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ANALYST CONTACTS

Thomas Aaron 312-706-9967
 AVP-Analyst
 thomas.aaron@moodys.com

Timothy Blake 212-553-4524
 MD-Public Finance
 timothy.blake@moodys.com

US Public Pensions

New Pension Accounting Increases Clarity of Plan Funding Trajectories

Summary

US public pension plans are releasing 2014 Comprehensive Annual Financial Reports (CAFRs) that for the first time comply with Governmental Accounting Standards Board (GASB) Statement 67. Our review of new disclosures of 54 public plans available as of January 2015, each with reported liabilities in excess of \$10 billion, confirms that the new standards have only a modest credit impact because [our adjustments to reported pension data remain fundamentally unchanged](#). Similar to our [previous findings](#), the new disclosures show that baseline public pension funding trajectories are worsening, even when assumptions are met.

- » **Pension funding disclosures are more timely under the new accounting standards.** New requirements for the measurement of plan assets and liabilities reduce the lagged nature of reported funding progress.
- » **New details on annual costs show that contributions are insufficient to stem unfunded liability growth in most cases.** The disclosure of current year benefit accruals (called “service cost,” or “normal cost”) demonstrates whether contributions are sufficient to “tread water,” or prevent reported Net Pension Liabilities (NPLs) from growing if plan assumptions are met. Contributions to 74% of the plans in our sample fell below this “treading water” benchmark.
- » **Many plans exhibit increased underfunding despite receiving full required government payments.** While 19 of 54 plans sampled received exactly 100% of the actuarially determined contribution (ADC), only six of those 19 received contributions meeting or exceeding the tread water benchmark.
- » **A lack of projected asset depletion under GASB 67 does not signal the absence of depletion risk.** Since GASB rules allow the use of generous assumptions, discount rates used to value reported liabilities largely remain equivalent to investment return assumptions. Only four out of 54 plans reported NPLs using a discount rate less than their investment return assumption because they project asset depletion.
- » **We continue to expect generally limited credit impact from the new standards because our adjustments to reported pension data remain fundamentally unchanged.** The effect on Moody’s Adjusted Net Pension Liabilities (ANPLs) could be significant in some cases, however, due to the reporting of assets at fair value, our use of new plan-specific duration estimates and the replacement of our estimates with disclosed proportionate shares of cost-sharing plans.

Pension funding disclosures are more up-to-date under new accounting standards

GASB 67 and 68 impose new rules regarding the timing for measurement of public pension liabilities and assets. While these rules differ somewhat for plans (GASB 67) and issuers (GASB 68), the information required in both plan and issuer financial statements is more current than under the previous GASB Statements 25 and 27.

Pension Plan Financial Reporting - GASB 67

Under GASB 67, plans must report assets and liabilities as of a "Measurement Date" that is equivalent to the plan fiscal year end, even though the actuarial valuation driving the results may be based on a date up to 24 months prior to the Measurement Date. Under the previous accounting standards, plans would disclose assets and liabilities (i.e. their funding progress) as of the most recently available actuarial valuation date.

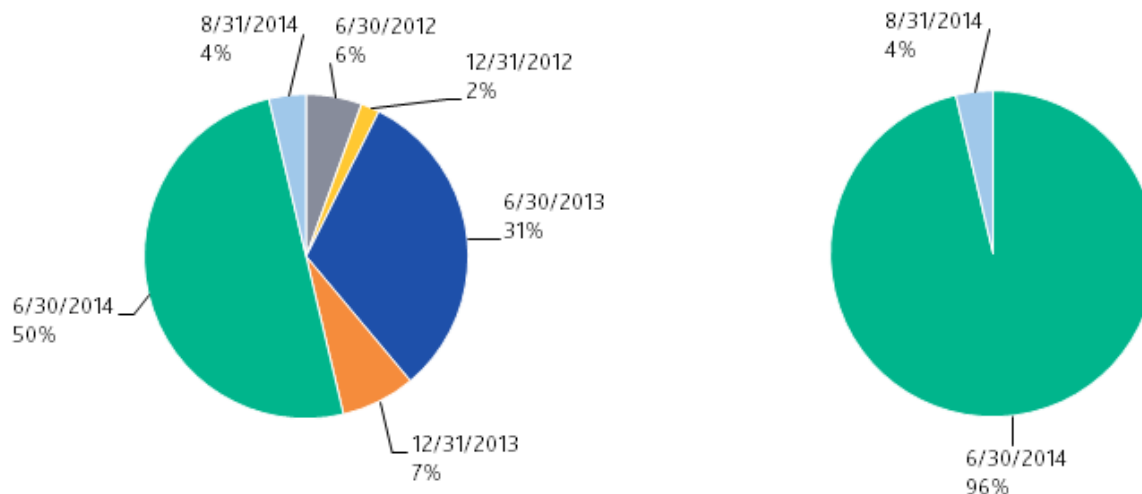
Our sample of 54 fiscal 2014 plan CAFRs all have fiscal year end dates of June 30, 2014, except for two with fiscal year ends as of August 31, 2014. Nearly half (46%) of the plans would have reported funding progress older than their fiscal year end date under the previous accounting standards, in most cases by six to 12 months (see left-hand side of Exhibit 1).

Conversely, GASB 67 requires the use of "roll-forward" procedures to bring the Total Pension Liability (TPL) from the actuarial valuation date to the Measurement Date. The Plan Fiduciary Net Position (PFNP), or fair value of assets, is also presented as of the Measurement Date rather than the date of the last actuarial valuation, resulting in the reporting of plan funding progress as of the plan fiscal year end for each plan under GASB 67 (see right-hand side of Exhibit 1).

See the Appendix for a GASB pension glossary.

Exhibit 1

Fiscal 2014 Plan CAFRs Demonstrate More Timely Reporting Under New Pension Accounting Standards Plan funding progress now presented as of Measurement Date (right) rather than actuarial valuation dates (left)



Source: Fiscal 2014 plan CAFRs.

