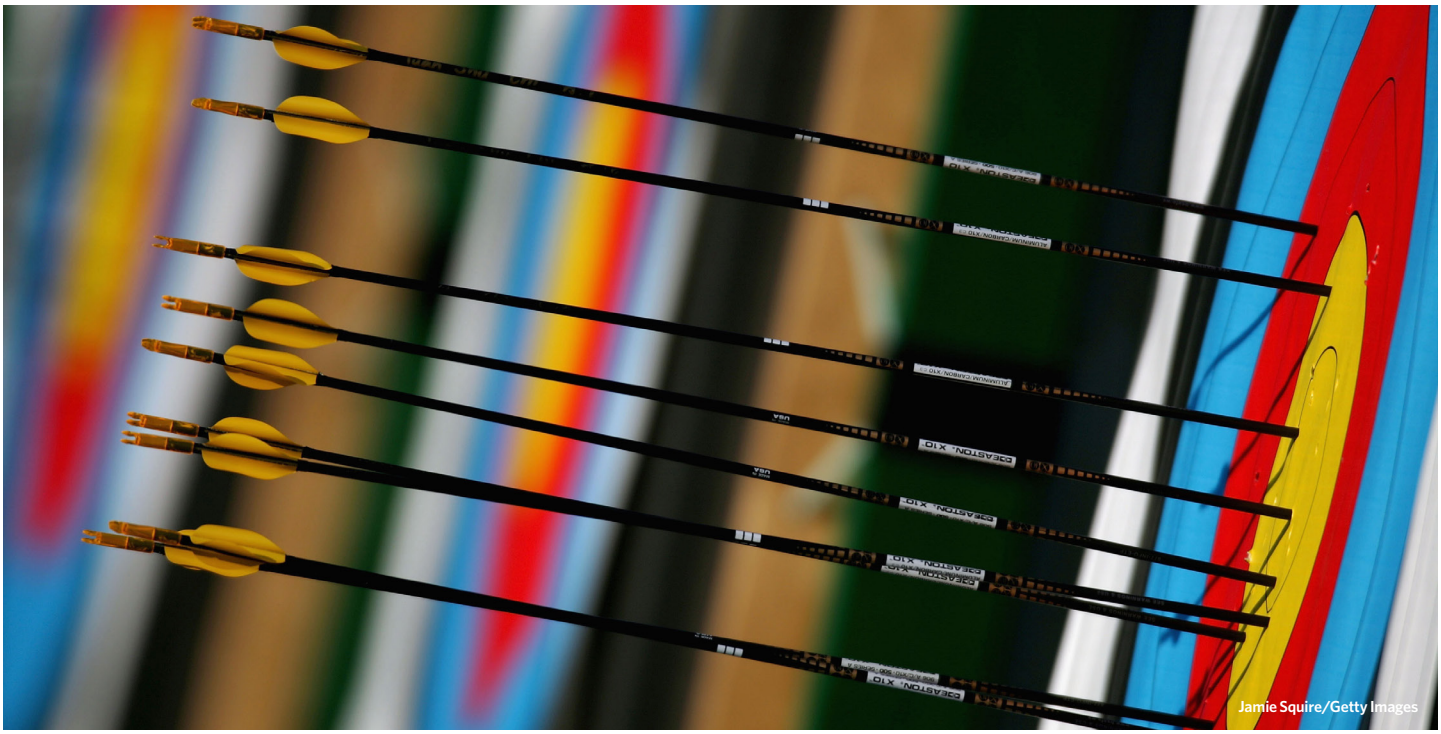


Pew's Fiscal Sustainability Matrix Helps States Assess Pension Health

New evaluation tool highlights best practices, proven strategies for managing through economic uncertainty

Overview

The combined effect of a decade of increasing pension contributions and the strong market rally of 2021 has had a stabilizing effect on state pension plans. Taken together, these factors contributed over half a trillion dollars to current plan assets. The result: a 50-state funded ratio—the relationship between a plan's assets and its liabilities—of over 80% and total pension debt nationally of less than $800 billion at the end of fiscal year 2021, according to estimates by The Pew Charitable Trusts. This represents the highest funded ratio since before the Great Recession and the largest progress in closing the state pension plan funding gap—the difference between plan liabilities and assets—this century.

What's more, the states with the largest increases in contributions since 2009 have been those with the greatest need for fiscal stability: Illinois, Kentucky, New Jersey, and Pennsylvania. Although these states' pension plans remain poorly funded, the data shows a significant improvement in fiscal discipline for each since the onset of the Great Recession, with employer contributions into the four states' retirement systems increasing by an average 16% annually over that time frame.

However, not all state pension funds are approaching long-term fiscal sustainability, which is defined as government revenues matching expenditures without a corresponding increase in public debt. Furthermore, although pension funds are currently benefiting from surging investment returns—which plans count on to cover 60% of benefits they pay out—Pew estimates that long-term returns will decrease to about 6% annually, which is below what most state pension plans are currently budgeting for. At the same time, the worst-funded states reported an average contribution rate of about 30% of payroll in 2019, a welcome increase after years of underfunding—but also so sizeable that some states may not have the budget capacity given other spending needs to increase contributions further if expected investment returns are unmet.

To help policymakers navigate the uncertainty inherent in pension management, The Pew Charitable Trusts has developed a 50-state matrix of fiscal sustainability metrics to highlight the practices of successful state pension systems and to help state policymakers assess the resiliency of their plans. This tool presents critical data in a single table to facilitate comparative analyses and state plan assessments:

- Historical actuarial metrics highlight the impact of past policies on a plan's current financial position. These metrics are the foundation of any fiscal assessment; however, they provide little information with which to assess future investment or contribution risks.
- Current plan financial metrics provide information to assess whether a plan is following funding policies that target debt reduction, or if it is at risk of fiscal distress. Based on historical cash flows and funding patterns, these metrics aid in assessing future risks of plan underfunding or insolvency.
- State budgetary risk metrics are designed to aid policymakers as they plan for uncertainty or volatile costs in the future. Because state and local budgets often bear much or all of the risks taken on by public pension plans, these metrics are essential for long-term planning and can prompt reforms where needed.

A comparative analysis of states' public pension fiscal health using the matrix for 2019—the most recent year for which comprehensive 50-state data is available—suggests four actions that state retirement systems can take now to improve their financial health:

1. Steady progress paying down unfunded liabilities—the portion of pension obligations that exceeds the value of a fund's assets—remains the single most important action that the majority of plans can take to improve fiscal health and lower costs over time.
2. Monitoring of cash flows can provide an early warning of potential fiscal distress and has proved useful in prompting needed reforms in the most poorly funded states.
3. Adoption of risk-sharing measures—the distribution of unexpected gains and losses among taxpayers, employees, and retirees—increases cost predictability and lowers the risk that states will have to choose between making inadequate contributions or crowding out other important public investments. Plans with such policies are generally well funded, report low costs, and enjoy a high level of predictability of costs.
4. Establishment of reasonable assumed rates of return that reflect the current market outlook is essential for all plans, regardless of their financial position. Lowering a plan's assumed rates of investment return can help reduce the risk of the plan missing targets and incurring unexpected costs during market downturns.

