

# U.S. State and Local Pension Investments

## Concerns Grow with Riskier Allocations, Lower Returns Special Report

This research report reviews the portfolio allocation choices and asset performance trends of public defined benefit pensions from 2001 to 2017, corresponding to two economic cycles. Relying on asset data provided by Boston College's Center for Retirement Research (CRR), the analysis surveys asset allocations and performance for 180 state and local systems in all 50 states. These plans account for an estimated 95% of the total state and local pensions by assets and plan participants. To facilitate comparisons across states, Fitch aggregates CRR's plan data within each state for many of the conclusions in this report.

These data are also reviewed in the context of funding policy choices for major plans, building on the analysis of pension-related credit risks that Fitch Ratings already incorporates into the credit ratings of state and local governments under its "U.S. Public Finance Tax-Supported Rating Criteria."

### Related Research

[2018 State Pension Update \(November 2018\)](#)

[U.S. States and the Growth Implications of an Aging Population \(October 2018\)](#)

[Slower Growth in Pension Contributions \(Contribution Practices Improve But Remain Inadequate\) \(May 2018\)](#)

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State and local pension asset allocations have become riskier over the past two economic cycles, raising their potential volatility and exposing participating governments to higher funding risks, including potentially higher contributions. From 2001 to 2017, average allocations to higher-risk equities and alternatives increased to 77%, from 67%, while lower-risk fixed income and cash declined to 23%, from 33%.

The shift away from lower-risk allocations has not necessarily produced stronger returns. For state and local systems in this survey, median average returns were 6.2% for the 10-year horizon between 2008 and 2017 and 6.4% for the 17-year horizon between 2001 and 2017. Lower performance since 2008 captures the unusually severe losses of the Great Recession, the relatively slow and unsteady economic recovery that began in 2009, compared to past recoveries, and the persistently low interest rate environment in place over that time.

**Returns Miss Targets:** Using weighted averages to aggregate data across each state's major pension systems, actual returns by state fell short of the expected targets for all states between 2001 and 2017, with the exception of South Dakota. The margin of underperformance in seven states — Arizona, Connecticut, Hawaii, Maryland, New Hampshire, New Jersey and Rhode Island — was 2.0% or higher over that period, which when compounded over time could have a potentially meaningful impact on funding progress.

For individual state and local plans in this survey, the median standard deviation was 11.2% for 2001–2017. Most plans generated average returns between 6% and 7% and standard deviations between 10% and 12%. Notable outliers included the Texas Municipal Retirement System, with average investment returns of 7.5% and a low standard deviation of 5.2%. Three plans had relatively low returns compared to above-average standard deviation: Arizona Public Safety Personnel Retirement System, Arizona State Corrections Officer Retirement Plan and Dallas Police and Fire Pension System. They all showed annual returns below 5% and standard deviations above approximately 12%.

**Unfunded Liabilities Advance:** Unfunded pension liabilities steadily increased to \$1.2 trillion (74% funding) at the end of 2017 from \$33 billion (98% funding) in 2001. The increase largely reflects lower than expected investment returns (particularly the significant impact of the economic and financial downturn of 2007–2009), shortfalls in actual contributions relative to ADCs and increases in projected future benefits.

**Pensions Remain a Key Risk for State and Local Credit**

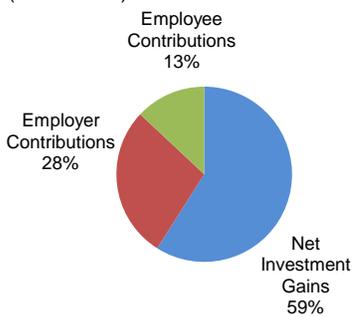
Public defined benefit pension liabilities and the cost of supporting them have long been a source of uncertainty for participating states, local governments and public enterprises given the irrevocable nature of vested benefits, the variable nature of unfunded liabilities and the rising burden of contributions relative to resources. For many pension systems, assets set aside to prefund pensions remain well below the accrued benefits that have been promised to current and future retirees. This challenge is made more acute by rising retirements and flat workforces, two trends that may influence, for some plans, the manner in which portfolios need to be managed. The ability of plan managers to accumulate and effectively manage assets to cover promised benefits has become a key source of pension risk for governments, particularly as funding challenges continue, plan demographics continue weakening, and constrained state and local budgets persist.

