.50% | 23.20% |
| Iowa PERS | 6/30/21 | 29.60% | 6/30/21 | 7.00% | 22.60% |
| Kansas PERS-S | 6/30/21 | 26.30% | 6/30/21 | 7.75% | 18.55% |
| Kansas PERS-T | 6/30/21 | 26.30% | 6/30/21 | 7.75% | 18.55% |
| Kansas PERS-L | 6/30/21 | 26.30% | 6/30/21 | 7.75% | 18.55% |
| Kansas PF | 6/30/21 | 26.30% | 6/30/21 | 7.75% | 18.55% |
| Kansas JRS | 6/30/21 | 26.30% | 6/30/21 | 7.75% | 18.55% |
| Kentucky CERS | 6/30/21 | 25.00% | 6/30/21 | 6.25% | 18.75% |
| Kentucky ERS | 6/30/21 | 25.00% | 6/30/21 | 5.25% | 19.75% |
| Kentucky SPRS | 6/30/21 | 25.00% | 6/30/21 | 6.25% | 18.75% |
| Kentucky TRS | 6/30/21 | 29.94% | 6/30/21 | 7.10% | 22.84% |
| Louisiana SPERS A | 12/31/21 | 15.40% (Benchmark) | 9/30/21 | 7.00% | 8.40% |
| Louisiana SPERS B | 12/31/21 | 15.40% (Benchmark) | 9/30/21 | 7.40% | 8.00% |
| Louisiana SRS | 6/30/21 | 28.38% | 6/30/21 | 6.95% | 21.43% |
| Louisiana LASERS | 6/30/21 | 35.60% | 6/30/21 | 6.40% | 29.20% |
| Louisiana SPRS | 6/30/21 | 32.10% | 6/30/21 | 6.40% | 25.70% |
| Louisiana TRS | 6/30/21 | 35.70% | 6/30/21 | 7.00% | 28.70% |
| Louisiana MPERS | 6/30/21 | 26.10% | 6/30/21 | 7.00% | 19.10% |
| Louisiana Firefighters | 6/30/21 | 24.90% | 6/30/21 | 7.40% | 17.50% |
| Maine CPPLD | 6/30/21 | 26.50% | 6/30/21 | 6.50% | 20.00% |
| Maine SETP | 6/30/21 | 26.50% | 6/30/21 | 6.50% | 20.00% |
| Maryland ECS | 6/30/21 | 26.70% | 6/30/21 | 6.80% | 19.90% |
| Maryland TCS | 6/30/21 | 26.70% | 6/30/21 | 6.80% | 19.90% |
| Massachusetts SERS | 6/30/21 | 29.50% | 6/30/21 | 7.00% | 22.50% |
| Massachusetts TRS | 6/30/21 | 29.50% | 6/30/21 | 7.00% | 22.50% |
| Michigan PSERS | 9/30/21 | 33.40% (Partial Year) | 6/30/21 | 7.35% | 26.05% |
| Michigan PSERS PPP | 9/30/21 | 33.40% (Partial Year) | 6/30/21 | 6.80% | 26.60% |
| Michigan PSERS PPP2 | 9/30/21 | 33.40% (Partial Year) | 6/30/21 | 6.80% | 26.60% |
| Michigan SERS | 9/30/21 | 33.40% (Partial Year) | 6/30/21 | 6.00% | 27.40% |
| Michigan SPRS | 9/30/21 | 33.40% (Partial Year) | 6/30/21 | 6.70% | 26.70% |
| Michigan MERS | 12/31/21 | 10.55% (Partial Year) | 9/30/21 | 6.80% | 3.75% |

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|---|---|---|---|---|---|
| Minnesota SERF | 6/30/21 | 30.30% | 6/30/21 | 7.50% | 22.80% |
| Minnesota TRA | 6/30/21 | 30.30% | 6/30/21 | 7.50% | 22.80% |
| Minnesota GERF | 6/30/21 | 30.30% | 6/30/21 | 7.50% | 22.80% |
| Minnesota PEPFP | 6/30/21 | 30.30% | 6/30/21 | 7.50% | 22.80% |
