

Pension investment volatility still looms over government credit quality in 2026

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06 Mar 2026, Moody's Ratings, Summary

Like last year, the top pension risk facing state and local governments in 2026 is the potential for material investment losses. Many pension risk indicators continue to broadly improve for state and local governments, particularly lower **adjusted net pension liabilities** (ANPLs) and annual contributions that mostly meet or exceed our tread water indicator. But risks stemming from pension investment volatility remain pronounced. If future investment returns are volatile or significantly disappoint relative to assumptions, US public pension systems will face asset accumulation challenges and require offsetting contribution hikes by governments. Some governments' balance sheets stand to materially weaken in the event of pension investment losses, and higher contribution requirements could occur concurrently with a challenging revenue environment.

- **Key pension risk indicators continue to improve.** Higher discount rates combined with strong investment performance in 2025 pushed down ANPLs that will be tied to most governments' fiscal year 2026 financial reporting. Meanwhile, most governments' annual contributions are now near or above our tread water indicator.
- **Pension investment portfolios remain exposed to elevated volatility risk.** Heavy allocations to high-growth assets such as public and private equity have fueled strong returns in recent years but are also riskier than asset allocations matched to public pensions' liabilities. Due to their size and diversification, US public pension

systems are likely exposed to any challenged sector of the capital markets at any given time, although exposure to alternatives varies significantly among systems.

- **A large scale of assets carries risk of unexpected cost hikes for governments.** Unlike interest rate moves that drive significant changes in ANPLs, pension investment losses cause near-term hikes in contribution requirements.
- **Practical capacity to hike pension contributions may be limited.** While governments have broadly improved the strength of their contributions over the past decade, further material hikes to contributions will likely prove challenging to some. The California Public Employees' Retirement System (CalPERS), which is the largest US public pension system, elected not to follow its risk mitigation plan in 2025 in part because government and employee contribution requirements would have risen.

Key pension risk indicators continue to improve

The combination of rising interest rates, strong investment returns and steady contribution strength continues to drive general improvement in pension risk indicators. Consistently higher interest rates, combined with another year of strong investment performance in 2025, continues to push down ANPLs. Unlike the reporting under governmental accounting standards, **our measure of governments' total pension liabilities uses a discount rate tied to prevailing market interest rates for high grade fixed income securities similar in duration to pension liabilities.** As a result, the steady rise in interest rates since 2020 has driven more than a [\\$4 trillion decline in state and local government ANPLs](#).

Higher values for the FTSE Pension Liability Index (PLI), which we use as a discount rate to value governments' pension liabilities, translate to lower ANPLs and vice versa. The FTSE PLI reached 5.58% as of June 30, 2025 and 5.61% as Dec. 31, 2025, the two most common fiscal year-end dates for US public pension annual funding measurements (Exhibit 1).

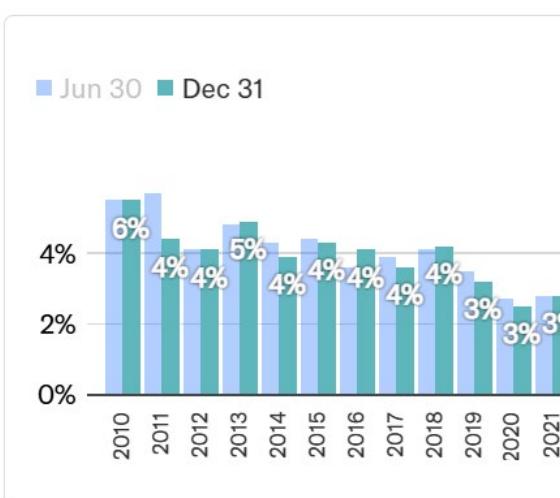
On the asset side of the pension funding ledger, investment returns were not only above targets for the fiscal year ending June 30, 2025, but also for the fiscal year ending Dec. 31, 2025 (the second-most common fiscal year end for US public pension systems after June 30). For example, the Oregon Public Employees Retirement Fund posted a 9.7% investment return for the 12-month period that ended in December, led by public equity returns of more than 21%.

Over the past 10 years, the system's private and public equity investments have been its strongest return drivers (Exhibit 2).

EXHIBIT 1

Pension liabilities have been driven down by a rebound in discount rates...