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Issuer Reporting – GASB 68

GASB 68 is somewhat more lenient related to the timing of funding progress information than GASB 67, because it allows issuers to report pension liabilities and assets as of a Measurement Date up to one year prior to their own fiscal year end. The actuarial valuation date upon which the Measurement Date results are based must be within 30 months plus one day of the issuer's fiscal year. For example, an issuer financial statement as of June 30, 2015 could measure its NPL as far back as June 30, 2014. This is particularly important for governments that participate in cost-sharing plans: if the plan's most recent Measurement Date in this example was December 31, 2014, the issuer could simply present their proportionate share of the plan's NPL without implementing any roll-forward procedures.

While an issuer's NPL in June 30, 2015 financial reporting could be measured as of June 30, 2014 at earliest, that measurement could be based on an actuarial valuation as old as December 31, 2012. In that scenario, the results of the valuation would have to be rolled forward by 18 months to comply with GASB 68. Despite the allowance of roll-forward procedures in such a scenario, GASB 68 calls for professional judgment on the part of plan actuaries as to whether a roll forward procedure is sufficiently accurate, or whether an updated valuation report is necessary.

New details on annual costs show that contributions are insufficient to stem unfunded liability growth in most cases

GASB 67 and 68 require the inclusion of "service cost" as part of the annual presentation of changes in reported NPLs. Service cost, also called "normal cost," represents the actuarial present value of benefits attributable to a given year. Under the previous GASB 25 and 27 pension accounting standards, plans and issuers were not required to disclose this incremental benefit accrual line item.

In addition to disclosing service cost, plans and issuers must also use the Entry Age Normal (EAN) actuarial cost method under the new GASB rules, as opposed to a range of six methods that were allowable under previous standards. This change will produce improved comparability by eliminating deviations in actuarial cost methods, although other underlying actuarial assumptions can still drive differences in normal costs, despite common use of EAN.

The disclosure of service cost makes clear the extent to which contributions address NPLs after covering new accruals, using reported assumptions. If investment return assumptions are met, a contribution that exactly covers service cost plus interest on the NPL would allow a plan to "tread water," or end the year with a NPL equivalent to its value at the beginning of the year. Contributions that fall short of the tread water requirement will result in growing net liabilities even if all assumptions are met because they fall short of covering interest on the beginning of year NPL. Contributions in excess of the tread water benchmark cover all of the interest and repay some NPL principal.

Employer contributions relative to the tread water benchmark are depicted below for two example plans. Contributions to Plan A cover all of the interest and 1.2% of the principal balance, but contributions to Plan B amount to less than all the interest. Both plans received 100% of employer actuarial contributions, or ADCs (see Exhibit 2).

Exhibit 2

Impact of Government Contributions on Plan Funding Varies Considerably

\$ in millions

Beginning of Year (as-reported)	Plan A	Plan B
Single-Equivalent Discount Rate (2013)	7.25%	7.50%
Net Pension Liability (NPL)	\$1,247	\$17,936
Employer Service Cost	\$308	\$86
Interest on NPL	\$90	\$1,345
Employer Tread Water Requirement	\$398	\$1,432
Employer Contribution (Equal to 100% of ADC)	\$413	\$963
Scheduled NPL Principal Payment	\$15.0	-\$469
Principal Payment as % of Beginning NPL	1.2%	-2.6%

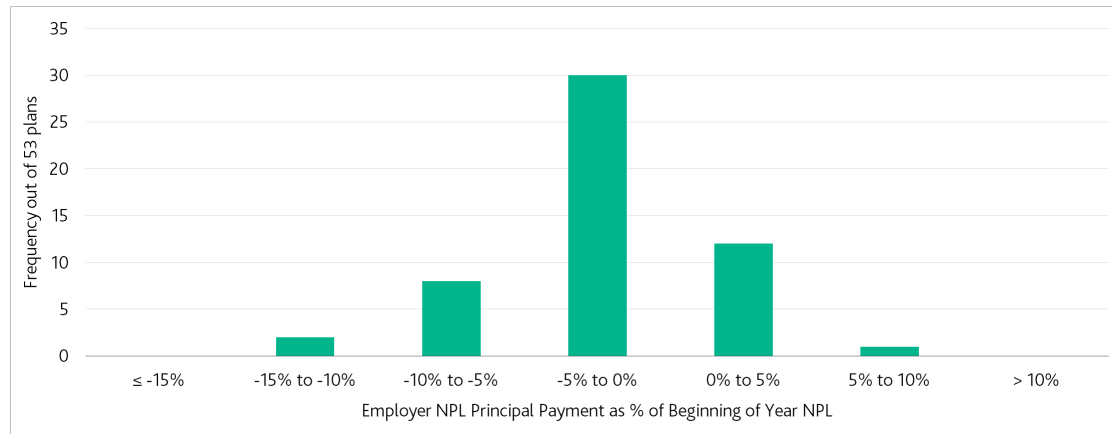
Plan A is the North Carolina Local Government Employees Retirement System. Plan B is the South Carolina Retirement System.

Sources: State of North Carolina CAFR, South Carolina Retirement System, Moody's Investors Service

Only 13 plans in our sample received employer contributions in excess of the tread water benchmark in fiscal 2014. In contrast, our sample overwhelmingly indicates that government contributions to public pension plans are not sufficient to tread water, with most accruing negative interest amounting to as much as 5% of beginning of year NPL (see Exhibit 3).