| Mississippi PERS | 6/30/21 | 32.71% | 6/30/21 | 7.55% | 25.16% |
| Missouri DOT | 6/30/21 | 30.80% | 6/30/21 | 7.00% | 23.80% |
| Missouri LGERS | 6/30/21 | 29.50% | 6/30/21 | 7.00% | 22.50% |
| Missouri PEERS | 6/30/21 | 28.70% | 6/30/21 | 7.30% | 21.40% |
| Missouri PSRS | 6/30/21 | 28.70% | 6/30/21 | 7.30% | 21.40% |
| Missouri SERS | 6/30/21 | 26.40% | 6/30/21 | 6.95% | 19.45% |
| Montana PERS | 6/30/21 | 27.72% | 6/30/21 | 7.65% | 20.07% |
| Montana TRS | 6/30/21 | 27.71% | 6/30/21 | 7.50% | 20.21% |
| Nebraska SEP | 6/30/21 | 29.90% | 6/30/21 | 7.30% | 22.60% |
| Nebraska PERS-CB | 6/30/21 | 29.50% | 6/30/21 | 7.30% | 22.20% |
| Nevada PERS-R | 6/30/21 | 27.30% | 6/30/21 | 7.50% | 19.80% |
| Nevada PERS-PF | 6/30/21 | 27.30% | 6/30/21 | 7.50% | 19.80% |
| New Hampshire RS | 6/30/21 | 29.40% | 6/30/21 | 6.75% | 22.65% |
| New Jersey PERS-S | 6/30/21 | 29.63% | 6/30/21 | 7.30% | 22.33% |
| New Jersey PERS-L | 6/30/21 | 29.63% | 6/30/21 | 7.30% | 22.33% |
| New Jersey PFRS-S | 6/30/21 | 29.63% | 6/30/21 | 7.30% | 22.33% |
| New Jersey PFRS-L | 6/30/21 | 29.63% | 6/30/21 | 7.30% | 22.33% |
| New Jersey TPAF | 7/1/21 | 29.63% (Partial Year) | 6/30/21 | 7.30% | 22.33% |
| New Jersey SPRS | 7/1/21 | 29.63% (Partial Year) | 6/30/21 | 7.30% | 22.33% |
| New Mexico ERB | 6/30/21 | 28.76% | 6/30/21 | 7.00% | 21.76% |
| New Mexico PERA | 6/30/21 | 24.02% | 6/30/21 | 7.25% | 16.77% |
| New York SLRS ERS | 3/31/21 | 33.55% | 3/31/21 | 5.90% | 27.65% |
| New York SLRS PFRS | 3/31/21 | 33.55% | 3/31/21 | 5.90% | 27.65% |
| New York STRS | 6/30/21 | 29.00% | 6/30/21 | 6.95% | 22.05% |
| North Carolina LGERS | 12/31/21 | 19.13% (Partial Year) | 6/30/21 | 6.50% | 12.63% |
| North Carolina TSERS | 12/31/21 | 19.13% (Partial Year) | 6/30/21 | 6.50% | 12.63% |
| North Dakota PERS | 6/30/21 | 27.15% | 6/30/21 | 7.00% | 20.15% |
| North Dakota TFR | 6/30/21 | 26.54% | 6/30/21 | 7.25% | 19.29% |
| Ohio PFPF | 12/31/21 | 14.87% (Partial Year) | 8/31/21 | 6.90% | 7.97% |
| Ohio PERS | 12/31/21 | 9.79% (Partial Year) | 9/30/21 | 8.00% | 1.79% |
| Ohio SERS | 6/30/21 | 26.80% | 6/30/21 | 7.00% | 19.80% |
| Ohio STRS | 6/30/21 | 29.16% | 6/30/21 | 7.00% | 22.16% |
| Oklahoma LERS | 6/30/21 | 28.01% | 6/30/21 | 7.50% | 20.51% |
| Oklahoma PPRS | 6/30/21 | 28.44% | 6/30/21 | 7.50% | 20.94% |
| Oklahoma PERS | 6/30/21 | 28.00% | 6/30/21 | 6.50% | 21.50% |