FTSE PLI as of most common pension measurement dates



Source: Society of Actuaries

EXHIBIT 2

...and investment returns have been strong, lead by private and public equity

Oregon Public Employees Retirement Fund investment performance

Asset class	Rates of return		
	1 year	5 year	1
Private equity	8.3%	11.5%	
Public equity	21.3%	11.9%	
Opportunity portfolio	11.2%	11.9%	
Real assets	11.4%	13.2%	
Real estate	2.2%	4.7%	
Diversifying strategies	10.0%	9.5%	
Fixed income	7.3%	0.7%	
Cash and similar	4.8%	3.3%	
Total	9.7%	7.8%	

As of Dec. 31, 2025

Source: Oregon State Treasury

Pension risks have also broadly declined from the perspective of governments' budgets because the strength of their annual contributions has risen substantially. To this point, roughly 42% of the cities we rate had a tread water gap based on fiscal year 2018 reporting. A tread water gap means that their contributions were less than our tread water indicator, which is the contribution required to prevent reported unfunded liabilities from increasing in nominal dollars. In fiscal 2024, only 24% of cities in our database had a tread water gap.

Pension investment portfolios remain exposed to elevated volatility risk

Heavy allocations to high-growth assets such as public and private equity have fueled strong returns in recent years, but are riskier than allocations matched to public pension liabilities, which amount to high-quality future cash flows. Since US public pensions generally invest a significant portion of their assets to classes with high expected returns, they are also exposed to the higher volatility risk associated with these assets. Due to their size (\$6.7 trillion in assets according to the Federal Reserve's most recent data) and broad

diversification, US public pension systems are likely exposed to any challenged sector of the capital markets at any given time. However, US public pension systems' exposure to certain alternative investment classes, such as private equity and private credit, is not uniform.

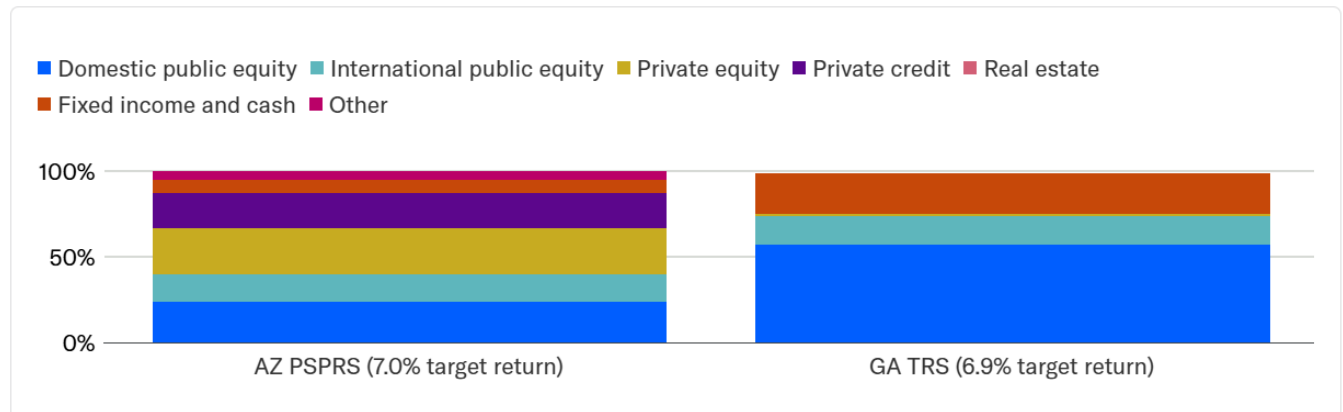
Based on the most recently available data published by the Fed, corporate equities comprise about 55% of US public pension assets, while fixed income and cash amount to only about 20%. The remainder is attributable to a variety of assets, including alternatives such as real estate. While the appetite for growth assets like equities and many alternatives is generally similar across US public pension systems, the extent to which individual systems allocate their assets specifically to alternative investments varies significantly.

For example, the Arizona Public Safety Personnel Retirement System (AZ PSPRS), which had a 7.0% target return as of its fiscal year 2025 financial reporting, allocates a substantial amount of its assets to alternative investments such as private equity (27%) and private credit (20%), with another 40% combined across domestic and international public equities. The Teachers Retirement System of Georgia (GA TRS) by comparison has a very similar target return (6.9%), but allocates very little toward alternatives. Instead, GA TRS allocates 75% of its assets across domestic and international public equity investments, with 24% to fixed income and cash. Furthermore, the bulk of the system's fixed income investments are in US Treasuries (as opposed to corporate bonds). The system has a comparatively meager allocation to alternatives, with roughly 1% of its portfolio allocated to private equity and real estate combined (Exhibit 3).