Exhibit 3

Most Government Contributions to Public Pension Plans Are Not Sufficient to Cover Annual Service Cost Plus Interest
Contributions below tread water benchmark result in growing reported funding gaps, even when plans meet assumptions



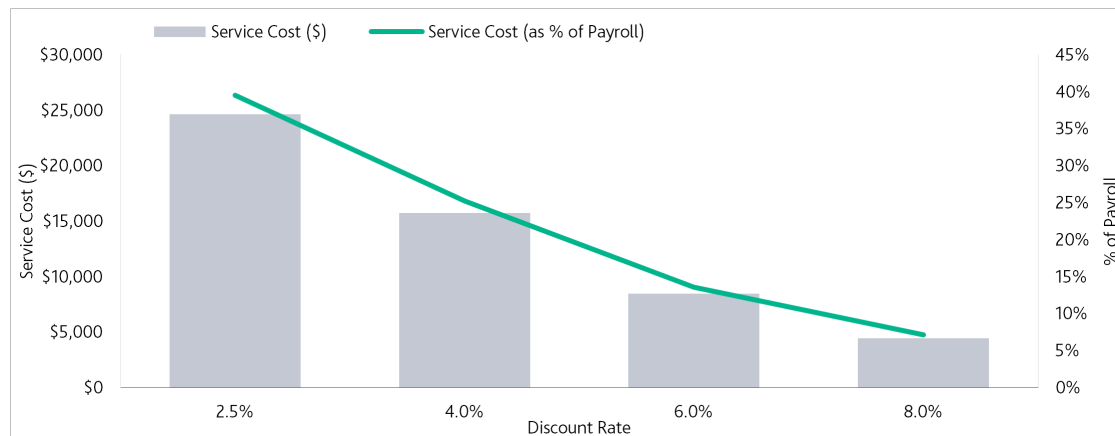
n = 53. Excludes New York State Teachers Retirement System because of reported over-funded status on June 30, 2013.

Sources: Plan CAFRs, Moody's Investors Service

Measuring employer contributions next to the tread water benchmark does not match plan experience throughout the year, because actual investment returns relative to assumed returns are essentially ignored. The tread water benchmark is also susceptible to several noteworthy analytical inconsistencies, stemming from variation in actuarial assumptions and the divergence between public pension accounting and funding.

For example, plan funding may still employ asset smoothing and adhere to the old Annual Required Contribution (ARC) standard, which have both been removed from accounting under new GASB rules. Plans that project future asset depletion under GASB 67 will report higher NPLs than under a no depletion scenario, decreasing the comparability of reported funding information. Since both reported liabilities and service costs decrease as the discount rate rises, differences in actuarial assumptions also decrease comparability. For example, the impact of discount rate changes to a select year of service cost for a hypothetical employee under the Entry Age Normal cost method is significant (see Exhibit 4).

Exhibit 4
Differences in Discount Rate Assumptions Substantially Impact Service Cost



Assumptions include benefit multiplier of 2% of five-year highest final average salary, entry age of 25, retirement at 65, death at 85, 2% cost-of-living adjustment, 3% annual salary increase assumption.

Source: Moody's Investors Service

Actuarial assumptions are clearly a critical consideration when analyzing public pension risk, and can drive inconsistency in reporting. Nonetheless, the analytic enhancements offered by service cost disclosures and the tread water benchmark are a substantial improvement from available information under prior accounting standards, and provide greater insight on pension plan funding trajectories than the new GASB 68 "pension expense."

GASB 68 Pension Expense Introduces New Income Statement Volatility, Departs from Government Funding

GASB 68 pension expense does not serve as a reliably consistent indicator of government budgetary burdens associated with pensions in any given year. The new standard calls for pension expense on government-wide income statements to reflect changes in the NPL according to more rigid recognition rules that may or may not closely track with government contributions and/or plan funding needs, depending on experience in a given year. For example, changes attributable to service cost, interest on the TPL, benefit changes and projected investment earnings must be immediately reflected in a given year's pension expense. The effects of changes in economic or demographic assumptions and most deviations between expected and actual experience must be recognized over the average remaining service lifetime of all plan members. (In the event a plan is closed and thus has no active members, these changes must be recognized entirely in one year.) Deviations between expected and actual investment performance must be recognized over a period of five years. The portion of these expenses not recognized in a given year must be reported as deferred outflows or inflows, which appear on government balance sheets along with the NPL.

These recognition rules are generally far shorter than the 30-year maximum commonly used under GASB 27.¹ The five year recognition period of investment performance that deviates from expectations, combined with the elimination of asset smoothing, will particularly drive increased annual expense volatility in very strong and weak market environments.

Importantly, a low level of pension expense in any given year may understate government pension costs from the perspective of budgetary outlays and plan funding needs. To demonstrate this, an actuarial firm simulated a hypothetical plan's reporting of pension expense since the 1990's, and found that between 1996 and 1999, pension expense would have fallen below zero, resulting in pension income even though the plan was less than 100% funded and contributions were above zero for those same years.² Also, the available GASB 68 disclosures from early-adopting issuers such as [New York City](#) (Aa2 stable), the [University of Missouri System](#) (Aa1 stable) and the [University of California](#) (Aa2 stable) show that very strong investment performance in fiscal 2014 drove reported pension expense below actuarially determined contributions (ADCs), tread water benchmarks and actual employer contributions (see Exhibit 5).

Exhibit 5

Quick Recognition of Investment Performance in GASB 68 Pension Expense Severs Link Between Annual Plan Funding and Income Statement Accounting

\$ in millions, fiscal 2014 issuer financial reporting

	University of Missouri	New York City - Police	University of California
Money-weighted rate of return	16.20%	17.69%	17.30%
Actuarially Determined Contribution (ADC)	\$114	\$2,321	\$2,473
Tread Water Payment	\$97	\$2,130	\$1,869
Employer Contribution	\$114	\$2,321	\$1,581
Pension Expense	\$51	\$1,274	\$1,286

Source: Issuer and plan CAFRs, Moody's Investors Service

Many plans exhibit increased underfunding despite receiving full required government payments