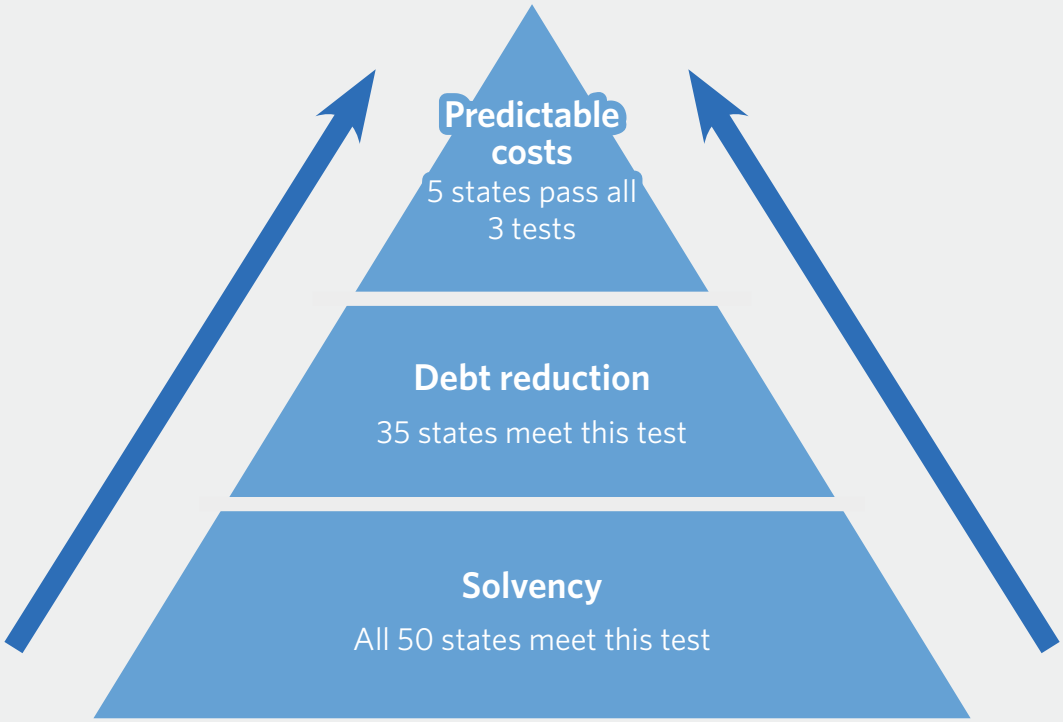
Defining and Measuring Public Pension Fiscal Sustainability

Fiscal sustainability generally means that government revenues are expected to match expenditures over time, including the cost associated with accumulated debt. When applied to public pension plans, the assessment of sustainability must account for unfunded pension liabilities as a form of government debt, and for pension funds' significant exposure to financial market volatility. State pension plans hold nearly $4 trillion in assets, about three-quarters of which is invested in stocks, private equity, hedge funds, and real estate—risky assets that generally move up and down with financial markets.

In addition, because most public plan fiduciaries set policies that seek to achieve full funded status, the definition of fiscal sustainability should account for the state's explicit goal of reducing pension debt over time. Fiscal sustainability should also take into consideration the effect of investment risk and market volatility on plan balance sheets and government budgets, both over the long term and across the business cycle.

With these concepts in mind, Pew assesses pension fund sustainability by evaluating whether current contribution levels are sufficient to maintain or improve plan solvency if investment returns are lower than expected; reduce pension debt; and ensure that costs are predictable. The definition informs a three-step assessment for pension fund sustainability using Pew's established metrics.[1]

Pension Plan Fiscal Sustainability
How many states are meeting each test



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Solvency

Testing for solvency risk involves examining whether cash inflows from contributions plus investment returns will be sufficient to fund benefit payments without depleting plan assets and requiring additional expenditures from annual budgets. Solvency assessments are of particular importance for plans that are already severely underfunded. An operating cash-flow-to-assets ratio of less than minus 5% provides a useful indicator of the risk of fiscal distress in scenarios where investment returns fall below plan expectations. All 50 states reported operating cash flows that exceeded minus 5% of assets in 2019, up from 44 in 2014.

Debt reduction

In addition to assessing solvency risk, sustainable funding practices will maintain or reduce the size of pension debt over time. The net amortization benchmark may be used to assess whether total contributions to a pension fund are sufficient to reduce pension debt if plan assumptions are met, while scenario analysis can be applied to determine whether the ratio of debt to government revenue will increase if investment returns fall short. As of 2019, 35 states pass both the solvency and debt reduction tests.

Predictable costs

Finally, fiscally sustainable pension plans maintain pension benefits that are sufficient to recruit and retain a public workforce without compromising other state budget priorities. This is particularly important during periods of economic uncertainty, during which contribution volatility can strain government budgets.

Although measures of cost predictability are somewhat subjective and less established than other common metrics among pension practitioners, historical analysis of 50-state financial data reveals that five states have maintained stable costs within a range of plus or minus 3% of payroll (or about 1% of revenue) over the long term while preserving funded status or reducing debt.[2] They do so primarily by following funding and risk-sharing policies designed to reduce the cost sensitivity of existing and future benefits to economic shocks and the business cycle. Using this measure as an initial assessment of cost predictability, Idaho, Nebraska, South Dakota, Tennessee, and Wisconsin meet all three tests of solvency, debt sustainability, and cost predictability.

Figure 1

Fiscal Sustainability Matrix: 2019

	Actuarial Metrics			Plan Financial Metrics				Budget Risk Indicators		
States	Funded ratio, 2019	Change in funded ratio, 2008-2019	Employer cost/ payroll, 2019	Operating cash flow ratio, 2019	Change in OCF ratio since 2014	Operating cash flow ratio, 2014	Net amortization, 2019	Historic contribution volatility, 2008-2019	Assumed return	Normal cost sensitivity
Wisconsin	103%	3%	7%	-3.8%	↓	-2.9%	Stable	3%	7.00%	Low
South Dakota	100%	3%	6%	-2.8%	↓	-2.6%	Positive	1%	6.50%	Low
Tennessee	98%	3%	11%	-2.9%	↓	-2.2%	Positive	2%	7.25%	Low
New York	96%	-11%	15%	-3.7%	↓	-2.4%	Positive	13%	6.83%	High
Washington	96%	-4%	10%	-0.6%	↑	-2.0%	Positive	5%	7.48%	Mid
Idaho	95%	1%	11%	-2.1%	↓	-1.8%	Positive	1%	7.00%	Mid
Nebraska	93%	2%	11%	-1.8%	↓	-1.0%	Positive	2%	7.50%	Mid
Utah	92%	5%	23%	-1.6%	↓	-1.2%	Positive	9%	6.95%	Low
North Carolina	88%	-11%	11%	-2.6%	↑	-3.0%	Positive	8%	7.00%	Mid
Iowa	85%	-3%	10%	-2.9%	↑	-2.9%	Stable	3%	7.01%	Mid
Maine	84%	5%	16%	-2.9%	↑	-2.9%	Positive	4%	6.88%	Mid
Delaware	83%	-15%	14%	-3.2%	↓	-2.9%	Positive	7%	7.00%	High