**Spotlight on Investment Risk**

Over the 2001–2017 period, aggregate actuarial pension liabilities for all plans in the survey increased at a steady 5.2% compounded annual growth rate (CAGR), while pension assets lagged, with a 3.4% CAGR. Investments gains and contributions from employers and from employees are the primary drivers of pension asset growth. Investment gains alone are the most significant driver, representing nearly 60% of total inflows, as shown in the chart at left. The reliance on investment gains to accumulate assets in pension plans and to ultimately stabilize and eventually reduce employer contributions over time is the intended purpose of prefunding future benefits, instead of funding pension benefits on a pay-go basis.

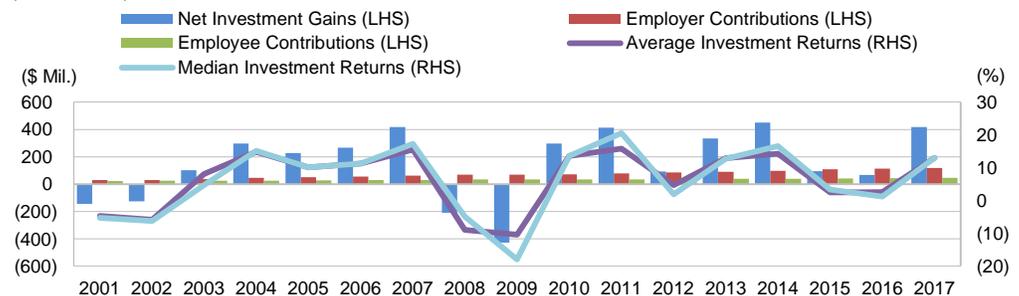
Given the importance of investment returns to meeting long-term funding goals, the adequacy and volatility of actual returns are a key risk to the long-term health of state and local pensions. Investment gains for pension plans were fairly volatile between 2001 and 2017, averaging approximately 6.5%, a figure that incorporates 10 years of above-average positive returns, three years of below-average positive returns and four years of negative returns, as shown in the chart below. This underscores the need to evaluate the investment risks inherent in these plans and the potential impact of volatility on the budgets and liability burdens of participating governments.

**Aggregate Sources of Funds — State and Local Pensions (2001–2017)**



Source: Fitch Ratings, Center for Retirement Research at Boston College.

**Annual Sources of Pension Funding (2001–2017)**



Source: Fitch Ratings, Center for Retirement Research at Boston College.

**Related Criteria**

[U.S. Public Finance Tax-Supported Rating Criteria \(April 2018\)](#)

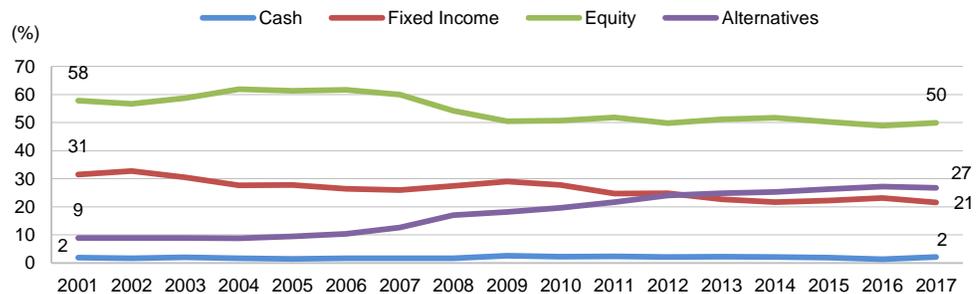
Fitch's baseline expectation is that future experience across plans will remain volatile and below long-term historical averages. Investment returns have been volatile in recent years: for plans with Dec. 31 fiscal year ends, returns fared poorly in 2018. Another round of material losses, especially in conjunction with an economic recession, could drive up actuarial contributions even further and erode the long-term affordability of providing pensions to state

and local government employees. States and local governments with severe pension challenges remain outliers, but pension-related downgrades have affected several state and local governments, including Illinois, New Jersey, Connecticut, Chicago, IL, Dallas, TX and Jacksonville, FL.