EXHIBIT 3

US public pension systems' appetite for alternatives varies substantially

Asset allocations for Arizona's PSPRS vs. Georgia's TRS



Source: Pension system audited financial statements

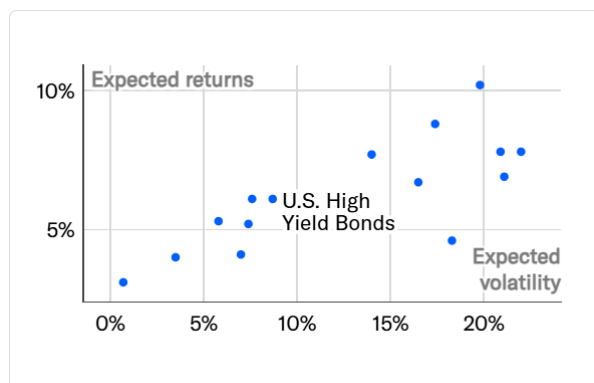
To meet their investment return targets, which generally remain in the range of 6.75% to 7.25%, US public pension systems must heavily allocate their assets to classes with comparatively high levels of volatility risk. (In an investment portfolio, volatility risk is expressed as the standard deviation of returns.)

Looking at the past two decades of historical performance, the assets tracked by investment consultancy Callan in its annual "periodic table" that produced annualized compound returns near or above US public pension system targets all had volatility of at least 15%. JP Morgan's long-term capital market assumptions, which we use to inform our annual "[risk-return map](#)," suggest similarly heightened levels of volatility risk on a forward-looking basis for asset classes expected to generate compound annual returns of 6.7% or higher (Exhibit 4).

Recently strong performance in public equity markets has concurrently produced historically elevated valuation levels. For example, the Shiller Cyclically-adjusted Price to Earning Ratio (CAPE) stood at 39.8 as of February 2026, more than double its average from 1900 to 2025. The February 2026 CAPE ratio was the 26th highest over the same period, which encompasses 1,514 monthly observations, with the period leading up to the dot-com market crash from 2000 to 2002 as the most comparable (Exhibit 5).

EXHIBIT 4

Asset classes with higher return prospects tend to require higher volatility risk



Volatility risk versus return assumptions versus return expectations

Source: JP Morgan's Long-term Capital Market Assumptions

EXHIBIT 5

Stock market valuations are at historically elevated levels



Cyclically adjusted price to earnings ratio (CAPE)

Source: Shiller Data

A large scale of pension assets carries risk of unexpected cost hikes for governments

The scale of state and local government pension assets, for example relative to their revenues, remains at historically elevated levels. As a result, a given rate of investment loss translates to an elevated scale of asset loss. As an example, if a government's pension assets are equivalent to its revenue, a 10% pension investment loss creates asset declines that must be amortized with future contributions that amount to 10% of its revenue. If pension assets amount to 200% of a government's revenue, however, the same 10% investment loss creates assets losses that amount to 20% of a government's revenue that must be amortized with future contributions.

The Federal Reserve's most recent "Financial Accounts of the United States" sizes state and local governments' pension assets at about \$6.7 trillion, which is roughly 168% of their revenues (Exhibit 6).

1

Governments' vulnerability to pension asset losses vary widely. More than 20% of the cities we rate have pension assets that amount to more than 200% of their revenue when considering just their governmental activities. (Governmental activities are typically the

operations funded by tax revenue, such as public safety.) When considering governmental and business-type activities combined, about 13% of the cities we rate have pension assets that amount to more than double their revenue (Exhibit 7).

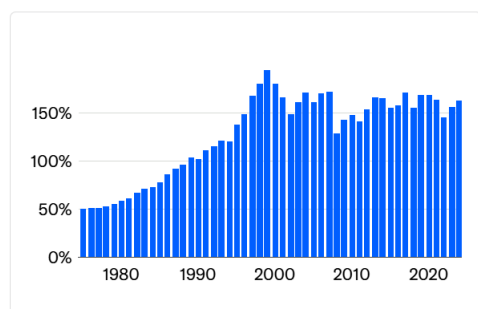
EXHIBIT 6

The scale of pension assets remains elevated in aggregate...

EXHIBIT 6

The scale of pension assets remains elevated in aggregate...

