

# RatingsDirect®

---

## U.S. State Pensions: Weak Market Returns Will Contribute To Rise In Expense

**Primary Credit Analyst:**

Sussan S Corson, New York (1) 212-438-2014; [sussan.corson@spglobal.com](mailto:sussan.corson@spglobal.com)

**Secondary Contacts:**

John A Sugden, New York (1) 212-438-1678; [john.sugden@spglobal.com](mailto:john.sugden@spglobal.com)

Carol H Spain, Chicago (1) 312-233-7095; [carol.spain@spglobal.com](mailto:carol.spain@spglobal.com)

**Research Assistant:**

Joshua Hanson, Centennial

### Table Of Contents

---

Waiting For Recovery

Healthy Systems And Budgets

Survey Results

GASB 67 And 68 Reporting

Measuring Funding Progress

Pension Reform: A Mixed Bag

# U.S. State Pensions: Weak Market Returns Will Contribute To Rise In Expense

## Waiting For Recovery

After losses in 2008 and 2009, most U.S. state pension plans have not been able to recover to funded levels seen in the early 2000s. Investment returns in 2015 and 2016 are not going to make that path any easier. Most plans report on a June 30 year-end, and while the year ended June 2014 posted strong market returns, short-term stock market volatility at the end of June 2015 -- related to stalled negotiations between Greece and its creditors -- contributed to lower reported pension funded ratios for most plans in 2015, according to a survey by S&P Global Ratings. Then, Brexit in June 2016 created another ill-timed blow to market performance. Although a month-end rally recovered Brexit-related losses, investment returns announced to date by many of the largest state plans still averaged less than 1% for the year ended June 30, 2016, which we expect will depress future reported pension funded ratios.

Given the long-term nature of the obligations and their payout, most state pension funding policies stress a long-term view of funding estimated liabilities and smoothing market performance over several years. As a result, the full impact of market losses will not be reflected immediately in states' required pension contributions but will gradually increase as annual market fluctuations are phased in to avoid year-to-year budget shocks. Nevertheless, a trend of lackluster investment returns, together with forecasts of lower expected market returns over the next 10 years, has brought on renewed calls from some financial economists for lower rate of return and discount rate assumptions. When public pension plans assume a lower rate of return, all else being equal, governments must dedicate a greater proportion of their revenue to pension contributions to meet the higher estimated pension liability. Continued trends of slow revenue growth, growing liabilities, and higher future pension contribution costs could amplify an already constrained budget environment for many states.

### Overview

- Weak market returns in 2015 dampened pension funded ratios reflected in new GASB accounting with market valuation of assets.
- A second year of soft market results in 2016 could pressure plans to continue to adopt lower discount rate assumptions, pursue higher yields, or reprise attempts for pension reform.
- How pension plans and state governments manage current assets and future contributions is key to the future health of pension systems and state budgets.

A state's prudent management of its long-term liabilities is important for long-term credit stability. The majority of the largest state plans still assume an annual return between 7.5% and 8%, although there continues to be significant debate in the market about whether the discount rate assumptions used for public pension plans remain too high. In light of lower than expected market returns and expectations for this trend to continue, plan managers have been

under pressure to better align plan assumptions with the market reality of the past couple years by either lowering the actuarial assumed returns assumptions used in their funding policies or pursuing higher yields through riskier investment strategies. We have noticed that more plans are moving to gradually lower assumed rates of return, although many remain within the 7.5% to 8% band. For example, Oregon's Public Employees Retirement system elected to change its assumed rate of return to 7.5% from 7.75% for calendar 2016 which, along with a recent court decision reversing previous pension reform, will impact employer contribution rates in future biennia. Washington will change the assumed rate of return for most of its plans to 7.7% from 7.8% and the Hawaii Employee Retirement System's assumed rate will change to 7.5% from 7.55% beginning in July 2017. New York State has also moved from 7.5% to a 7% return assumption for its 2015 retirement system valuation which will be reflected in future plan comprehensive annual financial reports (CAFRs).

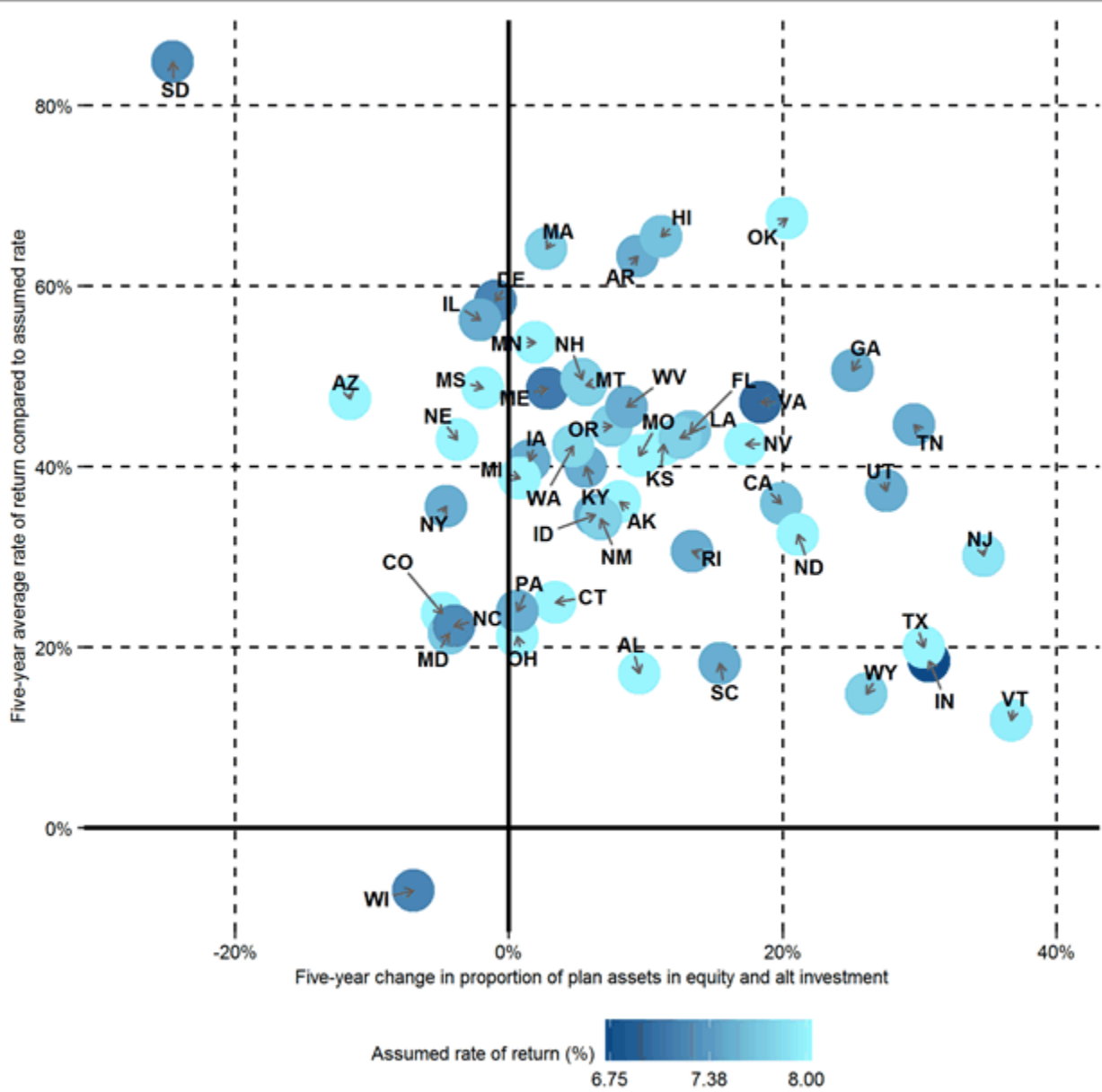
In our view, these decisions represent a difficult tradeoff between reducing the long-term risk associated with uncertain and volatile market returns in exchange for increased budgetary pressure. For example, in August, the Illinois Teachers' Retirement System board voted to lower the assumed annual rate of return further to 7% from 7.5%. We expect that decision to add upwards of \$400 million to Illinois' fiscal 2018 budget and increase the state's already sizable \$4 billion to \$5 billion structural budget gap. We believe that, while complicating budget negotiations even further, this true reckoning of the challenges ahead is positive from a credit standpoint. However, even as some plans bring their return assumption closer to 7%, others suggest these return assumptions might still be too high. A recent publication by Alicia Munnell at the Boston College Center for Retirement Research assumes a 6% expected nominal return in its analysis of government pension liability and contributions (Munnell, Alicia H. and Jean-Pierre Aubrey, "An Overview of the Pension/OPEB Landscape").