### Adding More Volatile Assets Raises Risks

On average, state and local pension plans have steadily increased their allocations to equities and alternatives (real estate, private equity, hedge funds and commodities) since 2001. Fitch views these asset classes as being subject to higher volatility in most cases, relative to the fixed income investments and cash that comprised a higher share of pension allocations in the past.

#### Average Pension Asset Allocation — State and Local Governments



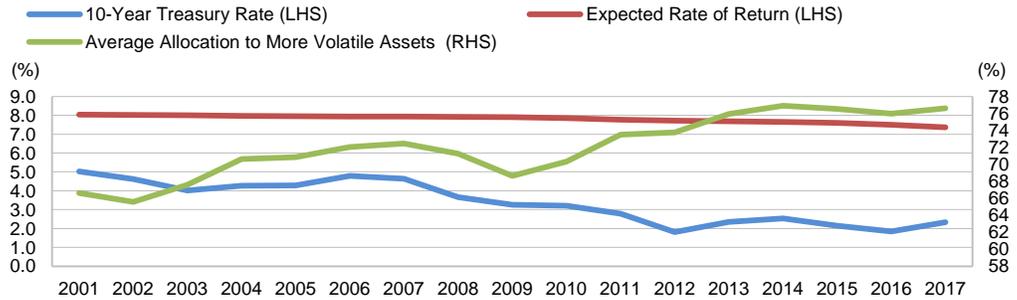
Source: Fitch Ratings, Center for Retirement Research at Boston College.

As shown in the chart above, asset allocation to both equities and alternative investments increased to 77% in 2017 from 67% in 2001 while asset allocation to fixed-income investments and cash declined to 23% in 2017 from 33% in 2001.

The decades-long decline in risk-free interest rates to the historically low range of 2%–3% since 2012 also poses a challenge for pension plans in meeting their long-term investment return assumptions. Simultaneous with policy rates edging lower, pension portfolios have shifted into broader ranges of equity and alternative assets with the intention of preserving long-term returns. However, this has often been at the cost of greater exposure to short-term volatility and the risk that plan sponsors and participating governments will have to absorb the consequences of the heightened risks.

As the risk free rate (using the 10-year Treasury yield as the proxy) declined to 2%, from approximately 5% since 2001, the average investment return assumption of state and local pension plans declined only modestly, to 7.4% in 2017, from 8.0% in 2001. During that period, most plans further re-allocated assets from fixed income toward equities and alternative investments in an effort to diversify their portfolios, preserve expected long-term return targets and reduce contribution pressure.

**Expected Rate of Return versus 10-Year Treasury versus Allocation to More Volatile Assets**



Fitch Ratings, Center for Retirement Research at Boston College.

The investment return assumption is perhaps the most important assumption affecting the estimation of pension liabilities and by far the most controversial. Generally, the Governmental Accounting Standards Board (GASB) requires the value of future benefit payments be discounted to a present value using an assumption identical to that used for the plan’s assumed return on invested assets. The investment return assumption is intended to reflect the allocation of plan assets among investment categories, actual plan return experience, and likely future returns.

Fitch regards the trend of pension systems lowering their investment return assumptions as a positive credit factor, despite the offsetting increase to reported pension liabilities in the short term and the consequent rise in actuarial contributions.