State and local government pension assets as % of current receipts



State and local government pension assets as % of current receipts

Source: Board of Governors of the Federal Reserve System

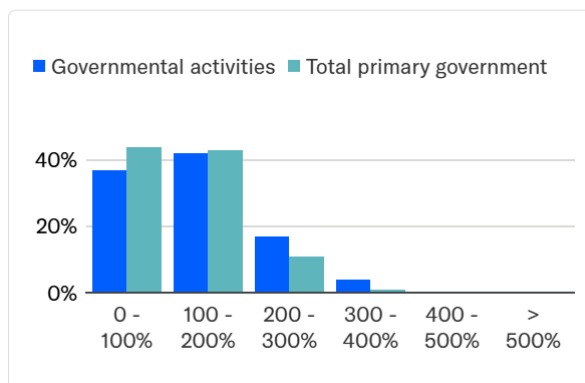
EXHIBIT 7

...but varies materially across individual governments

EXHIBIT 7

...but varies materially across individual governments

% of rated cities with given scale of pension assets relative to revenue



% of rated cities with given scale of pension assets relative to revenue

[1] Reflects fiscal year 2024 reporting

Source: Moody's Ratings

While not our base case expectation, if US public pension systems were to post investment losses in fiscal year 2026, governments' tread water indicators would rise immediately in fiscal year 2027. Due to the timing of the actuarial valuation process, most governments would likely not increase their pension contributions until their fiscal year 2028 budgets. Nevertheless, the immediate reaction of our tread water indicator to 2026 stress test investment loss scenarios illustrates the rough magnitude by which many governments' contribution levels would have to rise in such a downside scenario.

For example, after raising government contributions to levels that have consistently exceeded the plan's tread water indicator, the State of California and other participating governments in the California State Teachers' Retirement System (CalSTRS) would likely

face another round of contribution hikes if the system posted fiscal year 2026 investment losses.

Considering portfolio scenario stress tests posted by another large statewide retirement system and taking into consideration the effect of diversification, we model a scenario where a 10% US equity decline corresponds with overall portfolio returns of around negative 7%. We also model a far more severe 40% US equity decline, which we link with a portfolio return of around negative 24%.

In the less severe negative 7% scenario, we estimate that the CalSTRS' systemwide tread water indicator would rise to about 25% of payroll, rather than 18% of payroll under a scenario where the system meets its return target in fiscal year 2026. State and local government contributions would likely be just above the system's tread water indicator in such a scenario, rather than well above it like in fiscal years 2025 and 2026.

In the severe stress test scenario, however, we estimate that the systemwide tread water indicator would rise to about 35% of payroll, creating an immediate funding gap that would have to be filled in subsequent budget years with additional government contribution hikes. In the event government contributions were not raised in such a scenario, the system's asset accumulation would be challenged, and its unfunded liabilities would continue to grow (Exhibit 8).

EXHIBIT 8

Investment losses in 2026 would drive up governments' tread water indicators in 2027

Government contributions to CalSTRS vs. tread water indicator, as % of payroll



Sources: Moody's Ratings, using plan financial statements and actuarial valuations

Signs of limited practical capacity to significantly hike pension contributions are emerging

While governments' contribution strength has broadly improved, and some governments have made multiyear efforts to more aggressively pay down their unfunded pension liabilities, other signs suggest that the practical capacity of others to further increase pension contributions may be limited.

In one example, the State of Washington (Aaa stable) solved part of its budget gap for the July 1, 2025 - June 30, 2027 biennium by [increasing its pension investment return target](#) to 7.25% from 7.00%, which in turn lowered its pension contribution requirement on paper.

In another example, CalPERS decided not to lower its discount rate despite posting above-target investment returns for the fiscal year ending June 30, 2025. The system [ended the automatic nature of its risk-mitigation policy](#) in April 2024. When triggered, CalPERS' risk mitigation policy essentially trades what would otherwise be lower government contribution requirements in exchange for less investment risk-taking by the pension system. With the automatic nature of the risk mitigation policy no longer in effect, the system's retirement board opted not to reduce its discount rate in 2025 in part because such a move would increase both employee and employer contribution requirements above current requirements.

While other US public pension systems may not have formalized risk mitigation policies like CalPERS, there is currently no observable trend across the sector toward lowering investment risk-taking, almost certainly due to the downstream effect of higher government contribution requirements. Rising interest rates have created a scenario where de-risking – for example, by shifting from equities and alternatives toward high grade bonds – requires far less of a reduction in target return than under the previous "lower for longer" environment. Nevertheless, US public pension systems continue to broadly maintain their "risk on" investment allocations.

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