In order to maintain higher assumed return targets, some plans have adopted riskier investment allocations, which poses a different set of challenges. This strategy could be attractive in order to maintain higher assumed rates of return and avoid immediate recognition of higher estimated liabilities and contributions. However, riskier investment strategies expose plans to higher volatility and a series of return shortfalls could compound underfunding with steeper growth in contribution rates over time. Chart 1 shows that actual five-year average returns through 2015 still generally exceed the assumed rates of return for the largest state pension plans, but investment allocations have also grown riskier in the previous five years. Using reported plan investment allocations between 2010 and 2015 found on the Public Plans Data website maintained by the Center for Retirement Research at Boston College or in plan reports, we note the proportion of the portfolio allocation among equity and alternative investments for the states' largest pension plan (measured by share of the state's net pension liability (NPL)) averaged 68% and grew by more than 8% compared to the allocation five years earlier.

Finally, as the challenge of meeting investment returns and contribution hikes intensifies, states might also resume the quest for pension reform to manage rising pension liabilities, despite a road fraught with legal hurdles and setbacks. How states and plans manage these pressures and craft funding policies to meet a realistic estimate of the long-term pension liability is important to future state credit quality.

Chart 1

Plans Increase Riskier Investment Allocation To Meet Return Targets



IN reflects the investment allocation of the consolidated defined benefit assets across INPRS funds. WI reflects the investment allocation for the Wisconsin Retirement Fund reported as of Dec. 31, 2014 compared to Dec. 31, 2009.  
 © 2016 Standard & Poor's Financial Services LLC. All rights reserved.

## Healthy Systems And Budgets

The future long-term health of pension systems and state and local government budgets is influenced by whether:

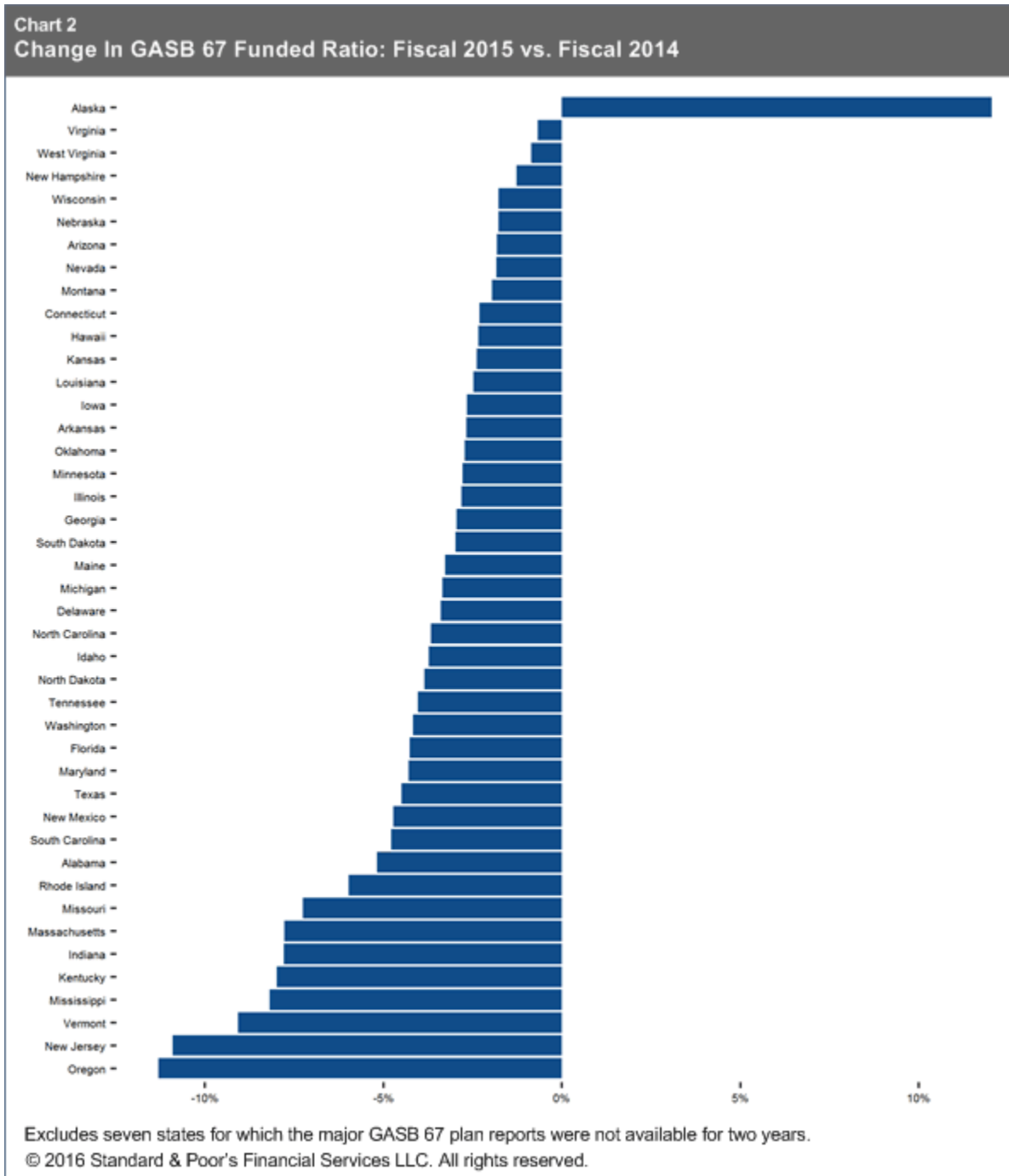
- Plans are making some annual progress on funding the unfunded liability;
- Funding policies are well-crafted and plan managers proactively target realistic assumptions;
- Governments are committed to adequate annual funding; and
- Governments are successful in pension reform initiatives to control growth in liabilities.