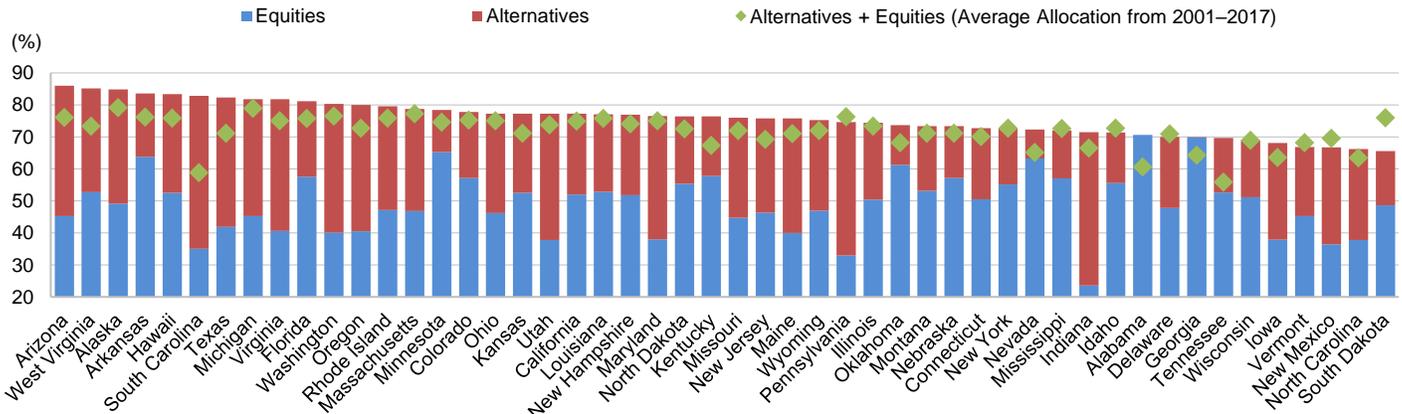
Fitch views high investment return assumptions as unrealistic, particularly in the context of more volatile asset performance and the historically low inflation and interest rates of recent years. Fitch adjusts the return assumption to a standard, fixed 6% target for pension plans reported by the state and local governments it rates that use higher return assumptions. The adjustment is motivated specifically by Fitch’s expectation for continued subdued economic and investment portfolio growth and the need to estimate the potential impact of these trends on pension plans.

**Pension Asset Allocation — A State-by-State Breakdown**

While diversification into riskier allocations has increased over the past few decades, current asset allocations for plans show wide variations. The chart on the following page shows 2017 allocations among investments Fitch views as riskier (equities and alternatives), with state and local plans aggregated by state. The chart also shows a 17-year weighted average by market value for equities and alternatives between 2001 and 2017. Comparing the 2017 aggregate allocation to the 17-year average reveals the shift to higher (or lower, in some cases) risk allocations. It should be noted that state-administered plans, in aggregate, account for more than 80% of U.S. public pension plans by plan assets and participants. Hence the weights are skewed towards the allocation of the large state plans. As of 2017, Arizona’s reported allocation to equities and alternatives of approximately 86% was the highest among the states, and was also higher than its own 17-year average of 76%, as plans in Arizona elevated their exposure to these asset classes over this period. In contrast, South Dakota’s 66% allocation to equities and alternatives as of 2017 was the lowest among the states. The significant difference between the 17-year average and the 2017 allocation reflects South Dakota’s rapid shift away from riskier assets toward cash in recent years: they rose to 14% in 2017 from 6% in 2016. Also of note is Indiana’s 48% allocation to alternative investments, twice the 24% allocation to equities. In contrast, Georgia and Alabama reported a zero allocation of plan assets to alternative investments.