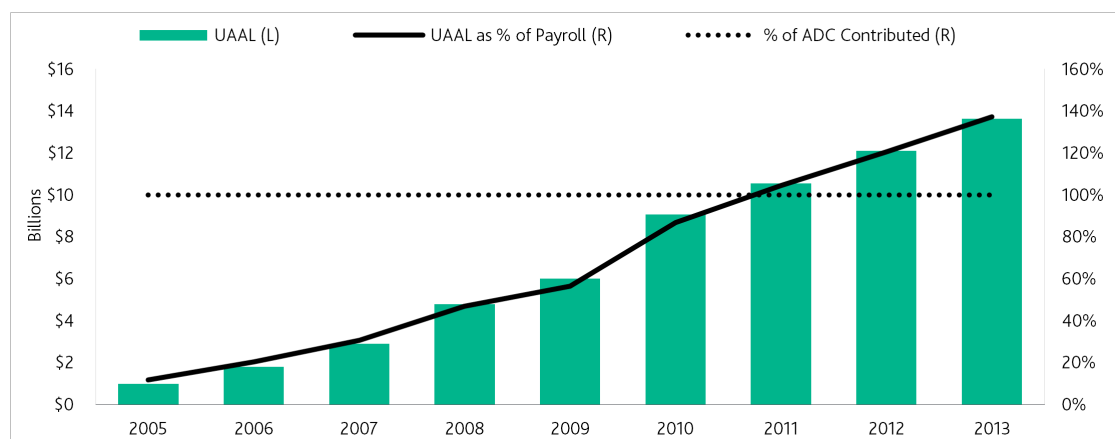
We've noted in previous commentary that government contribution practices rely on the use of back-loaded funding schedules. The new reporting under GASB 67 demonstrably shows that government funding practices are overwhelmingly putting plan NPLs on a systemic baseline path of growth, rather than decline. ADCs are commonly set so low in the near-term, that even when "full" payments are made and assumptions are met, unfunded liabilities will grow.

While several high profile examples such as [Illinois](#) (A3 negative) and [many of its local governments](#), the [State of New Jersey](#) (A1 negative) and the [Commonwealth of Puerto Rico](#) (Caa1 negative) have multi-year track records of contributions below ADCs, most government contributions do not egregiously track below actuarial requirements. In our 54 plan fiscal 2014 sample, 26 received 100% of the ADC or more, while an additional 14 received at least 80%. The average and median employer contributions in our sample were 91% and 100% of the ADC, respectively.

Yet, for some plans, unfunded liabilities as-reported have grown at the same time that the ADC has been fully paid. For example, the Georgia Teachers Retirement System (GA TRS) has received 100% of its actuarially determined contribution in every year since 2005. At the same time, unfunded liabilities have also grown annually, both in nominal dollars and relative to covered payroll (see Exhibit 6).

Exhibit 6

Unfunded Liabilities for Georgia Teachers Retirement System Have Grown Despite Consistent Contributions Toward Actuarial Requirements



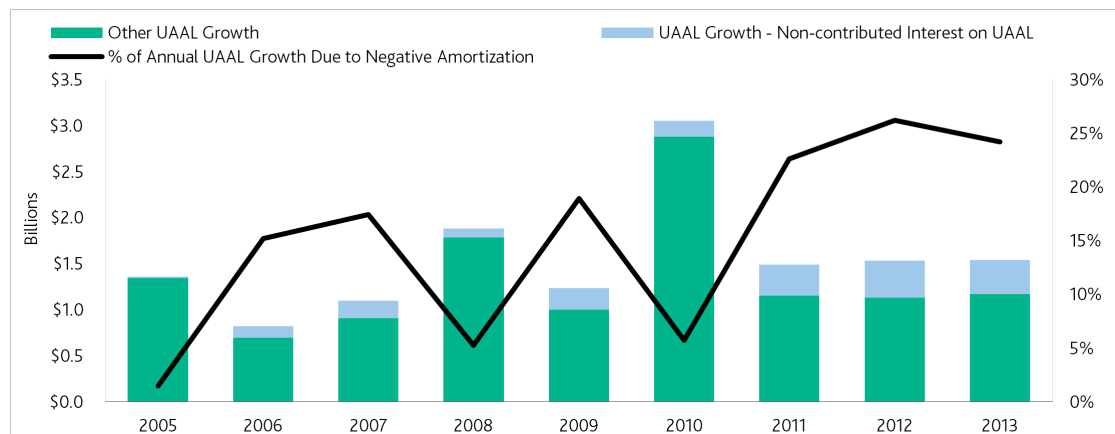
Source: Georgia Teachers Retirement System CAFR.

A variety of factors have contributed to growth of GA TRS unfunded liabilities in any given year. For example, salary increases from 2007 to 2009 were more than expected and pensioner mortality experience has contributed to unfunded liability growth in every year since 2007. The plan's annual recognition of investment performance has consistently led to growing unfunded liabilities as well, particularly given seven-year asset smoothing of investment losses.

Beyond this plan experience, however, employer contributions equal to ADC have not covered service costs and compounded interest on unfunded liabilities. In fact, this negative amortization has been directly responsible for up to 26% of reported unfunded liability growth of the system in a given year (see Exhibit 7).