## Survey Results

Our 2015 survey results incorporate reported pension liabilities under the Governmental Accounting Standards Board (GASB) statements 67 and 68, which took effect for employers and governmental non-employer contributing entities for fiscal years starting on or after June 15, 2013, and June 15, 2014, respectively. The statements change how pension liabilities are accounted for and reported in state and local governments' financial statements. The new standards also value pension plan assets to market and incorporate this volatility in year-to-year reported pension funded ratios.

### Pension funded ratios

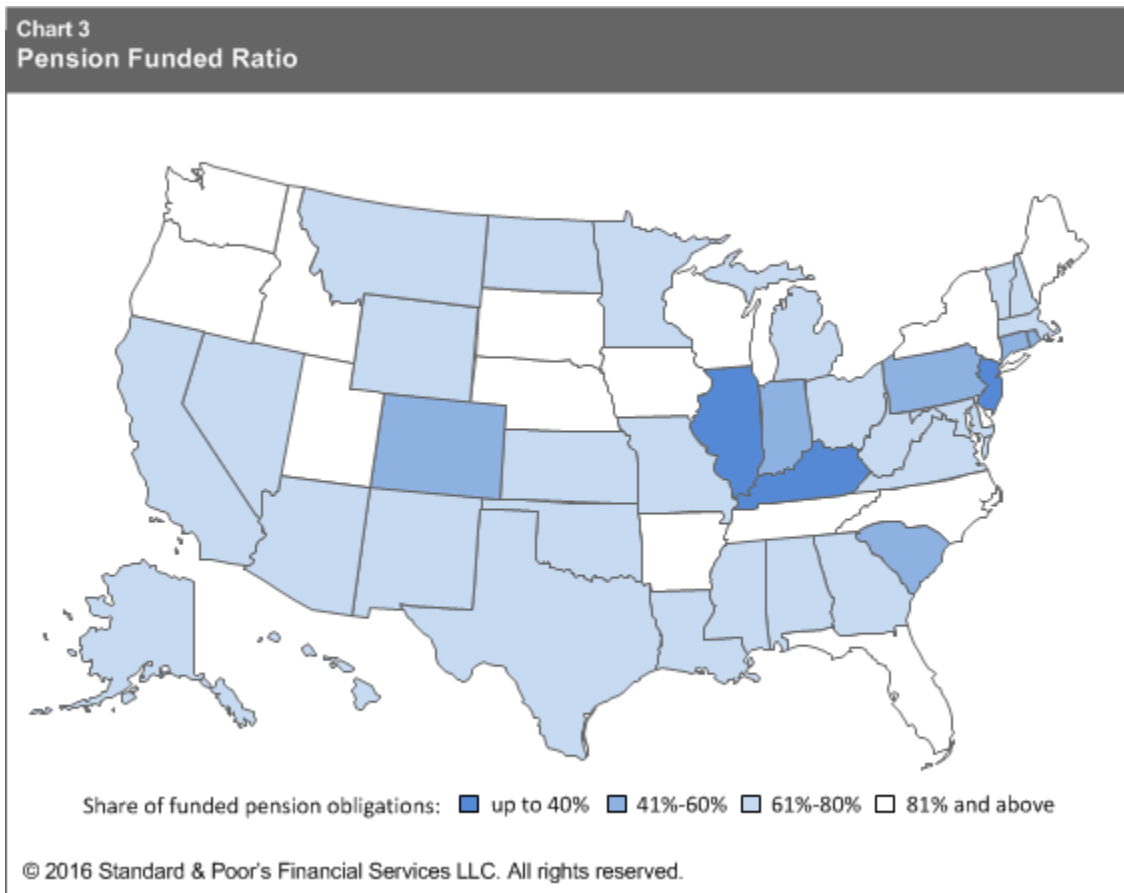
Based on plan information reported through the end of fiscal 2015, the median funded ratio across state plans was 74.6%. We have seen two years of pension plan financial statements for most pension plans since the rollout of GASB 67 reporting standards with a majority of plans reporting a decline in funded ratios between fiscal 2014 and fiscal 2015. Chart 2 reflects this general negative trend in funded ratios between fiscal 2014 and fiscal 2015 due to relatively weak market performance and higher reported liabilities. One exception to this trend was a 12% improvement in Alaska's funded ratios after the state made an extraordinary \$3 billion contribution from its constitutional budget reserve fund to boost assets in its public employees retirement plan and its teachers plan.



South Dakota, Wisconsin and North Carolina continue to lead among the states with the highest funded pension ratio. Compared to our last pension survey (see "U.S. State Pension Roundup: Recent Court Rulings And Reform Slowdowns Make Active Management Essential," published June 18, 2015), Florida and New York rose to the top five, benefiting from the market valuation of assets under the new reporting standards. Although Oregon had previously ranked among the top five states with the highest funded ratios, it fell out of the ranking after the Oregon Supreme Court overturned a significant feature of the state's 2013 pension reform legislation which consequently increased estimated

plan liabilities. In particular, the court ruled that Oregon could not reduce cost-of-living adjustments on benefits Oregon Public Employees Retirement System employees had earned before the enactment of the reform legislation. The higher liability estimates contributed to an 11% decline in Oregon's fiscal 2015 reported funded ratio compared to fiscal 2014. Oregon estimates pension contribution costs will grow by \$316 million for the 2017-2019 biennium, or 1.6% of the tentative \$20 billion two-year budget because of the higher OPERS liability estimates.

Likewise, Connecticut, Kentucky, and Illinois continue to rank among the states with the worst funded ratios. Compared to last year's report, New Jersey reported a lower pension funded ratio which incorporates higher estimated liabilities under the new reporting standards due to projected future depletion of pension asset and a blended assumed discount rate for most of its state plans.