**Public Pension Asset Allocation by Risk Category**

(State and Local Plans Weighted by Market Value)

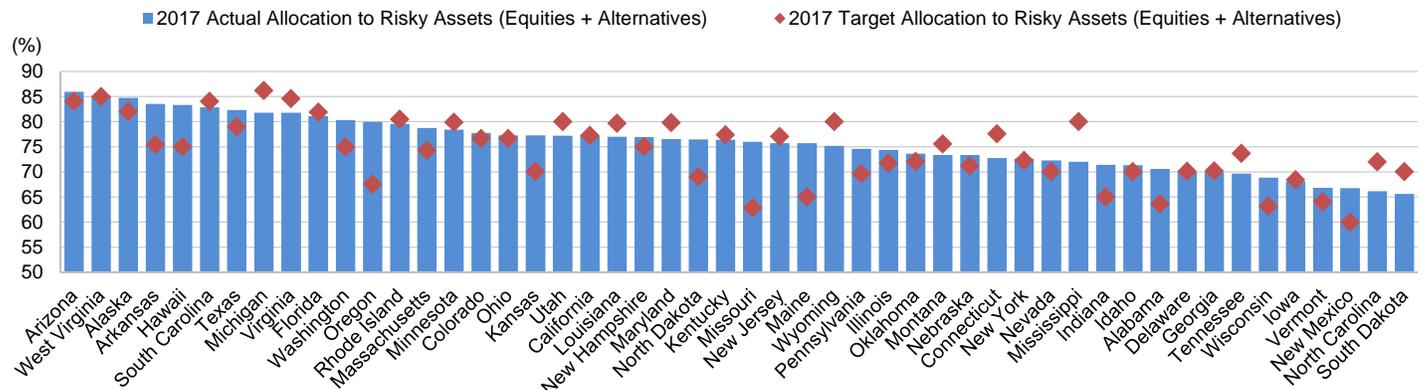


Source: Fitch Ratings, Center for Retirement Research at Boston College.

While point-in-time asset allocations are important, target asset allocations provide a better reflection of future intent and direction. Hence, they should be considered alongside current asset allocations. The chart below compares the weighted average target allocation for aggregated plans within a state to the weighted average actual allocation at the end of 2017. Generally, target asset allocations are mostly in line with current allocations. Of note are Missouri, Oregon, Maine and Hawaii. The target allocations for these states show lower allocations to equities and alternatives.

**Public Pension Asset Allocation to Risky Assets**

(State and Local Plans Weighted by Market Value)



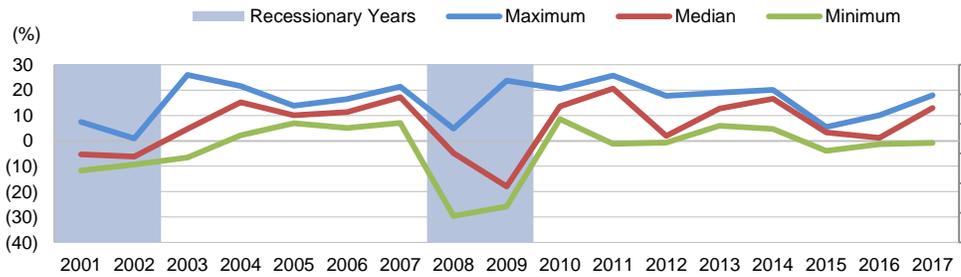
Fitch Ratings, Center for Retirement Research at Boston College.

**Investment Returns — Riskier Allocations Not Producing Higher Returns**

Unsurprisingly, with varying asset allocations, the investment performance of state and local government pension plans varies widely and has been volatile. The chart on the following page shows minimum, maximum and median investment returns by plan. The years 2001, 2002, 2008 and 2009 showed negative median returns, reflecting the impact of the 2001 dot-com recession and the 2008–2009 Great Recession.

Of note is the varied investment performance from year to year. For example in 2008, while the lowest plan return was approximately a decline of 30%, the median was a decline of 5% and the maximum return in 2008 was 5%.

**Public Pension Investment Returns**  
(State and Local Plans)



Source: Fitch Ratings, Center for Retirement Research at Boston College.