Exhibit 7

Payments at Actuarially Determined Levels Help Drive Growing GA TRS Unfunded Liabilities



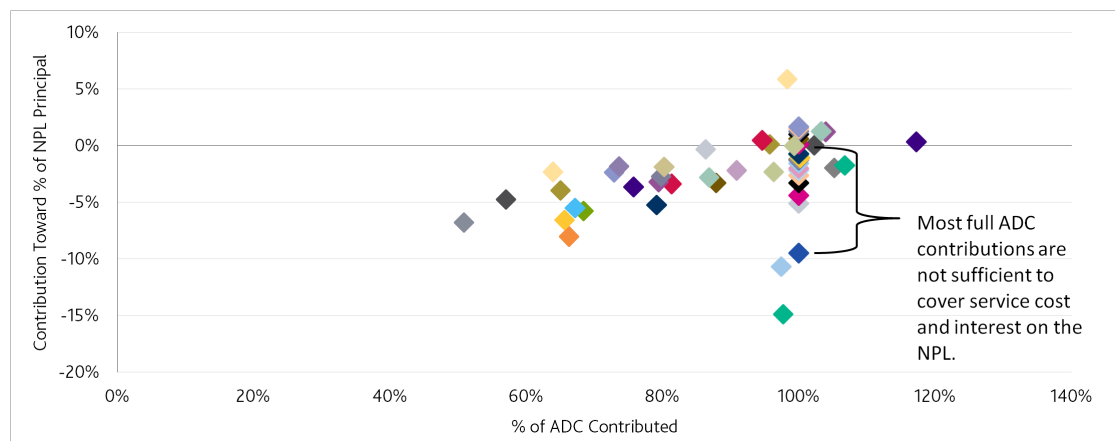
Source: Georgia Teachers Retirement System CAFR

Our sample of GASB 67 disclosures demonstrates that negative amortization driven by ADCs is widespread. For the 26 plans out of 53 that received 100% of the ADC or more, only 10 received contributions sufficient to cover more than the interest on the NPL (i.e. progress better than treading water). This excludes the New York State Teachers Retirement System due to its as-reported overfunded status in both fiscal 2013 and 2014.

Due to differences in amortization term, payroll growth, and other actuarial assumptions, employer contributions to some plans were smaller in proportion to their ADC but nonetheless larger relative to employer service cost and interest on reported NPLs.

For example, university contributions to the University of California Retirement Plan were 64% of the ADC in fiscal 2014. After covering service cost, this generated negative interest, or a principal payment of -2.3% of the 2013 NPL balance. Meanwhile, the California Public Employees Retirement System (CalPERS) "PERF B - Schools" plan received 100% of the ADC, but that full payment covered proportionally less interest on the plan's NPL. The CalPERS PERF B - Schools employer contribution amounted to a principal payment of -5.1% of the 2013 NPL (see Exhibit 8).

Exhibit 8
Employer Contributions At and Below ADCs Often Drive Public Pension Funding Gaps
 Tread water benchmark at 0% on y-axis



Source: Plan CAFRs, Moody's Investors Service

The reported NPLs of plans in our sample declined on average by 26% from fiscal 2013 to fiscal 2014 reflecting very strong investment performance relative to assumed returns. While certainly a positive result, contributions relative to the tread water benchmark generally indicate that the strong investment performance in 2014 masks the drag on baseline plan funding caused by government pension contributions and actuarial requirements.

A lack of projected asset depletion under GASB 67 does not signal the absence of depletion risk

GASB 67 and 68 significantly change the approach governments and plans must take to calculate the actuarial present value of accrued liabilities, the TPL. Under GASB 25 and 27, plans and governments were simply allowed to discount liabilities using the assumed rate of investment return.

In contrast, GASB 67 and 68 allow the use of the assumed rate of investment return only to discount future liabilities in those years where the plan is projected to have greater than zero assets. Projected benefit payments following such a depletion date, or "crossover point," must be discounted at a 20-year municipal bond rate tied to market conditions as of the measurement date.

Despite this significant departure from the previous rule, our 54 plan survey indicates that this change will actually impact a minority of plans because generous assumptions are allowable in making asset projections. For example, higher assumed rates of investment return translate into later depletion dates. By assuming 8% annual investment returns, the Employees Retirement System of Texas extends its projected depletion date until 2041. In comparison, the Kentucky Teachers Retirement System (KY TRS) projects depletion five years earlier, but assumes only a 7.5% annual return rate. Only four out of 54 plans in our sample project a crossover point, and thus use a single-equivalent discount rate different from their assumed rate of return (see Exhibit 9).

Exhibit 9
Four Out of 54 Plans Sampled Required to Use Lower Discount Rates Under GASB 67

State	Plan	Projected Depletion	Assumed Rate of Investment Return	Single-Equivalent Discount Rate
IL	State Employees' Retirement System	2066	7.25%	7.09%
IL	State Universities Retirement System	2066	7.25%	7.09%
KY	Teachers Retirement System	2036	7.50%	5.23%
TX	Employees Retirement System	2041	8.00%	6.07%

Source: Plan CAFRs

Looming Asset Depletion for New Jersey's Pension Plans

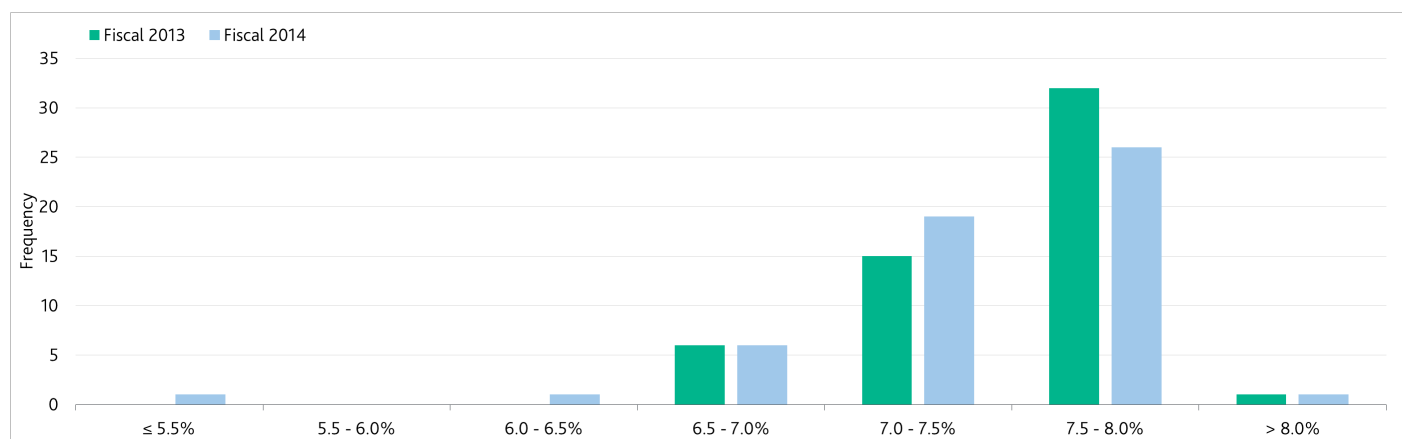
The [State of New Jersey](#) (A1 negative) released the funding progress of its statewide plans under GASB 67 reporting in November 2014. Under the new standards, [its reported unfunded pension liabilities more than doubled](#) to almost \$83 billion in the fiscal year ended June 30, 2014. The disclosures underscore the significant pension funding challenges that New Jersey faces. In particular, the state forecasts that its two largest pension plans — the Public Employees Retirement System (PERS) and the Teachers Pension and Annuity Fund (TPAF) — could fully expend their assets as soon as 2024 and 2027, respectively, even assuming the funds meet their assumed investment returns of 7.9% every year.