Fiscal 2015 Best-Funded Pension Ratios	
South Dakota	104.1
Wisconsin	102.7
New York State	98.1
North Carolina	94.6
Florida	92.0

Fiscal 2015 Worst-Funded Pension Ratios	
Kentucky	37.4
New Jersey	37.8
Illinois	40.2
Connecticut	49.4
Rhode Island	55.5

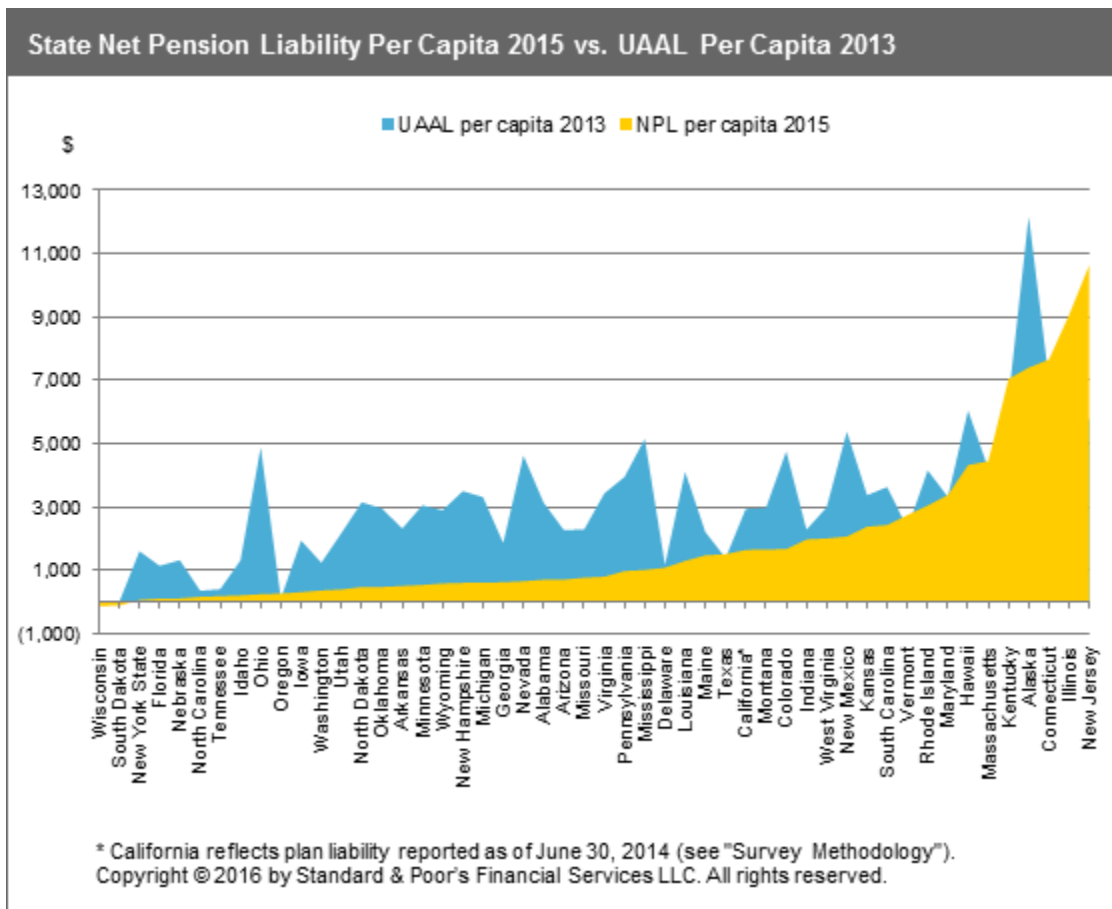
### State reported share of net pension liability

Our 2015 survey incorporates the state's estimated share of the aggregate plan net pension liability under new GASB reporting standards.

For cost-sharing multiple employer plans, GASB 68 bases the reported share of the plan liability on the state's share of required pension contributions to the plan. Under previous GASB reporting standards, many states had reported the total plan liability for such plans, with no disclosure on the state's respective share of the liability. We believe the new GASB reporting standards provide for improved transparency and comparability of state-specific pension liabilities.

Incorporating the state's proportionate share of the net pension liability in this year's survey, we found that the unfunded pension liability per capita declined significantly for most states when compared to the reported total UAAL per capita under previous GASB accounting using 2013 valuations. However, New Jersey, Illinois, Connecticut, Kentucky, and Massachusetts are examples of states with a high net pension liability per capita exceeding \$3,500 which grew compared to the UAAL per capita reported in last year's survey.

**Chart 4**





## GASB 67 And 68 Reporting

What's new	What survey data shows	What to expect
<p>Under new reporting standards, pension plans use a market valuation of assets at the measurement date rather than actuarially derived pension asset valuation.</p> <p>Only a handful of pension plans projected a future depletion of assets and used a lower assumed discount rate (or blended rate) to estimate their liabilities for GASB reporting.</p> <p>New reporting standards also provide disclosure on the state's proportionate share of the pension liability for cost-sharing pension plans.</p>	<p>States' pension funded ratios generally improved in fiscal 2014 due to strong market returns and compared to reported actuarially smoothed ratios in the previous year, although fiscal 2015 funded ratios were generally lower.</p> <p>Certain New Jersey, Texas, and Kentucky pension plans adopted a blended assumed discount rate which caused net pension liabilities to increase under new GASB reporting.</p> <p>Most states' reported share of net pension liability reflected lower liabilities overall than previously reported.</p>	<p>Future plan ratios and NPLs will be more volatile due to market valuation.</p> <p>Reported pension liability estimates could grow if more plans project future asset depletion dates and adopt blended rates.</p> <p>The state's share of liability will move with fluctuations in the plan's reported NPL, although the percentage share of the plan's liability for most states should not fluctuate significantly from year to year, absent significant reform.</p>

## Measuring Funding Progress

Reported pension liabilities are estimates of a long-term liability that needs to be managed over time to avoid significant future costs and credit pressure. Under the previous GASB 25 and 27 standards, GASB required the calculation of the annual required contribution (ARC), which had been used as a barometer of a state's progress and commitment to funding its long-term liability. The ARC represented the employer's cost of retirement benefits earned by employees in the current year and the amount needed to amortize any existing unfunded accrued liability over a period not to exceed more than 30 years. And, in general, we found that state plans that had a history of calculating pension contributions on an actuarial basis and regularly making pension contributions that met the ARC performed better than those that had not. Although GASB 67 and 68 accounting standards no longer require the calculation of an ARC, we understand most plans have not materially changed their funding policies since the implementation of GASB 67 and 68. Plans that had previously used an ARC-based funding policy now disclose an actuarially determined contribution (ADC) which is essentially the same as the ARC calculation.

However, actuarial assumptions used for funding policies won't align with assumptions used to derive liability estimates for GASB reporting purposes. Funding policies for most plans generally use an actuarial valuation of assets,