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	Actuarial Metrics			Plan Financial Metrics				Budget Risk Indicators		
States	Funded ratio, 2019	Change in funded ratio, 2008-2019	Employer cost/ payroll, 2019	Operating cash flow ratio, 2019	Change in OCF ratio since 2014	Operating cash flow ratio, 2014	Net amortization, 2019	Historic contribution volatility, 2008-2019	Assumed return	Normal cost sensitivity
West Virginia	83%	20%	23%	-3.5%	↓	-1.8%	Positive	7%	7.50%	High
Minnesota	82%	1%	9%	-3.7%	↑	-4.1%	Stable	2%	7.49%	High
Oklahoma	81%	20%	20%	-2.3%	↓	-1.8%	Positive	3%	7.38%	Mid
Arkansas	80%	-7%	15%	-3.5%	↓	-2.8%	Positive	1%	7.40%	High
Ohio	80%	3%	14%	-4.7%	↑	-4.9%	Positive	4%	7.32%	High
Oregon	80%	0%	16%	-4.5%	↑	-5.0%	Negative	11%	7.20%	Mid
Georgia	79%	-13%	22%	-2.8%	↑	-3.9%	Positive	12%	7.24%	Mid
Florida	78%	-23%	5%	-4.3%	↑	-4.4%	Negative	3%	7.00%	High
Missouri	78%	-5%	16%	-3.3%	↓	-2.9%	Positive	4%	7.38%	High
Virginia	77%	-6%	13%	-2.4%	↓	-2.3%	Positive	10%	6.75%	Mid
Wyoming	77%	-3%	9%	-4.1%	↓	-2.5%	Negative	4%	7.00%	High
Nevada	76%	0%	14%	-1.5%	↓	-1.0%	Negative	12%	7.50%	Mid
Maryland	72%	-7%	17%	-2.2%	↓	-1.8%	Stable	8%	7.40%	High

	Actuarial Metrics			Plan Financial Metrics				Budget Risk Indicators		
States	Funded ratio, 2019	Change in funded ratio, 2008-2019	Employer cost/ payroll, 2019	Operating cash flow ratio, 2019	Change in OCF ratio since 2014	Operating cash flow ratio, 2014	Net amortization, 2019	Historic contribution volatility, 2008-2019	Assumed return	Normal cost sensitivity
Montana	72%	-11%	15%	-3.1%	↓	-1.7%	Stable	6%	7.59%	Mid
California	72%	-15%	29%	-0.7%	↑	-2.7%	Positive	22%	7.10%	High
Kansas	70%	11%	16%	-1.4%	↑	-2.8%	Positive	10%	7.75%	Mid
North Dakota	70%	-17%	10%	-1.6%	↓	-0.9%	Negative	5%	7.73%	High
Alabama	69%	-8%	13%	-3.6%	↑	-4.1%	Positive	4%	7.70%	High
Indiana	69%	-4%	21%	-1.0%	↓	0.3%	Positive	8%	6.75%	Mid
Texas	69%	-22%	8%	-3.3%	↑	-3.6%	Negative	2%	7.31%	High
Alaska	67%	-8%	41%	-4.2%	↓	-2.7%	Negative	28%	7.38%	Low
Louisiana	67%	-3%	34%	-3.3%	↑	-3.3%	Positive	16%	7.53%	High
New Mexico	67%	-16%	15%	-3.9%	↓	-3.0%	Negative	3%	7.25%	Mid
Colorado	66%	-3%	21%	-4.6%	↓	-4.5%	Negative	9%	7.25%	Mid
New Hampshire	66%	-10%	16%	-1.7%	↓	-1.6%	Positive	8%	6.75%	High
Arizona	65%	-15%	18%	-1.9%	↑	-2.6%	Positive	10%	7.44%	Mid

	Actuarial Metrics			Plan Financial Metrics				Budget Risk Indicators		
States	Funded ratio, 2019	Change in funded ratio, 2008-2019	Employer cost/ payroll, 2019	Operating cash flow ratio, 2019	Change in OCF ratio since 2014	Operating cash flow ratio, 2014	Net amortization, 2019	Historic contribution volatility, 2008-2019	Assumed return	Normal cost sensitivity
Vermont	64%	-24%	14%	-1.8%	↓	-1.4%	Stable	9%	7.50%	High
Mississippi	62%	-11%	17%	-4.5%	↓	-3.3%	Negative	6%	7.75%	High
Michigan	61%	-23%	28%	-4.4%	↑	-5.8%	Positive	21%	7.35%	Low
Massachusetts	59%	-4%	21%	-2.4%	↑	-3.3%	Negative	12%	7.25%	High
Pennsylvania	58%	-29%	33%	-2.7%	↑	-6.0%	Positive	29%	7.21%	Low
Hawaii	55%	-14%	27%	-1.8%	↑	-2.2%	Negative	14%	7.00%	High
South Carolina	55%	-15%	17%	-2.2%	↑	-3.9%	Negative	7%	7.25%	High
Rhode Island	54%	-7%	25%	-4.7%	↑	-6.5%	Positive	6%	6.99%	Low
Kentucky	45%	-19%	44%	-2.6%	↑	-7.0%	Positive	33%	6.73%	Mid
Connecticut	44%	-17%	36%	-1.4%	↑	-2.8%	Positive	18%	6.90%	Low
New Jersey	40%	-33%	20%	-4.9%	↑	-6.9%	Negative	15%	7.18%	High
Illinois	39%	-15%	46%	-2.4%	↓	-1.5%	Negative	39%	6.89%	Mid

Note: For detailed definitions of fiscal sustainability matrix terminology and metrics, see Appendix A.

Actuarial metrics highlight disparity among states, cost of historical underfunding

Traditionally, pension administrators and policymakers have assessed the fiscal health of a retirement system using the funded ratio, which measures the impact of previous decisions and policies on a plan's balance sheet at a given point in time. Pew's matrix sets the baseline for its comparative analysis with states' 2019 reported funded ratio, which ranges from over 100% in Wisconsin to 39% in Illinois. A low funded ratio has significant implications for pension costs, which typically rise with unfunded liabilities because states must pay for current and future benefits while also paying off existing debt.