Despite the partial release of its updated pension funding, the state has not yet released its plan CAFRs or other detailed information, such as the sensitivity of plan liabilities to changes in discount rates or service costs. As a result, New Jersey's plans are excluded from our 54 plan sample.

Given that only four plans in our sample project depletion, the resulting distribution of discount rates among the 54 plans changed very little from those disclosed in fiscal 2013 plan CAFRs to those in fiscal 2014 (see Exhibit 10).

Exhibit 10

Majority of Public Pension Discount Rates Do Not Change Under GASB 67 Reporting Most Plans Continue to Use Discount Rates Equivalent to Investment Return Assumptions



Source: Plan CAFRs

Four major inputs drive GASB asset projections for determining crossover dates (if any) and resulting single-equivalent discount rates.

- Benefit Payments:** Projected benefits associated with active employees, inactive but not-yet retired employees and retirees must be included. Assumed future years of service and increases in salaries are incorporated, but future service by future employees is excluded.
- Employee Contributions:** Projected contributions from current employees are included. Contributions from future employees may only be included in projections to the extent they exceed service costs.
- Employer Contributions:** Projected government contributions must consider the most recent five-year history. However, GASB allows for the consideration of statutory requirements or "written, formal polic[ies]" to override government track records.
- Investment Returns:** Projections incorporate plan assumed rates of investment return. GASB 67 and 68 rules do not require any adjustments to reflect the level of asset risk in plan investment portfolios. Reported plan funding will improve and projected depletion risk will decline as asset risk increases if that greater risk translates into higher assumed rates of investment return.

The two plans in our sample from the [Commonwealth of Kentucky](#) (Aa2 stable) illuminate how influential future employer contribution assumptions are to GASB 67 and 68 reported funding progress. Under GASB 25 reporting, the Kentucky Employees Retirement System, Non-Hazardous plan (KERS) has a worse employer contribution track record relative to the ARC, and a much lower reported funded ratio than the KY TRS.

Yet, under GASB 67, KERS does not project depletion, while KY TRS projects depletion in 2036. Thus, the reported funding position of KY TRS worsens under GASB 67 reporting while that of KERS improves slightly (due to asset reporting at fair value rather than the actuarial value). KERS does not project depletion because Kentucky passed a reform law that calls for full ARC payments beginning in fiscal 2015. As a result, the state's record of employer contributions well below actuarial requirements was supplanted by full future ARC payments in the plan's GASB depletion projections (see Exhibit 11). All of these assumed contributions, moreover, are assumed to earn investment returns of 7.75% every year.

Exhibit 11

Despite Superior Funding Position and Contribution Track Record Over KERS, Only KY TRS Projects Depletion
\$ in billions

	KERS - Non Hazardous	KY TRS
GASB 25		
% of ARC Paid (2009)	38%	74%
% of ARC Paid (2014)	57%	68%
Funded Ratio (2009)	45%	64%
Funded Ratio (2014)	21%	54%
UAAL (2014)	\$9.1	\$14.0
Discount Rate (2014)	7.75%	7.50%
GASB 67		
Funded Ratio	22.3%	45.6%
NPL	\$9.0	\$21.6
Discount Rate (2014)	7.75%	5.23%
Projected Depletion?	No	Yes
Depletion Date	n/a	2036

Source: Plan CAFRs and actuarial valuations.

Benefit burn rates enhance pension plan depletion risk assessments

The presence of projected depletion under GASB reporting indicates potentially severe future pension stress. In some cases, such as New Jersey's plans, projected asset depletion highlights a clear near-term credit challenge because without substantial changes to contributions and/or benefits, responsibility for retiree pension payments could revert from plan assets to government budgets. Given that benefit payment outflows from public pension plans generally exceed government contributions by substantial margins, severe budgetary ramifications could result.

The comparison between KERS and KY TRS highlights that the absence of projected asset depletion under GASB 67 and 68 rules does not necessarily translate to a low level of depletion risk.

Considering the benefit "burn rate" of an active plan provides an analytical alternative to GASB depletion projections by removing the weight attributed to future contributions and assumed asset performance. Instead, this benefit burn rate emphasizes cash outflows, measuring current year benefit payments relative to plan assets. For KY TRS, benefit payments in fiscal 2014 were just over 10% of beginning-of-year assets, compared to a much higher 33% of assets for KY KERS.

The "net" benefit burn rate, which subtracts both employer and employee contributions from benefit payments before comparing to assets, was 5% for KY TRS and 18% for KERS. Under this framework, the KERS plan exhibits far greater near-term depletion risk than the KY TRS plan, albeit in a one-year snapshot. The rate of benefit outflows relative to the KERS asset base render the plan less equipped than KY TRS to deal with short-term shocks such as very poor investment performance or lower than expected contributions (see Exhibit 12).