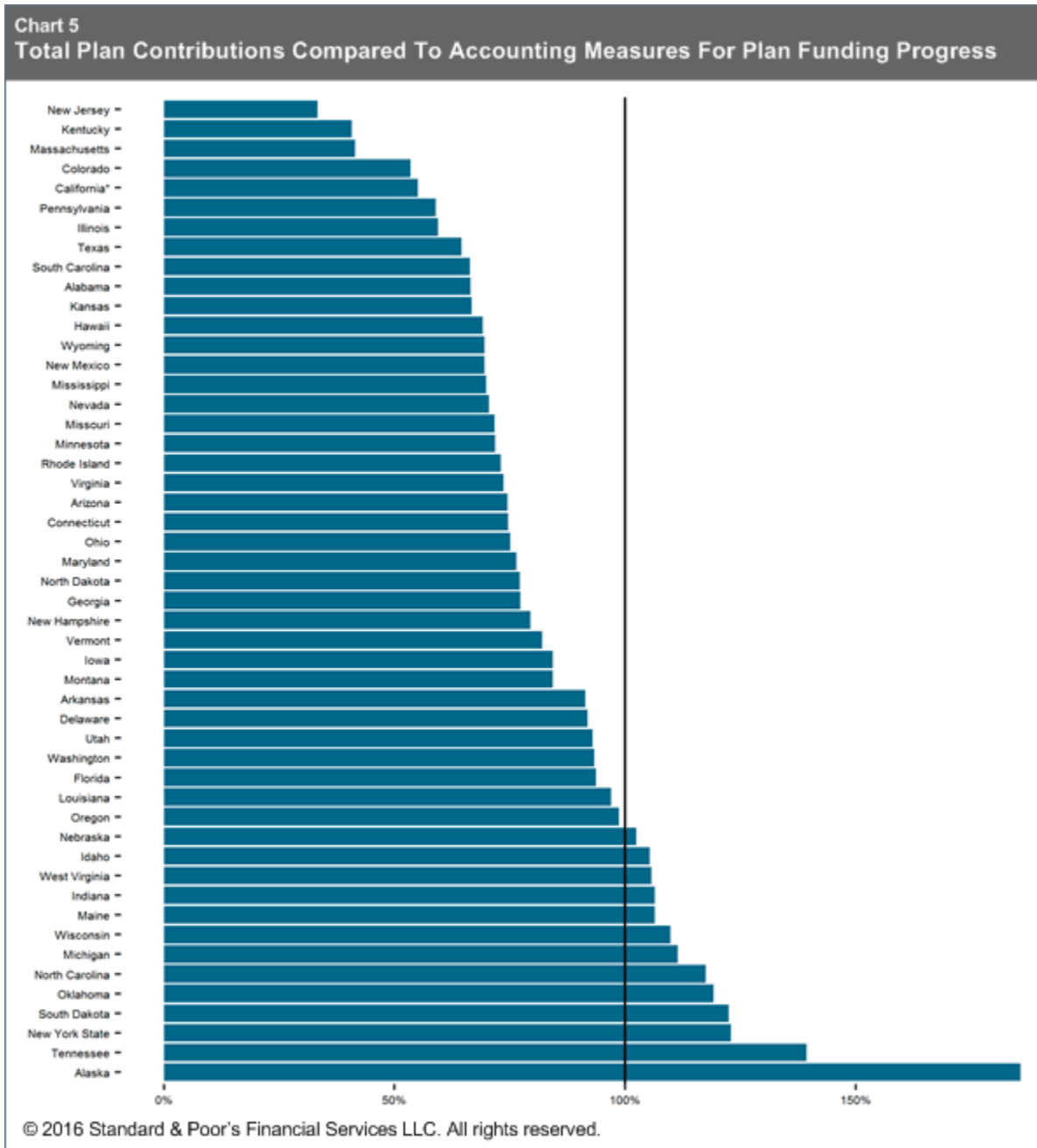
smoothing market returns over a longer period, to help provide a more stable and predictable unfunded liability estimate and annual contribution target than otherwise achievable with year-to-year market valuation of assets. Furthermore, the ARC's effectiveness at reducing the overall liability is only as good as the assumptions used to calculate it. That is, required contribution amounts necessary to demonstrate progress in plan funding could be greatly underestimated depending on actuarial assumptions behind the respective funding policies, including assumed amortization methods.

In our view, states that are consistent in funding required contributions based on funding policies that use conservative actuarial assumptions demonstrate an overall commitment and a path forward toward funding the estimated long-term liability. Furthermore, we believe new reported accounting measures can also provide clues on whether total annual plan contributions are making progress in funding the long-term estimated liability. Chart 5 compares total annual plan contributions to certain costs driving the annual change in the net pension liability. We believe there is likely some amount of funding progress if the annual plan contributions cover (1) service cost (the present value of benefits earned by participants in the year) (2) a portion of the annual total interest cost related to pension liabilities unmatched by plan assets, and (3) some amortization of the beginning net pension liability. The chart reveals that, on the whole, plan contributions for only about 25% of the states are covering these annual costs for the most recently reported year.

Aside from Alaska, which made a large non-recurring contribution to its pension plans in fiscal 2015, South Dakota, Tennessee, New York, Wisconsin, and North Carolina show strong progress in annual pension funding and are also notably states that have ranked among those the highest pension-funded ratios in our recent pension surveys.

Interestingly, Oklahoma plans showed strong progress in funding certain annual costs as of the most recent plan reports even though Oklahoma's pension funding is based on the dedication of certain revenues to fund pensions and does not directly correlate to an actuarially determined contribution. We note that prior to fiscal 2012, Oklahoma had funded its pensions at levels that were less than 70% of the ARC. However, pension reform efforts eliminated the cost of living adjustment (COLA) and reduced the state's liability, bringing the ARC closer in line with the revenue stream dedicated to fund it. Over the past four years, Oklahoma's contributions exceeded the ARC on an aggregate basis with overfunding of some plans and underfunding of others. This, however, could turn out to be temporary as the funding formula is driven by economically sensitive revenues, does not have an actuarial basis and does not adjust to increases in estimated liability.