| Oklahoma TRS | 6/30/21 | 33.00% | 6/30/21 | 7.50% | 25.50% |
| Oklahoma Firefighters | 6/30/21 | 31.79% | 6/30/21 | 7.00% | 24.79% |
| Oregon PERS | 6/30/21 | 25.54% | 6/30/21 | 6.90% | 18.64% |

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|---|---|---|---|---|---|
| Pennsylvania PSERS | 6/30/21 | 25.00% | 6/30/21 | 5.25% | 19.75% |
| Pennsylvania SERS | 12/31/21 | 9.75% (Partial Year) | 6/30/21 | 7.00% | 2.75% |
| Pennsylvania MRS | 12/31/21 | 9.70% (Partial Year) | 9/30/21 | 7.00% | 2.70% |
| Rhode Island ERS-S | 6/30/21 | 25.58% | 6/30/21 | 7.00% | 18.58% |
| Rhode Island ERS-T | 6/30/21 | 25.58% | 6/30/21 | 7.00% | 18.58% |
| Rhode Island MERS | 6/30/21 | 25.58% | 6/30/21 | 7.00% | 18.58% |
| South Carolina PORS | 6/30/21 | 28.60% | 6/30/21 | 7.00% | 21.60% |
| South Carolina RS | 6/30/21 | 28.60% | 6/30/21 | 7.00% | 21.60% |
| South Dakota RS | 6/30/21 | 22.03% | 6/30/21 | 6.50% | 15.53% |
| Tennessee PERP | 6/30/21 | 25.60% | 6/30/21 | 7.25% | 18.35% |
| Tennessee TLPP | 6/30/21 | 25.60% | 6/30/21 | 7.25% | 18.35% |
| Tennessee TRP | 6/30/21 | 25.60% | 6/30/21 | 7.25% | 18.35% |
| Texas CDRS | 12/31/21 | 18.20% (Partial Year) | 9/30/21 | 7.50% | 10.70% |
| Texas ERS | 8/31/21 | 25.51% | 8/31/21 | 7.00% | 18.51% |
| Texas LECOS | 8/31/21 | 25.51% | 8/31/21 | 7.00% | 18.51% |
| Texas MRS | 12/31/21 | 8.76% (Partial Year) | 9/30/21 | 6.75% | 2.01% |
| Texas TRS | 8/31/21 | 24.80% | 8/31/21 | 7.25% | 17.55% |
| Utah CRS | 12/31/21 | 17.62% (Benchmark) | 9/30/21 | 6.95% | 10.67% |
| Utah CRS-T2 | 12/31/21 | 17.62% (Benchmark) | 9/30/21 | 6.95% | 10.67% |
| Utah FRS | 12/31/21 | 17.62% (Benchmark) | 9/30/21 | 6.95% | 10.67% |
| Utah Governors & Legislators | 12/31/21 | 17.62% (Benchmark) | 9/30/21 | 6.95% | 10.67% |
| Utah NRS | 12/31/21 | 17.62% (Benchmark) | 9/30/21 | 6.95% | 10.67% |
| Utah PSC | 12/31/21 | 17.62% (Benchmark) | 9/30/21 | 6.95% | 10.67% |
| Utah PSC-T2 | 12/31/21 | 17.62% (Benchmark) | 9/30/21 | 6.95% | 10.67% |
| Utah PSN | 12/31/21 | 17.62% (Benchmark) | 9/30/21 | 6.95% | 10.67% |
| Utah Judges | 12/31/21 | 17.62% (Benchmark) | 9/30/21 | 6.95% | 10.67% |
| Vermont Muni | 6/30/21 | 24.62% | 6/30/21 | 7.00% | 17.62% |
| Vermont SERS | 6/30/21 | 24.62% | 6/30/21 | 7.00% | 17.62% |
| Vermont STRS | 6/30/21 | 24.62% | 6/30/21 | 7.00% | 17.62% |
| Virgina JRS | 6/30/21 | 27.50% | 6/30/21 | 6.75% | 20.75% |