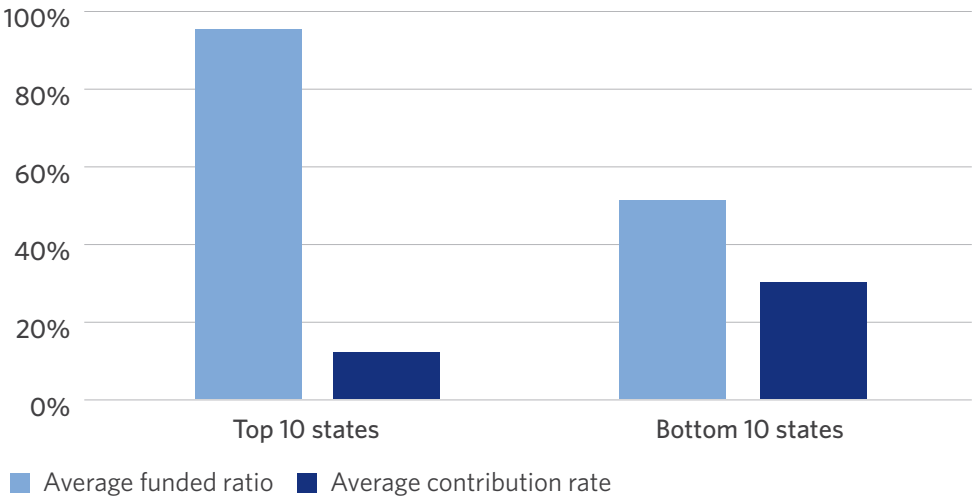
Pew measures a state's pension costs using the employer contribution rate. For example, the average employer contribution rate for the 10 states with the best-funded public retirement systems in 2019 was about 12% of payroll, meaning that employers contributed an amount equal to 12% of their total payroll expenses to pay for employee pension benefits. However, the 10 worst-funded states reported an average contribution rate of about 30% of payroll in 2019—more than double that of the 10 best-funded states. The difference between the two groups reflects the substantial cost to states with poorly funded plans, which contribute a higher percentage of payroll expenses now to catch up because not enough money was contributed in previous years.

States have dramatically increased their pension contributions since the Great Recession, with annual contributions increasing from $55 billion in 2009 to $119 billion in 2019, but many states still fall short of adequate funding. Collectively, state funded ratios fell from 83% in 2008 to 71% in 2019, which is represented on the matrix as the change in funded ratio. These numbers precede the initial drop and subsequent surge in financial markets during the COVID-19 pandemic; preliminary numbers suggest that strong 2021 returns will increase the overall funded ratio to 84% thanks to an unusually strong investment performance.

Figure 2

Funded Ratio and Contribution Rate for 10 Best- and Worst-Funded States

State costs for poorly funded plans are more than double those of well-funded plans



Sources: Annual financial reports, actuarial reports and valuations, other public documents, or reports by plan officials

Net amortization remains the most instructive metric for the majority of plans

The path to improving the fiscal health of public pension plans with unfunded liabilities starts with the state making annual contributions that are sufficient to begin to pay down the unfunded liabilities. Although policies for funding pension plans vary widely among states—some make contributions to their plans each year based on a fixed percentage of workforce payroll, while others follow actuarial funding policies that regularly adjust contribution levels based on economic factors—plans that pay down a portion of their debt each year are among the most robust.

Annual contributions to pension plans in the 50 states grew an average of 8% each year since the end of the Great Recession in 2009, or about twice the rate of state revenue growth. As a result, states in 2019 were on the cusp of achieving positive net amortization, which measures whether total contributions to a public retirement system are sufficient to reduce unfunded liabilities if assumed investment returns are met for that year. Preliminary data suggests that when 2020 and 2021 numbers are released, states will have exceeded this minimum contribution benchmark for the first time this century.

This result was largely driven by four states with severely underfunded pension plans: Illinois, Kentucky, New Jersey, and Pennsylvania. On average, these four states increased contributions to their pension plans by 16% each year over an 11-year period, from $5.6 billion in 2009 to $23 billion in 2019. The four collectively contributed over 80% of their combined net amortization benchmarks to their pension funds, up from an average of less than 50% of required contributions in 2009.[3]

And although many state systems are still significantly underfunded (three are still less than 50% funded), the decade-long infusion of cash has stabilized plan funded ratios, improved cash flow, and stemmed the growth of costs over the long term. Pew estimates that total increased contributions, along with changes to benefits over the past decade, have boosted all states' pension assets by more than $400 billion since 2008.

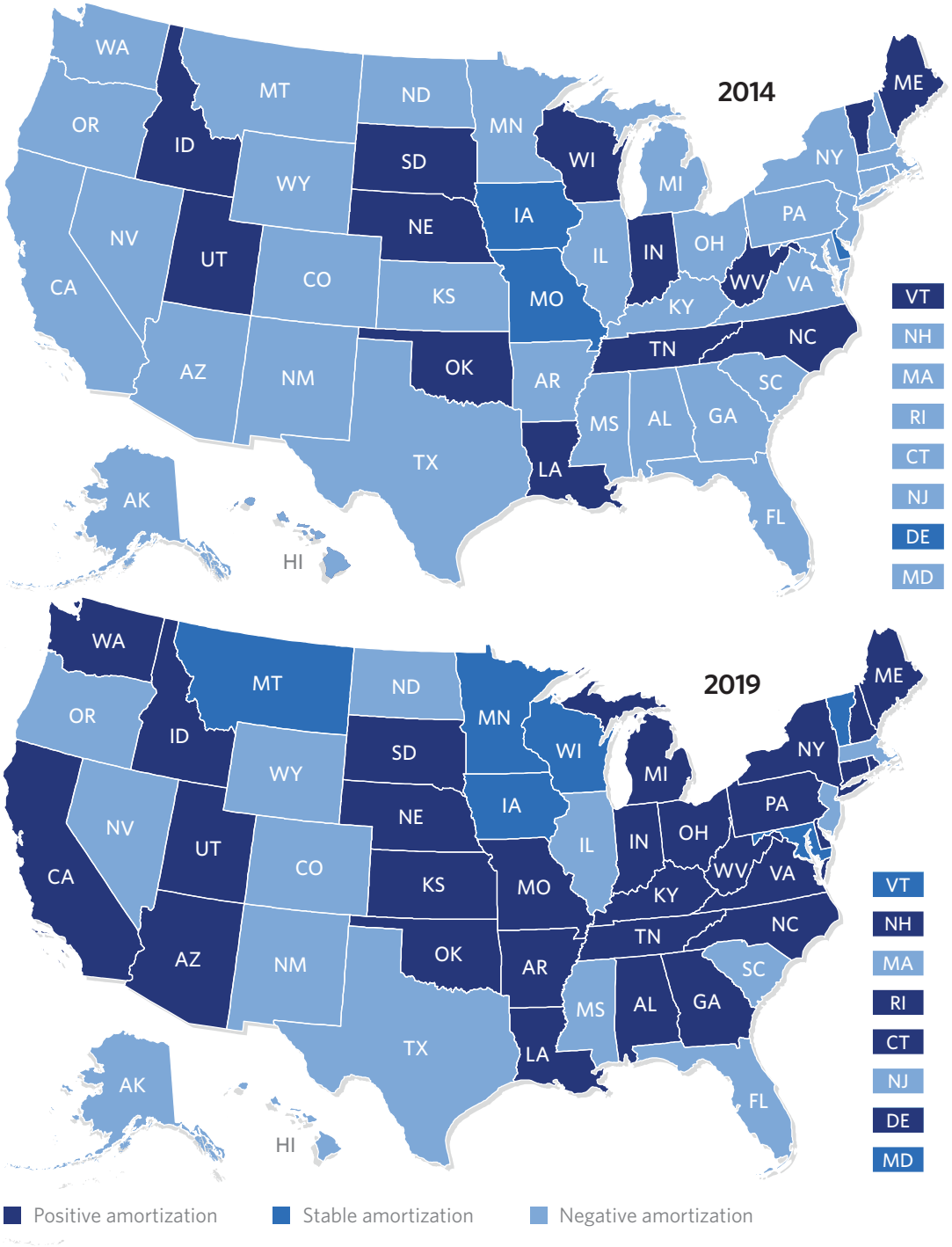
Striking changes in pension cash flows reflect stabilizing impact of rising contributions