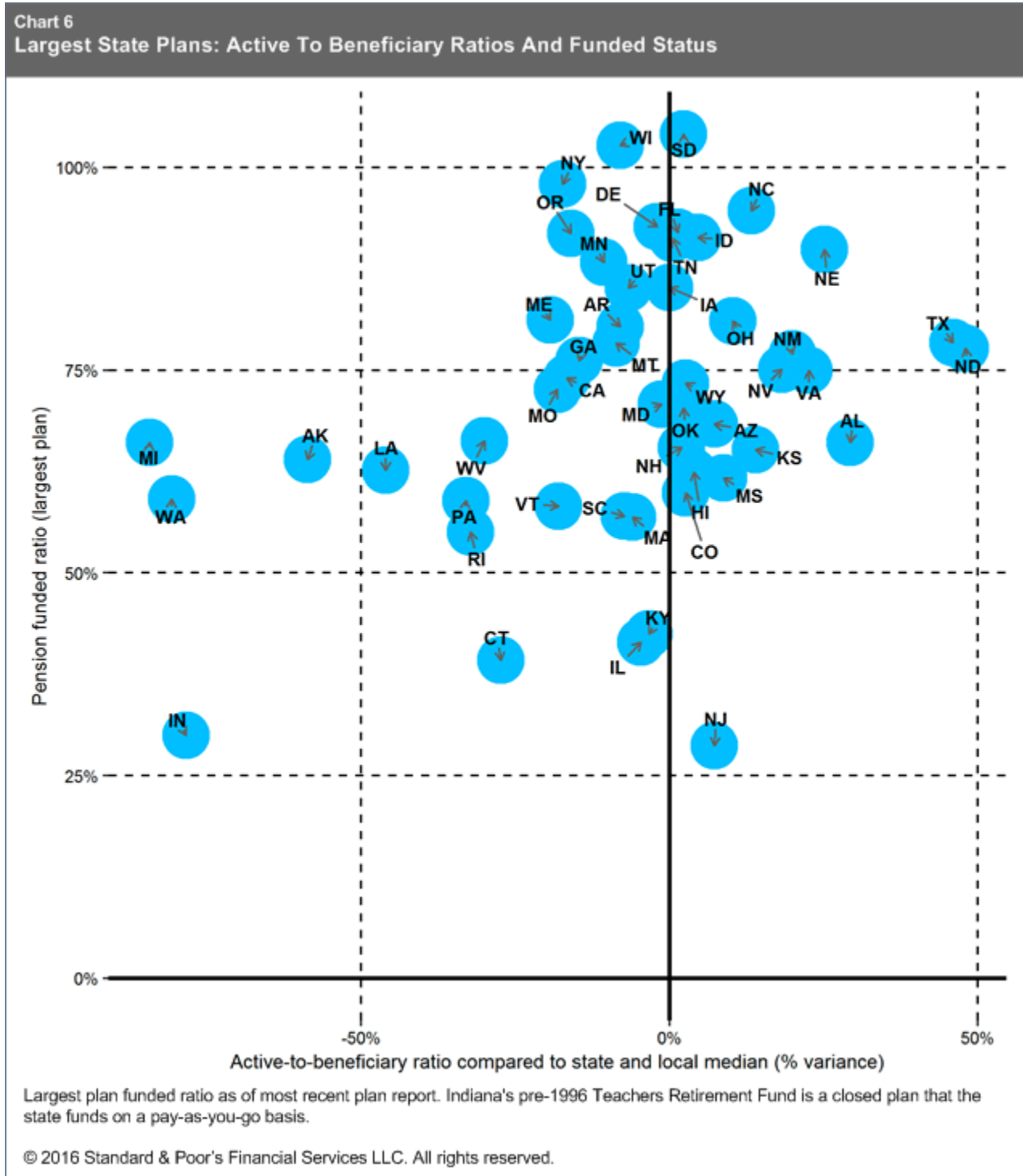
The chart also reflects that New Jersey plans funded only 33% of the annual cost measures. This is likely to continue after the New Jersey Supreme Court ruled in June 2015 that the state's pension contributions are not constitutionally protected. Additionally, in August, state legislators failed to put a voter referendum on the November ballot for a constitutional amendment that would have required the state to increase its pension contributions.



**Assumptions matter**

There are a multitude of assumptions behind the liability estimates and funding policies. These assumptions – including those relating to the rate of return, amortization methods, mortality rates, benefit growth, plan characteristics, and more -- drive a plan's estimated long-term pension liability. Incorporation of updated demographic and economic assumptions from regular experience studies are a sign of proactive plan management. A plan that significantly lags in its response to emerging long-term economic and demographic trends could fall behind in its funding, causing more significant cost increases in the future.

Plan characteristics and demographic makeup are also important in analysis of future pension pressures. Chart 6 reflects the active-to-beneficiary ratio for the largest state plans as it relates to the 1.5 median ratio reported by the U.S. Census Bureau for all state and local plans. Plans with relatively low active members compared to beneficiaries and without a strong funded ratio of pension assets to cover future benefits could face significantly greater challenges to cover future contributions as the base of contributing members shrinks.



## **Pension Reform: A Mixed Bag**

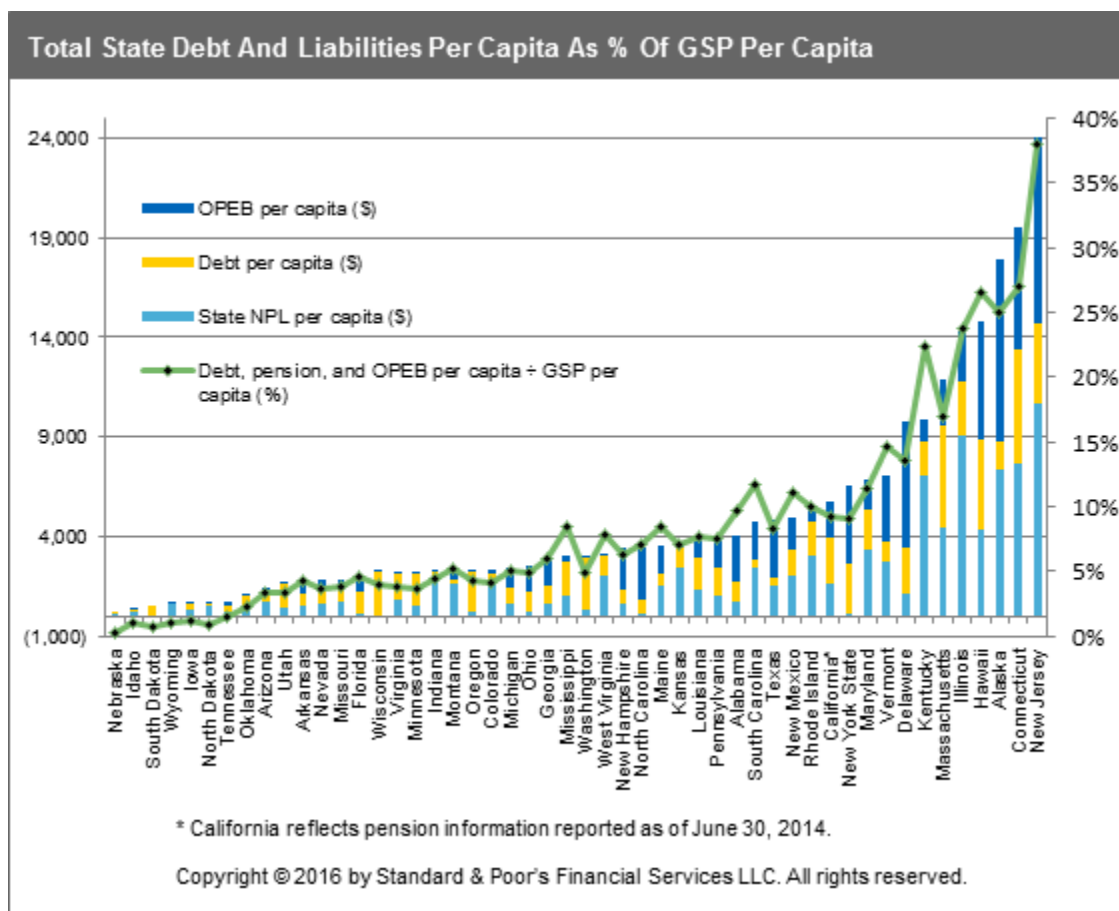
Some states have implemented pension reform successfully, while other state pension reform initiatives have met with legal roadblocks. The legal and political environment for each state differs and not all states have tested pension reform in court. Whereas the Illinois Supreme Court decision to overturn the state's 2013 pension reform has contributed to mounting budgetary stress and credit deterioration for Illinois, many states have demonstrated successful pension reform upheld in court or through settlements. Reform in Maine and Maryland in 2011 reduced COLA for current employees. In 2015, Texas passed legislation to increase active employee contributions to the Employees Retirement System. While such examples reflect successful reform for existing employee benefits, other states have focused on reducing benefits for new hires. In 2015, West Virginia established a new benefit tier for several plans which reduced benefits and required higher employee contributions for new hires. Nevada's 2015 legislature also established a new benefit tier for the Public Employees' Retirement System and reduced benefits for new hires. In late 2015, South Dakota's retirement system approved reform that adopts characteristics of a hybrid plan for new hires.