| Virgina LORS | 6/30/21 | 27.50% | 6/30/21 | 6.75% | 20.75% |
| Virginia RS-S | 6/30/21 | 27.50% | 6/30/21 | 6.75% | 20.75% |
| Virgina SPORS | 6/30/21 | 27.50% | 6/30/21 | 6.75% | 20.75% |
| Virginia RS-T | 6/30/21 | 27.50% | 6/30/21 | 6.75% | 20.75% |
| Virginia RS-L | 6/30/21 | 27.50% | 6/30/21 | 6.75% | 20.75% |
| Washington LEOFF Plan 1 | 6/30/21 | 28.70% | 6/30/21 | 7.50% | 21.20% |
| Washington LEOFF Plan 2 | 6/30/21 | 28.70% | 6/30/21 | 7.40% | 21.30% |
| Washington PERS 1 | 6/30/21 | 28.70% | 6/30/21 | 7.50% | 21.20% |
| Washington PERS 2/3 | 6/30/21 | 28.70% | 6/30/21 | 7.50% | 21.20% |
| Washington PSERS 2 | 6/30/21 | 28.70% | 6/30/21 | 7.50% | 21.20% |
| Washington SERS 2/3 | 6/30/21 | 28.70% | 6/30/21 | 7.50% | 21.20% |
| Washington SPRS 1/2 | 6/30/21 | 28.70% | 6/30/21 | 7.50% | 21.20% |

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|---|---|---|---|---|---|
| Washington TRS 1 | 6/30/21 | 28.70% | 6/30/21 | 7.50% | 21.20% |
| Washington TRS 2/3 | 6/30/21 | 28.70% | 6/30/21 | 7.50% | 21.20% |
| West Virginia PERS | 6/30/21 | 30.20% | 6/30/21 | 7.25% | 22.95% |
| West Virginia TRS | 6/30/21 | 30.20% | 6/30/21 | 7.25% | 22.95% |
| Wisconsin RS | 12/31/21 | 11.22% (Partial Year) | 9/30/21 | 7.00% | 4.22% |
| Wyoming RS | 12/31/21 | 27.30% (Partial Year) | 6/30/21 | 7.00% | 20.30% |

NOTE: *Plans with returns marked "benchmark" show our estimate for their performance based the benchmark returns for the assets in their portfolio (as of the most recent reports).*

## PENSION PLAN ASSETS BY JOB TYPE, 2020

| Professions | Assets | Liabilities | Unfunded Liabilities | Funded Ratio |
|---|---|---|---|---|
| Elected Officials | $286,502,016 | $961,464,000 | $674,961,984 | 29.8% |
| Judges | $4,448,989,880 | $9,703,952,640 | $5,254,962,760 | 45.8% |
| Higher Education Only | $90,533,259,264 | $142,861,905,920 | $52,328,646,656 | 63.4% |
| General State Employees Only | $259,252,779,008 | $477,126,753,280 | $217,873,974,272 | 54.3% |
| Combined Plans (More than 1 Group) | $1,537,695,164,416 | $1,968,809,859,584 | $431,114,695,168 | 78.1% |
| Public Safety Only | $183,792,298,376 | $247,423,532,684 | $63,631,234,308 | 74.3% |
| Municipal Only | $214,006,956,056 | $275,376,269,728 | $61,369,313,672 | 77.7% |
| Public School Only | $1,341,677,129,564 | $2,002,501,015,640 | $660,823,886,076 | 67.0% |
| Totals | $3,631,693,078,580 | $5,124,764,753,476 | $1,493,071,674,896 | 70.9% |