The steadying influence of states' increased contributions to their pension funds can perhaps best be seen using the operating cash flow ratio, which measures the difference between cash coming into state pension plans—primarily through employer and employee contributions—and cash flowing out in the form of benefit payments to retirees. Dividing that difference by the value of plan assets provides a benchmark for the rate of return required to keep plan assets from declining.

Figure 3

A Growing Share of States Have Achieved Positive Amortization of Pension Debt

In 2019, 35 states met or exceeded the contribution levels needed to stabilize pension funds



Sources: Annual financial reports, actuarial reports and valuations, other public documents, or reports by plan officials

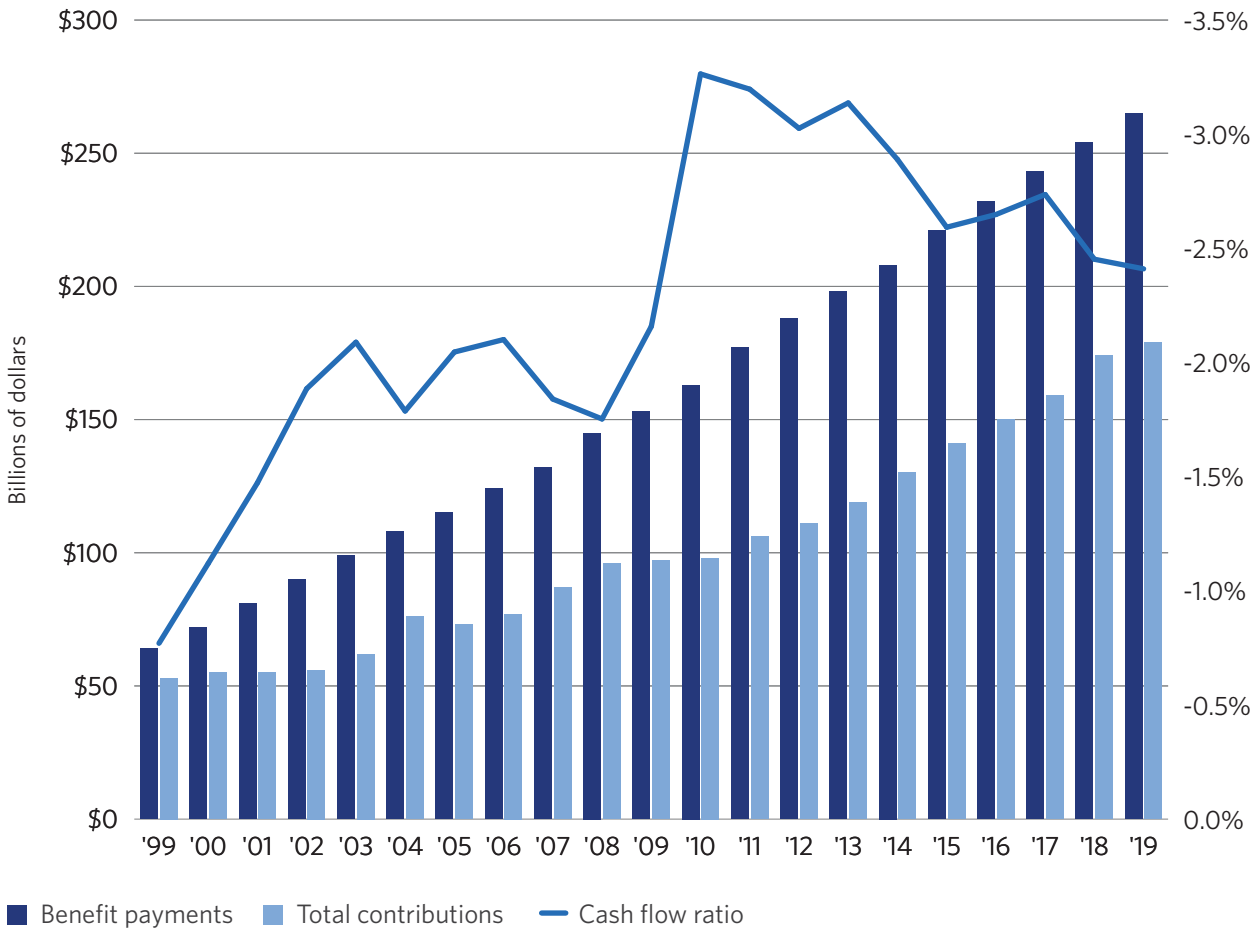
Even well-funded state pension funds typically exhibit negative operating cash flow as mature plans pay out more in benefit payments than they receive in contributions (the balance is paid with investment returns). But a continued operating cash flow ratio below minus 5% represents an early warning sign of potential fiscal distress if states don't adopt mitigating policies such as benefit changes or increased contributions.[4] In addition, measuring the change in the operating cash flow over time can shed light on whether states are improving or losing ground and whether plans have become too dependent on volatile investment returns.

In 2008, before the Great Recession, Illinois, Kentucky, New Jersey, and Pennsylvania all reported cash flow ratios of about minus 6%. But the strong increase in contributions over the past decade, in addition to other reforms, has put them all on stronger footing. In 2019, all four reported cash flows of higher than minus 5% of assets. These welcome results show how even the most troubled retirement systems can be turned around if policymakers have the tools to evaluate current and proposed policies and take informed actions.