Although New Jersey's pension liabilities still remain severely unfunded, in June 2016, the New Jersey Supreme Court ruled in favor of New Jersey's 2011 law that froze COLAs, which otherwise could have led to an even higher pension liability. In August 2016, a California court of appeal ruling allowed adjustments to existing benefits for CALPERS municipal employees which seems to contradict a longstanding State Supreme Court decision (the "California Rule") and could imply more flexibility for future pension reform in the state. However, it is still too early to tell whether the case will be upheld upon appeal to the State Supreme Court.

According to the National Conference of State Legislatures, 44 states introduced 1,132 bills that related to pensions in 2016 compared to a total 1,101 bills introduced (by 50 states) in 2015. While more bills were introduced, only 177 pension related bills were enacted in 2016 compared to 252 in 2015 and 302 in 2014. Despite an apparent slowdown in enacted reform in the previous couple of years, we expect GASB reporting, increased attention to weaker market returns over the past two years, and increased calls from market participants for reducing assumed rates of return, will make it more likely that most states will resume efforts for pension reform as a means of managing rising liabilities and contributions.

Absent material pension reform, liability estimates will generally grow with experience trends. We believe lower market returns and rate of return assumptions could increase budgetary costs or strain a state's commitment to meeting its required long-term pension contributions. To the extent plans cannot demonstrate a history of meeting assumed projected contributions, we could see reports of asset depletion and calculation of higher liability using a blended assumed discount rate under new GASB reporting standards. Thus, we expect pension liabilities will continue to grow as a component of a state's overall liability profile and could pose significant public policy and funding challenges for many states. How states manage these liabilities both on an annual basis and in the long term will remain important credit factors in our review of state governments' total debt and liabilities.

Chart 7



**U.S. States' Pension Liabilities And Ratios**

State	Funded ratio (%)	Vs. last year (GASB 67)	NPL (\$ mils.)	NPL per capita (\$)	Debt, pension, and OPEB per capita (\$)	State's largest plan	GO rating/outlook
Alabama	67.0	Lower	3,457	711	4,088	AL ERS	AA/Stable
Alaska	67.5	Higher	5,468	7,405	17,887	AK PERS	AA+/Negative
Arizona	63.2	Lower	4,892	716	1,420	AZ SRS	AA/Stable
Arkansas	82.4	Lower	1,533	515	1,758	AR PERS	AA/Stable
California*	75.0	NA	64,631	1,651	5,798	CA PERF	AA-/Stable
Colorado	60.0	NA	9,146	1,676	2,344	CO State Division	AA/Stable
Connecticut	49.4	Lower	27,511	7,660	19,484	CT SERS	AA-/Stable
Delaware	89.1	Lower	1,031	1,090	9,789	DE State Employees	AAA/Stable
Florida	92.0	Lower	2,299	113	2,017	FL RS	AAA/Stable
Georgia	80.7	Lower	6,462	632	2,927	GA ERS	AAA/Stable
Hawaii	62.4	Lower	6,197	4,328	14,806	HI ERS	AA/Positive
Idaho	91.3	Lower	356	215	402	ID PERS	AA+/Stable
Illinois	40.2	Lower	116,760	9,078	14,320	IL TRS	BBB+/Negative
Indiana	60.3	Lower	13,133	1,984	2,261	IN TRF pre-1996	AAA/Stable

**U.S. States' Pension Liabilities And Ratios (cont.)**

State	Funded ratio (%)	Vs. last year (GASB 67)	NPL (\$ mils.)	NPL per capita (\$)	Debt, pension, and OPEB per capita (\$)	State's largest plan	GO rating/outlook
Iowa	85.1	Lower	1,003	321	677	IA PERS	AAA/Stable
Kansas	65.2	Lower	6,940	2,383	3,616	KS PERS	AA-/Stable
Kentucky	37.4	Lower	31,184	7,046	9,845	KY Teachers	A+/Stable
Louisiana	63.8	Lower	6,082	1,302	3,994	LA LASERS	AA/Negative
Maine	81.3	Lower	1,970	1,481	3,574	ME PERS	AA/Stable
Maryland	68.8	Lower	20,316	3,382	6,876	MD TRPS	AAA/Stable
Massachusetts	61.5	Lower	30,248	4,451	11,912	MA MTRS	AA+/Negative
Michigan	66.5	Lower	6,128	618	2,408	MI SERS	AA-/Stable
Minnesota	78.8	Lower	2,998	546	2,252	MN SERF	AA+/Positive
Mississippi	61.8	Lower	3,045	1,018	3,013	MS PERS	AA/Stable
Missouri	66.9	Lower	4,706	773	1,805	MO MSEP	AAA/Stable
Montana	74.5	Lower	1,720	1,665	2,292	MT PERS+DBRP	AA/Stable
Nebraska	88.8	Lower	230	121	129.55	NE Schools	AAA/Stable
Nevada	75.2	Lower	1,919	664	1,793	NV PERS	AA/Stable
New Hampshire	65.4	Lower	813	611	3,436	NH RS	AA/Stable
New Jersey	37.8	Lower	95,396	10,648	24,065	NJ TPAF	A/Negative
New Mexico	70.6	Lower	4,324	2,073	4,916	NM PERA	AA+/Negative
New York State	98.1	NA	1,471	74	6,544	NY ERS	AA+/Stable
North Carolina	94.6	Lower	1,701	169	3,480	NC PERS	AAA/Stable
North Dakota	70.4	Lower	364	481	679	ND PERS	AA+/Stable
Ohio	78.8	NA	2,917	251	2,536	OH PERS	AA+/Stable
Oklahoma	80.3	Lower	1,888	483	1,025	OK Teachers	AA+/Negative
Oregon	91.9	Lower	1,092	271	2,296	OR PERS	AA+/Stable
Pennsylvania	57.6	NA	12,565	981	4,072	PA SERS	AA-/Negative
Rhode Island	55.5	Lower	3,223	3,051	5,389	RI ERS - State	AA/Stable
South Carolina	57.9	Lower	11,920	2,434	4,765	SC RS	AA+/Stable
South Dakota	104.1	Lower	(94)	(109)	411.39	SD RS	AAA/Stable
Tennessee	91.3	Lower	1,287	195	717	TN CSHEPP	AAA/Stable
Texas	75.6	Lower	41,610	1,515	4,812	TX TRS	AAA/Stable
Utah	88.5	NA	1,204	402	1,655	UT URS	AAA/Stable
Vermont	65.4	Lower	1,722	2,750	7,084	VT Teachers	AA+/Stable
Virginia	74.6	Lower	6,757	806	2,216	VA VRS	AAA/Stable
Washington	86.8	Lower	2,668	372	3,019	WA PERS 1	AA+/Stable
West Virginia	76.9	Lower	3,711	2,012	3,114	WV TRS	AA-/Stable
Wisconsin	102.7	Lower	(687)	(119)	2,104	WI WRS	AA/Stable
Wyoming	80.1	NA	347	592	642	WY PERS	AAA/Negative
Total			577,564				
Median	74.6		3,134	790	3,016		
Average	73.2		11,551	1,870	4,849		

Ratings as of Sept. 12, 2016. \*California reflects pension information reported as of June 30, 2014.