Looking beyond the year-to-year investment fluctuations, an assessment of longer-term portfolio returns reflects the long time horizon of the assets and liabilities of public pension plans and underscores the necessity of a multiyear approach to managing these plans. The table below shows average investment returns for individual plans over multiple time horizons between 2001 and 2017; plans are aggregated by state. Median returns were 6.2% for the 10-year horizon and 6.4% for the 17-year horizon.

**Median Pension Plan Portfolio Investment Returns**

(%)	17-Year Investment Returns (2001–2017)	10-Year Investment Returns (2008–2017)	Five-Year Investment Returns (2013–2017)	Three-Year Investment Returns (2015–2017)
Maximum	8.2	8.0	11.4	9.1
Median	6.4	6.2	9.2	6.0
Minimum	4.0	1.9	0.8	(1.4)

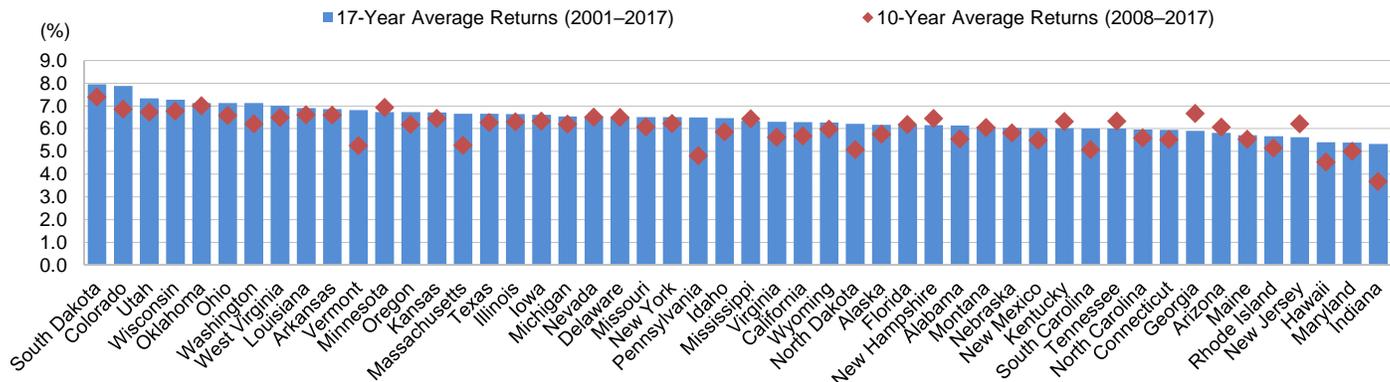
Source: Fitch Ratings, Center for Retirement Research at Boston College.

**Comparing Weighted Average Investment Performance by State**

The chart below shows 17- and 10-year weighted average returns aggregated by state, which is helpful to illustrate the variability of returns from one state to another. The weights by state are based on the market value of plan assets as of 2017. Of note are the pension plans of Indiana, Maryland, Hawaii, Rhode Island, Maine and Connecticut, which reported 10- and 17-year weighted average returns less than or equal to 6%. Also of note are South Dakota, Colorado, Utah, Wisconsin and Oklahoma, the five states with weighted average returns greater than approximately 7% over the same period.

**Public Pension Investment Returns**

(State and Local Plans Weighted by Market Value of Assets)