Figure 4

State Operating Cash Flow as a Share of Assets Over Time

Cash flow ratio dropped from -1.1% in 2000 to -3.3% in 2010 before recovering slightly



Sources: Annual financial reports, actuarial reports and valuations, other public documents, or reports by plan officials

Cost volatility is a key indicator of plan and budgetary risks

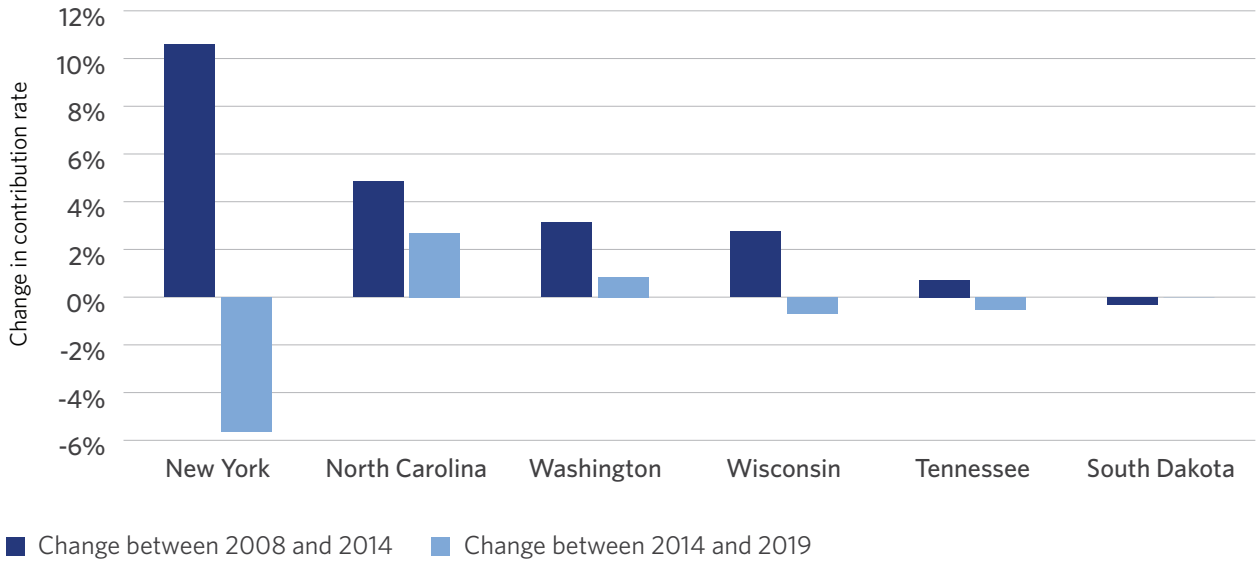
Pension plan administrators, fiduciaries, and other pension experts use actuarial and financial metrics to evaluate the fiscal health of public pension plans. However, plan sponsors and budget officials are primarily concerned with ensuring that they have the resources to meet pension obligations each year despite cost volatility across the business cycle and during periods of recession. For this reason, Pew's matrix also includes several indicators of budget risk. Pew has developed a new metric, historical contribution volatility, that measures the range in value between the lowest and highest employer contribution rate over a fixed period of time to assess annual cost variation inherent in a plan's contribution policy and benefit design.

States that have ramped up payments to their pension plans over the past decade to compensate for underfunding the plans in years past will, by definition, exhibit high levels of historical contribution volatility. However, a handful of states have kept costs stable. Wisconsin, South Dakota, and Tennessee enjoyed an average volatility of only 2% between 2008 and 2019 while remaining at or near full funded status, reflecting their strong funding policies and use of various risk-sharing features. For example, in addition to making their full contributions annually, Wisconsin and South Dakota have a decades-long track record of using variable employee contributions and retiree cost-of-living adjustments to share the costs of investment shortfalls—or the benefits of strong financial markets—with employees and retirees. After weathering the Great Recession, Tennessee adopted risk-sharing policies using a hybrid plan that combines some elements of a traditional defined benefit pension plan and a defined contribution plan with an individual retirement account to which the employee and employer both contribute. This new plan design will keep costs stable while continuing to provide workers with a guaranteed benefit.[5]

Figure 5

Change in Employer Contribution Rates Since Great Recession

Among well-funded states, those with risk-sharing policies managed to minimize volatility in employer contributions



Sources: Annual financial reports, actuarial reports and valuations, other public documents, or reports by plan officials

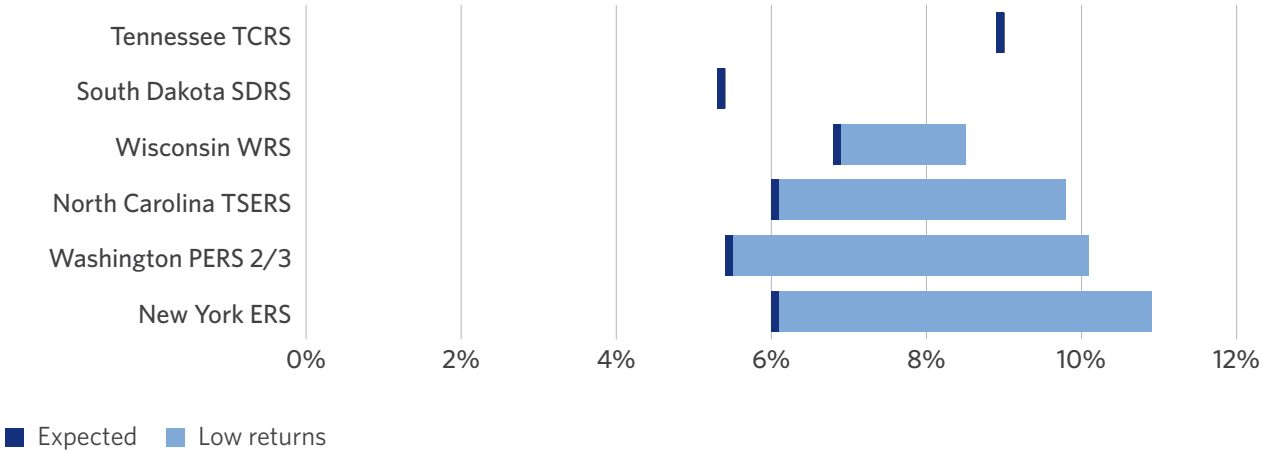
Conversely, pension costs in New York, North Carolina, and Washington—all states with well-funded pension plans—were over four times more volatile than the risk-sharing plans in South Dakota, Tennessee, and Wisconsin between 2008 and 2019 (Figure 5). But New York, North Carolina, and Washington still experienced dramatically less volatility than states with poorly funded pension plans such as Kentucky, New Jersey, and Pennsylvania.