Exhibit 12

KERS Exhibits Higher Near-Term Depletion Risk than KY TRS Due to Near Term Cash Flows

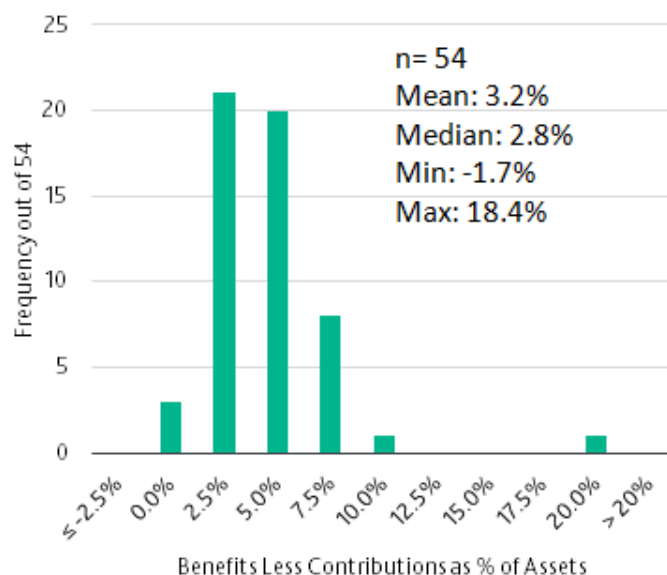
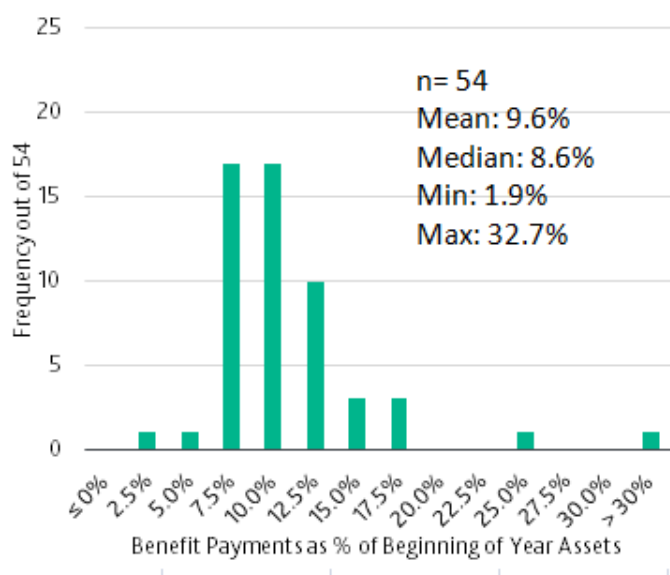
\$ in billions, fiscal 2014 reporting

GASB 67	KY TRS	KY KERS
Assets - Beginning of Year	\$16.1	\$2.8
Employer Contributions	\$0.6	\$0.3
Employee Contributions	\$0.3	\$0.1
Benefit Payments, including refunds	\$1.7	\$0.9
Benefit Burn Rate	10.4%	32.7%
"Net" Benefit Burn Rate	5.0%	18.4%

Source: Plan CAFRs.

In our sample of plans, the benefit burn rate for most fell below 15% of assets in fiscal 2014, while the net burn rate was less than 10% for most. For the three plans with a net burn rate below zero, combined employer and employee contributions exceeded benefit outflows, before the impact of investment returns (see Exhibit 13).

Exhibit 13

Benefit Outflows Track Below 15% of Assets for Most Sampled Plans

Source: Plans CAFRs

While a useful indicator of potential pension plan cash flow stress, the benefit burn rate by design ignores important considerations such as investment returns, which generally grow plan asset bases. Clearly, however, a plan with a net burn rate greater than its likely investment returns faces a potential trajectory of asset decline rather than buildup, which translates into heightened depletion risk.

Generally limited credit impact from new accounting standards because our adjustments remain fundamentally unchanged

The results of our review of the 54 plans with available GASB 67 disclosure are in line with our expectations, in that we continue to expect limited credit impact on rated state and local governments solely from the implementation of the new standards. This is primarily attributable to our adjustments to reported pension data remaining fundamentally unchanged from our approach under GASB 25 and 27. Specifically,

- » Our rating methodologies already consider unfunded pension liabilities as debt-like obligations. Thus, the new inclusion of GASB 68 NPLs on government balance sheets has no credit impact.

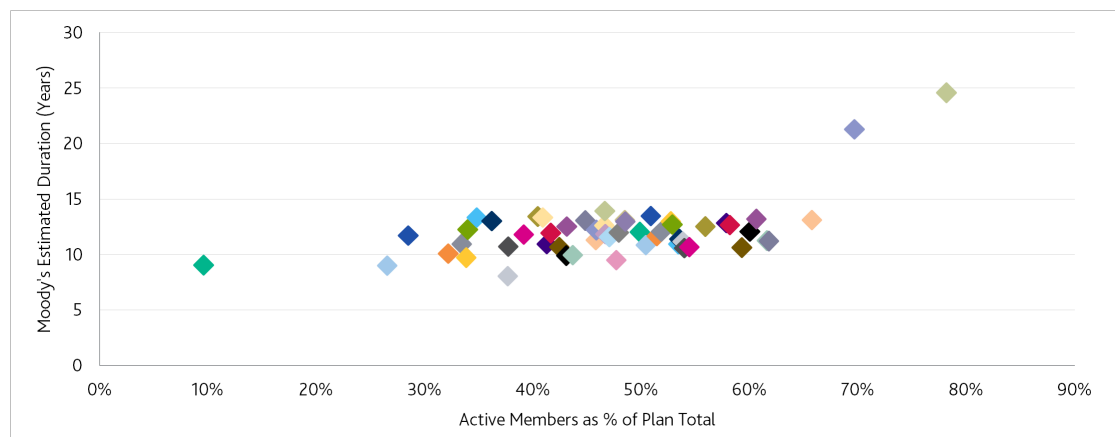
- » We continue to adjust all reported liabilities, in their entirety, to the same market-based discount rate tied to the measurement date. The new discount rate rules under GASB 67 and 68 have no fundamental impact on this component of our adjustments.