## Survey Methodology

Our calculation of pension liabilities was derived from pension plan and state CAFRs reporting under GASB 67/68 standards, GASB 67 consultant reports, and GASB 68 allocation reports currently available to us. We have combined information across multiple pension plans for each state to calculate the state's aggregated plan net position to the total pension liability (pension funded ratio) and funding progress measures. We use cost-sharing multiple employer pension plan CAFRs or GASB 67 reports released within the state's fiscal year and use the state's proportionate share of plan liabilities to calculate the state's net pension liability.

All states except for Alabama and New York have released a CAFR using GASB 68 reporting standards, which incorporates disclosure on the state's proportionate share of cost-sharing pension plans. To estimate Alabama's and New York's respective shares of the pertinent cost-sharing plans' net pension liability, we use the most recent plan GASB 68 allocation reports. Although most states report their proportionate share of respective plan net pension liabilities as of fiscal 2014, we assume the same percentage share applied to fiscal 2015 plan NPLs. In deriving the estimated state portion of the liability for some cost-sharing multiple employer plans, we include a portion of plan liabilities in addition to those reported in the state's CAFR if we expect the state will likely continue to make pension contributions on behalf of other plan employers, even if such contributions are not legally required or do not flow directly to the plan.

Most cost-sharing multiple employer pension plans in which states participate have reported two years of pension plan data under GASB 67 through each respective state's fiscal 2015 year-end. However, given varying reporting dates, some plans do not have a conforming two-year history under GASB 67 reporting standards; therefore the following states are not included in Chart 2: California, Colorado, New York, Ohio, Pennsylvania, Utah, and Wyoming.

Most states' single plan or agent employer plans are relatively small and updated GASB reported information is available only as of fiscal 2014 in the states' fiscal 2015 CAFRs. Given the relative size of these plans, if updated information is not available for fiscal 2015, we carry forward fiscal 2014 net pension liabilities to fiscal 2015 to maintain relative comparability between years. California is an exception in that its share of NPL in its largest plan, CALPERS PERF A, represents more than half of the state's estimated NPL. CALPERS PERF A is an agent multiple-employer plan which only reports under updated GASB standards as of fiscal 2014 in the state's fiscal 2015 CAFR. We therefore report on California's ratios as of fiscal 2014.

Chart 5 uses the following calculation across all state plans to estimate annual plan funding progress:  $\text{Total employer and employee plan contributions} \div \text{the sum of service cost} + \text{total interest cost} \times (1 - \text{average plan funded ratio}) + (\text{beginning plan net pension liability} \div 30)$ . If the aggregate beginning unfunded pension liability across plans is negative,  $\text{beginning plan net pension liability} \div 30$  would be treated as zero. Likewise, for funded ratios at or above 100%, the interest cost factor would be zero.

Charts 1 and 6 reflect information specific to the largest pension plan in which the state participates (see table 1), measured by its share of the state's total estimated net pension liability.

Only a rating committee may determine a rating action and this report does not constitute a rating action.



Copyright © 2016 by S&P Global Market Intelligence, a division of S&P Global Inc. All rights reserved.

No content (including ratings, credit-related analyses and data, valuations, model, software or other application or output therefrom) or any part thereof (Content) may be modified, reverse engineered, reproduced or distributed in any form by any means, or stored in a database or retrieval system, without the prior written permission of Standard & Poor's Financial Services LLC or its affiliates (collectively, S&P). The Content shall not be used for any unlawful or unauthorized purposes. S&P and any third-party providers, as well as their directors, officers, shareholders, employees or agents (collectively S&P Parties) do not guarantee the accuracy, completeness, timeliness or availability of the Content. S&P Parties are not responsible for any errors or omissions (negligent or otherwise), regardless of the cause, for the results obtained from the use of the Content, or for the security or maintenance of any data input by the user. The Content is provided on an "as is" basis. S&P PARTIES DISCLAIM ANY AND ALL EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, FREEDOM FROM BUGS, SOFTWARE ERRORS OR DEFECTS, THAT THE CONTENT'S FUNCTIONING WILL BE UNINTERRUPTED, OR THAT THE CONTENT WILL OPERATE WITH ANY SOFTWARE OR HARDWARE CONFIGURATION. In no event shall S&P Parties be liable to any party for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including, without limitation, lost income or lost profits and opportunity costs or losses caused by negligence) in connection with any use of the Content even if advised of the possibility of such damages.

Credit-related and other analyses, including ratings, and statements in the Content are statements of opinion as of the date they are expressed and not statements of fact. S&P's opinions, analyses, and rating acknowledgment decisions (described below) are not recommendations to purchase, hold, or sell any securities or to make any investment decisions, and do not address the suitability of any security. S&P assumes no obligation to update the Content following publication in any form or format. The Content should not be relied on and is not a substitute for the skill, judgment and experience of the user, its management, employees, advisors and/or clients when making investment and other business decisions. S&P does not act as a fiduciary or an investment advisor except where registered as such. While S&P has obtained information from sources it believes to be reliable, S&P does not perform an audit and undertakes no duty of due diligence or independent verification of any information it receives.

To the extent that regulatory authorities allow a rating agency to acknowledge in one jurisdiction a rating issued in another jurisdiction for certain regulatory purposes, S&P reserves the right to assign, withdraw, or suspend such acknowledgement at any time and in its sole discretion. S&P Parties disclaim any duty whatsoever arising out of the assignment, withdrawal, or suspension of an acknowledgment as well as any liability for any damage alleged to have been suffered on account thereof.

S&P keeps certain activities of its business units separate from each other in order to preserve the independence and objectivity of their respective activities. As a result, certain business units of S&P may have information that is not available to other S&P business units. S&P has established policies and procedures to maintain the confidentiality of certain nonpublic information received in connection with each analytical process.

S&P may receive compensation for its ratings and certain analyses, normally from issuers or underwriters of securities or from obligors. S&P reserves the right to disseminate its opinions and analyses. S&P's public ratings and analyses are made available on its Web sites, [www.standardandpoors.com](http://www.standardandpoors.com) (free of charge), and [www.ratingsdirect.com](http://www.ratingsdirect.com) and [www.globalcreditportal.com](http://www.globalcreditportal.com) (subscription) and [www.spcapitaliq.com](http://www.spcapitaliq.com) (subscription) and may be distributed through other means, including via S&P publications and third-party redistributors. Additional information about our ratings fees is available at [www.standardandpoors.com/usratingsfees](http://www.standardandpoors.com/usratingsfees).

STANDARD & POOR'S, S&P and RATINGSDIRECT are registered trademarks of Standard & Poor's Financial Services LLC.