Pew also looked at expected employer cost using normal cost sensitivity—the expected volatility of employer costs for future benefits as a percentage of payroll under a low return scenario, which Pew sets at 5%. This analysis was applied to the benefits offered to newly hired workers to acknowledge the changes that virtually every state has made to plan design since the Great Recession. As illustrated in Figure 6, South Dakota, Wisconsin, and Tennessee would see zero or small changes in employer costs under a 5% scenario, while North Carolina and New York would experience much larger increases under the same low-return scenario. Recent reforms in states such as Pennsylvania may not be reflected in the historical cost volatility metric but are reflected in the forward-looking normal cost sensitivity indicator.

Figure 6

Projected Employer Cost of New Hire Benefits as a Percentage of Pay

Plan design offered to new employees affects cost uncertainty for states



Notes: Employer costs include employer contributions to a defined contribution account. Plans listed include: the New York Employees' Retirement System, the North Carolina Teachers and State Employees Retirement System, the South Dakota Retirement System, the Tennessee Hybrid Pension Plan, the Washington Public Employees Retirement System plans 2 and 3, and the Wisconsin Retirement System.

Sources: Annual financial reports, actuarial reports and valuations, other public documents, or reports by plan officials

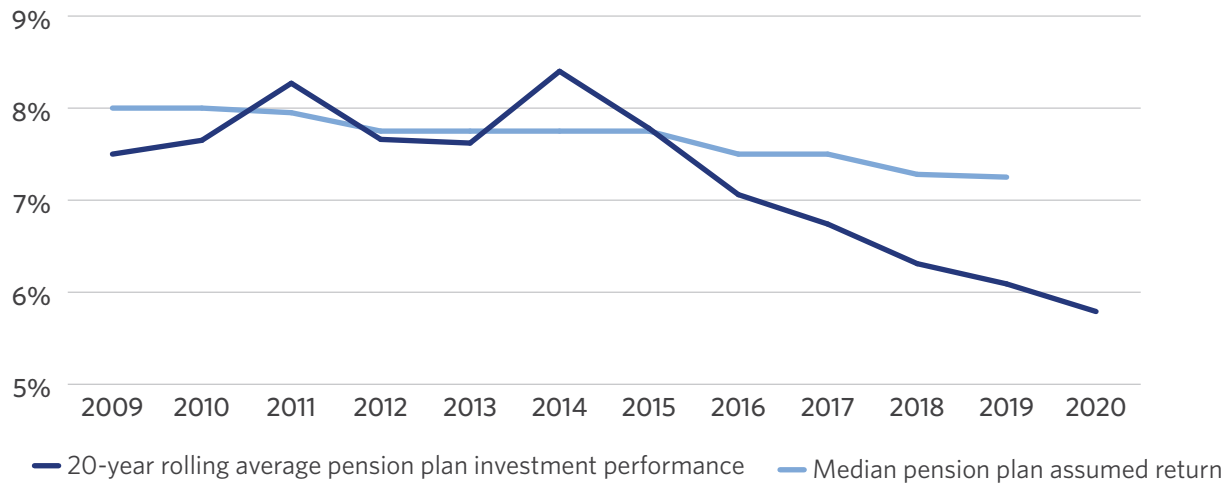
Realistic rates of return are essential for long-term fiscal stability

States should assess their plans' assumed rate of return to ensure that it is reasonable and achievable over the long run. The current economic outlook is in flux, with historically high stock market valuations and historically low interest rates—the direct result of federal monetary and fiscal policy interventions. The Congressional Budget Office expects that it will take roughly a decade for 10-year Treasury rates—a key determinant of market returns—to climb back to pre-pandemic expectations.[6] As a result, Pew anticipates a long-term return of 6% going forward, a full percentage point lower than current pension plan assumptions, which average around 7% (Figure 7).

Figure 7

Public Pension 20-Year Rolling Average of Investment Returns

Plans saw more than a full percentage point decline since 2009



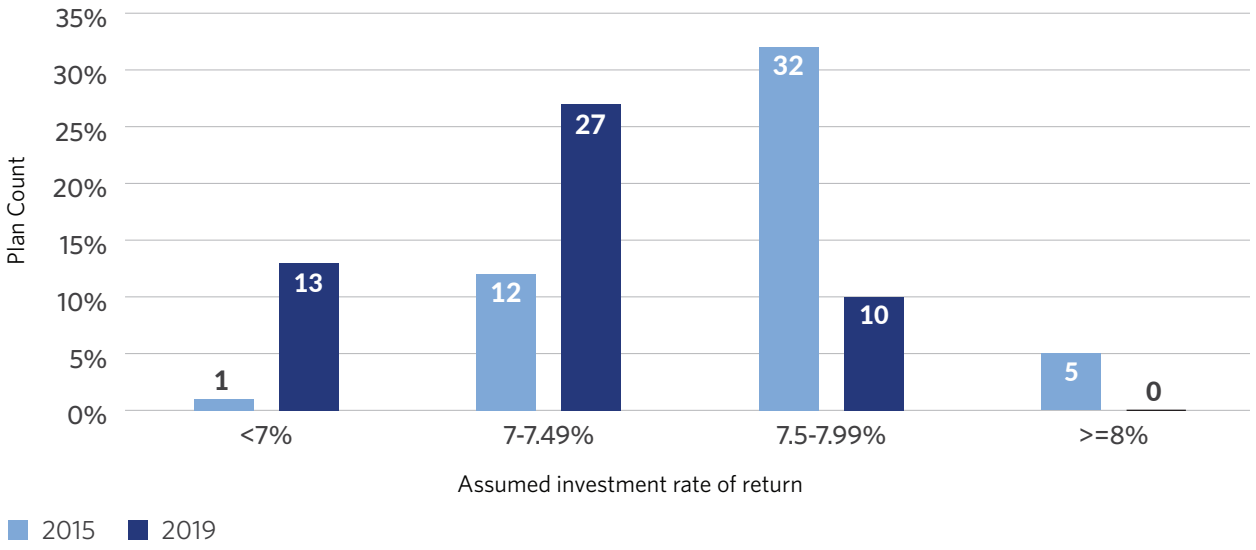
Source: Wilshire Trust Universe Comparison Services

Policymakers, plan administrators, and plan fiduciaries may therefore wish to reduce the risk of missing the plan's return targets—and incurring unexpected costs—by using recent market gains to pay for a decrease in long-term target rates of return and actuarial discount rates, continuing a five-year downward trend in these assumptions across the 50 states (Figure 8).