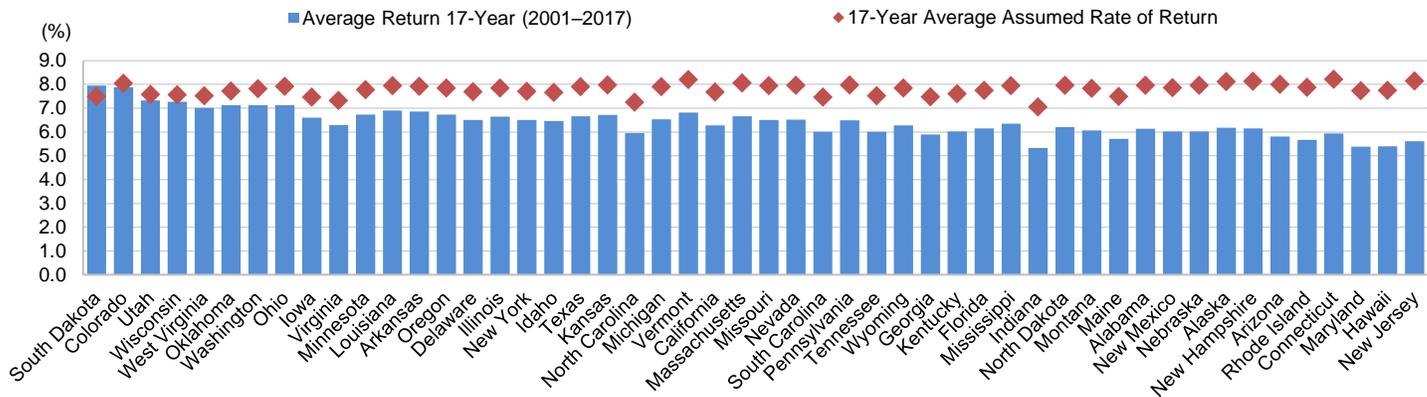
Source: Fitch Ratings, Center for Retirement Research at Boston College.

### Actual Investment Return versus Expected Return Assumption

On an individual plan basis, a key consideration in assessing asset performance is the margin of investment gain compared to that plan's investment return assumption, which for most plans ranges from 7.0%–8.0%. Shortfalls in actual returns relative to the long-term expected return eventually lead to higher employer contributions absent other offsetting changes. As the chart on below shows, using weighted average returns by state between 2001 and 2017, actual investment returns for most states' plans fell short of their expected returns. Except for South Dakota, all other states underperformed this key benchmark for pension performance. Of note, seven states (Arizona, Connecticut, Hawaii, Maryland, New Hampshire, New Jersey and Rhode Island) showed average underperformance of 2.0% and higher, a performance gap that over time could have a material impact on the funding condition of their plans.

### Public Pension Actual versus Assumed Investment Returns

(State and Local Plans Weighted by Market Value of Assets)

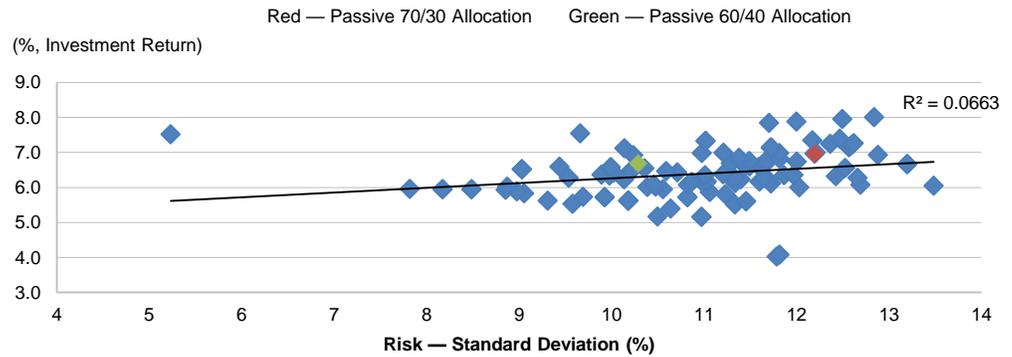


Source: Fitch Ratings, Center for Retirement Research at Boston College.

### Quantifying Historical Volatility

Asset returns cannot be assessed at a point in time, but rather must be assessed relative to the risk taken over a period of time. Using standard deviation as a measure of historical volatility of state and local pension plans, the median standard deviation for individual plans was 11.2%, compared to a median average investment return of 6.4% over a 17-year horizon between 2001 and 2017. As the chart below shows, most plans show average returns between 6% and 7% and a standard deviation between 10% and 12%. Notable outliers include Texas Municipal Retirement Fund with average investment returns of 7.5% and an unusually low standard deviation of 5.2%. Three plans have relatively low returns relative to above-average standard deviations: the Arizona Public Safety Retirement System, the Arizona State Corrections Officers Retirement Plan and the Dallas Police and Fire plans. They all show returns below 5% and standard deviations above approximately 12%.

**Risk versus Return**

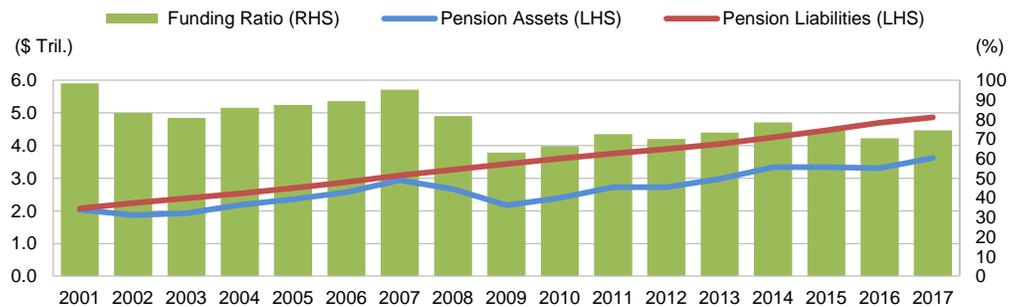


Source: Fitch Ratings, Center for Retirement Research at Boston College.

**Funding Pressures Continue in a Late Cycle Expansion**

As of year-end 2017, state and local pension plans had accumulated assets of approximately \$3.7 trillion against liabilities of \$4.9 trillion. This amounts to an aggregate unfunded pension liability of approximately \$1.2 trillion. The CRR database includes 180 state and local plans (114 state administered and 66 locally administered) and accounts for an estimated 95% of the state and local pension plans by assets and plan participants. Of note, pension liabilities cited in this report reflect the reporting in Comprehensive Annual Financial Reports, and they are not adjusted to Fitch’s 6% discount rate assumption, the measure used by Fitch when assessing the long-term liability burden of state and local governments.

**Pension Assets and Liabilities — State and Local Governments**

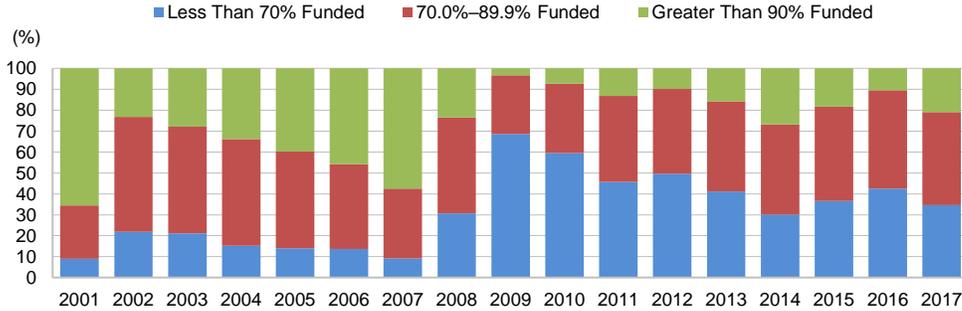


Source: Fitch Ratings, Center for Retirement Research at Boston College.

As the chart above shows, the gap between pension assets and liabilities has steadily increased, to \$1.2 trillion (74% funding) in 2017 from \$33 billion (98% funding) in 2001. The increase in unfunded liabilities largely reflects lower than expected investment returns, particularly due to the significant impact of the Great Recession, inadequate actual contributions relative to ADC and steady increases in projected future benefit in many states.

It should be noted that while aggregate measures show a widening gap between pension assets and liabilities, some plans have maintained solid funding levels, albeit a share generally lower than in 2001. As of 2017, the funded status of approximately 20% of state and local pension plans were at 80% or higher, while approximately 35% of plans were below 70%.

Distribution of Funded Status — State and Local Pension Plans



Source: Fitch Ratings, Center for Retirement Research at Boston College.

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