Figure 8

Change in Assumed Rates Over Time

Despite changes, most states have made assumptions about rates of return that exceed expert expectations



Sources: Annual financial reports, actuarial reports and valuations, other public documents, or reports by plan officials

Conclusion

Although recent market performance has improved the balance sheets of state retirement systems, policymakers must continue to manage pension funds through economic and market uncertainty. Pew's fiscal sustainability matrix can help them maintain and improve the financial health of public pensions and ensure that plan obligations are funded in a way that guarantees that promises made to pensioners are sustainable for government budgets. Pew's analysis reveals actions that states can take now to strengthen their systems, including setting assumed rates of return that reflect the new market outlook, monitoring cash flows to protect assets from depletion, adopting risk-sharing features to minimize contribution volatility, and—perhaps most importantly—making steady and annual progress in paying down unfunded liabilities.

Appendix A: Key Terms

Fiscal sustainability matrix terms

The definition of each measure included in the fiscal sustainability matrix is provided below, followed by a description or example of how the metric is used to assess a pension plan's fiscal health.

Funded ratio: The value of a plan's assets in proportion to the pension liability. This is an annual point-in-time measure as of the reporting date. Pew's analysis applies the market value of assets and the pension liability as reported by states under current government accounting standards. The funded ratio shows the cumulative result of decades of policy choices. Well-funded states have met and exceeded minimum contribution standards, avoided unfunded benefit increases, and established policies to manage risk.

Change in funded ratio: The difference between the 2019 funded ratio and the 2008 funded ratio for a state's pension plans.

This calculation allows for comparisons between states that were able to make up for any losses from the Great Recession through funding policy, benefit changes, or both, and states that reported ongoing declines in funded status through both the recession and the recovery.

Employer contribution rate: Pension contributions from participating public employers divided by total payroll for plan participants. This calculation allows for the comparison of the size of pension costs across state and local government employers of different sizes.

Although the contribution rate for a well-funded state primarily reflects the generosity of the benefit, the employer contribution rate for the majority of states is driven by the cost of making up for past unfunded liabilities.

Operating cash flow ratio: The difference, before investment returns, between expenses (including benefit payments) and employer and employee contributions, divided by assets. Mature pension plans typically have negative operating cash flows and depend on investment returns to make up the balance. As a result, the operating cash flow ratio serves as a benchmark for the rate of return that plan investments would need to ensure that asset balances do not decline.

States with declining operating cash flow ratios face a growing dependence on investment performance to maintain asset levels. In addition, an operating cash flow ratio below minus 5% serves as an early warning sign of potential insolvency. In 2014, six states were below that threshold, but as of 2019, no state reported a cash flow ratio below minus 5% in their annual financial disclosures.

Percentage of net amortization contributed: The net amortization benchmark measures whether total contributions to a public retirement system would have been sufficient to reduce unfunded liabilities if all actuarial assumptions—primarily investment expectations—had been met for the year. The benchmark is calculated as the cost of new benefits earned in a given year plus the interest on the pension debt minus expected employee contributions.

The percentage of net amortization contributed measures the share of the minimum contribution met by plan sponsors in a given state. A ratio of 100% means that a state is making the minimum level of contributions needed to hold pension debt constant; a ratio above 100% indicates that a state is paying down debt; and a ratio below 100% indicates that it is incurring further debt. Fiscal year 2019 is the first reporting period in which states collectively approached this benchmark, and initial data for 2020 and 2021 suggests that they have exceeded it since that time.

Assumed return: The expected rate of return that a pension fund estimates its investments will deliver based on forecasts of economic growth, inflation, and interest rates. For states with multiple pension systems, the average assumed return, weighted by liability, is presented.

Post-COVID forecasts of economic growth and interest rates suggest that 6% is a reasonable assumption for a typical state pension plan.

Contribution volatility: The range between the lowest and highest employer contribution rate over a fixed period. A small range means that pension costs have been predictable and stable for that state; a high range means taxpayers and budget officials have faced volatile pension payments.

From 2008 to 2019, for the 16 states with the smallest range between the highest and lowest employer contribution rate, the difference over that period was less than 5% of payroll. For the 16 states with the largest range, that gap was more than 20% of payroll, meaning that the volatility in their contributions was more than four times higher.

Normal cost sensitivity: This measures the expected volatility of employer costs for future benefits[7] as a percentage of payroll under a low return scenario.

The major pension plans in each state were classified in terms of the expected volatility of costs for new benefits under the provisions offered to a newly hired employee. The level of volatility will reflect the size of the guaranteed benefit, the assumed rate of return, the presence of a cost-of-living adjustment, and whether there are any risk-sharing provisions.

Because many states have adopted changes to benefit provisions for new hires that reduce overall costs, using the latest tier of benefits when calculating normal cost sensitivity will often result in lower levels of cost and volatility (risk) than may be present if the benefits that most current employees and retirees receive are used. Examining the cost of new benefits allows a financial or budget analyst to focus on the area where policymakers have the greatest ability to make changes needed to keep costs stable and sustainable.

Endnotes

1 For more detail on Pew's operating cash flow and net amortization benchmarks, which are used in the tests for solvency and debt reduction, see The Pew Charitable Trusts, "The State Pension Funding Gap: 2016" (2018), https://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2018/04/the-state-pension-funding-gap-2016. Changes in employer contribution rates are used to measure cost predictability.

2 Seven states met this test since 2008, including three with robust risk-sharing policies (South Dakota, Tennessee, and Wisconsin) and two (Idaho and Nebraska) that have historically maintained high funded ratios regardless of cost, eliminating unfunded liabilities soon after they were accrued and therefore avoiding the increased costs associated with debt. The two remaining states—Arkansas and Texas—employ fixed-rate funding policies that ensure high predictability but fail the more fundamental test of debt sustainability because of inadequate funding in the absence of risk-mitigating policies.

3 The 2008 contribution benchmark is the actuarially recommended contribution (ARC), which was part of the required disclosures by pension plans and plan sponsors under the reporting standards in effect at the time. In 2014, new rules from the Government Accounting Standards Board eliminated the ARC as a reporting requirement but included new data points that are the basis for Pew's current minimum contribution standard, the net amortization benchmark. Net amortization represents a more stringent standard than the ARC, so the swing from under 50% of the ARC to 80% of net amortization by these four states is an important example of improved pension policy.

4 The Pew Charitable Trusts, "The State Pension Funding Gap: 2016" (2018), https://www.pewtrusts.org/en/research-and-analysis/issuebriefs/2018/04/the-state-pension-funding-gap-2016.

5 For a more detailed discussion of the risk and cost-sharing practices of these state plans, see The Pew Charitable Trusts, "Cost-Sharing Features of State Defined Benefit Pension Plans," (2017), https://www.pewtrusts.org/en/research-and-analysis/reports/2017/01/cost-sharing-features-of-state-defined-benefit-pension-plans.

6 Congressional Budget Office, "An Overview of the Economic Outlook: 2021 to 2031" (2021), https://www.cbo.gov/system/files/2021-02/56965-Economic-Outlook.pdf.

7 For purposes of normal cost sensitivity, future benefits are calculated using the benefit structure defined in the most recent benefit tier adopted by the plan.

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