While there are several changes or additions to reported information that will impact our ANPLs, all else being equal, we continue to expect these impacts will be too limited on their own to drive rating changes in the vast majority of cases. The three main potential drivers of ANPL changes are described below:

- » Governments participating in multi-employer cost-sharing plans will disclose their proportionate share of plan net pension liabilities under GASB 68. While our adjustments similarly call for pro rata allocations of cost-sharing plans, we've relied on our own estimates of these shares under GASB 25 and 27 reporting. We intend to rely on the disclosed shares as they become available with GASB 68 reporting, provided we find them to be reasonable. ANPLs could be impacted either positively or negatively to the extent these disclosed proportionate shares vary from our previous estimates.
- » The presentation of assets at current fair values, rather than actuarial values, will impact our ANPLs for local governments, but not for the 50 states. We have relied on the actuarial value of assets for local governments thus far because we've been unable to obtain sufficiently robust data on the fair value of assets related to many local government pension plans.
- » Our adjustments to GASB 25 and 27 reported pension data have relied on a uniform 13-year liability duration assumption. GASB 67 and 68 require plans and governments to disclose the sensitivity of NPLs to 100 basis point increases and decreases in the discount rate assumption. We use this information to derive plan-specific liability duration estimates, which we use in place of the uniform 13-year assumptions in order to improve the precision of our adjustments. In our 54 plan sample, the average plan-specific duration estimate was 12.1 years, while the median was 11.9, with most plans between 10 and 15 years (see Exhibit 14). Our sample suggests that in general, this increased specificity will decrease ANPLs, all else being equal.

Exhibit 14

Most Moody's Plan Specific Duration Estimates Fall Between 10 and 15 Years



Source: Plan CAFRs, Moody's Investors Service

Two plans in particular stand out as outliers with very large duration estimates compared to the rest of the sample. We estimated durations of 24.6 and 21.3 years for the Washington Teachers' Retirement System Plan 2/3 and Public Employees' Retirement System Plan 2/3, respectively. These results also coincide with a very high proportion of active employees in those plans. While the relatively large duration estimates drive up our ANPLs for these plans compared to our prior use of a 13-year assumption, the credit impact is constrained because the plans are relatively well funded. The median plan ANPL in our sample amounts to 419% of covered payroll. At 254% and 335% of covered payroll, respectively, the ANPLs for the Washington Teachers' Retirement System Plan 2/3 and Public Employees' Retirement System Plan 2/3 rank as the 8th and 14th lowest in our 54 plan sample despite their high sensitivity to discount rate changes.

Appendix

Exhibit 15

GASB Pension Accounting and Terminology Quick Reference Guide

GASB 27	GASB 68
Reporting Requirement for Types of Defined Benefit Plans	
<ul style="list-style-type: none"> « Funding progress and actuarial cost information disclosed for Single Employer and Multi-Employer Agent plans. « Contractual contribution requirements and actual contributions disclosed by participants in multi-employer cost-sharing plans. 	<ul style="list-style-type: none"> « Funding progress and actuarial cost information disclosed for Single Employer and Multi-Employer Agent plans. Proportionate shares of funding progress recognized for multi-employer cost-sharing plans. « Contractual contribution requirements and actual contributions disclosed by participants in multi-employer cost-sharing plans.
Funding Progress	
<i>Assets</i>	
<i>Actuarial Value of Assets (AVA)</i>	<i>Plan Fiduciary Net Position</i>
<ul style="list-style-type: none"> « The value of assets used for the purposes of an actuarial valuation. Often, the AVA incorporates "smoothing," a technique that recognizes changes in asset values gradually over a number of years rather than all at once. 	<ul style="list-style-type: none"> « The plan asset position is based on fair value¹¹.
<i>Liabilities</i>	
<i>Actuarial Accrued Liability (AAL)</i>	<i>Total Pension Liability (TPL)</i>
<ul style="list-style-type: none"> « The present value of benefits earned attributable to past period of employee service. « GASB 27 allows for the use of six different actuarial cost methods. Common examples include Entry Age Normal (EAN) and Projected Unit Credit (PUC). « The discount rate used to calculate the AAL is typically equal to a plan's assumed rate of investment return. 	<ul style="list-style-type: none"> « The present value of benefits earned attributable to past period of employee service. « GASB 68 requires use of the Entry Age Normal (EAN) cost method. « The discount rate for benefit cash flows projected to be covered by plan assets are discounted using the assumed rate of investment return. Benefit cash flows after a projected depletion date (if any), are discounted using a high-grade municipal bond index.
<i>Unfunded Liabilities</i>	
<i>Unfunded Actuarial Accrued Liability (UAAL)</i>	<i>Net Pension Liability (NPL)</i>
<ul style="list-style-type: none"> « Difference between AAL and AVA « Disclosed in the notes to financial statements only. Net Pension Obligation (NPO), which reflects cumulative contribution shortfalls, plus interest, relative to actuarial costs, recorded on the balance sheet. 	<ul style="list-style-type: none"> « Difference between TPL and Plan Fiduciary Net Position « Recorded on the balance sheet.
Accounting and Actuarial Costs	
<i>Normal Cost</i>	<i>Service Cost</i>
<ul style="list-style-type: none"> « The portions of present value of projected benefit payments attributed to the valuation (i.e. current) year. 	<ul style="list-style-type: none"> « The portions of the present value of projected benefit payments attributed to the valuation (i.e. current) year.
<i>Annual Required Contribution (ARC)</i>	<i>Actuarially Determined Contribution (ADC)</i>
<ul style="list-style-type: none"> « The sum of normal cost and the annual cost to amortize the unfunded liability within a maximum of 30 years. Actuarial assumptions and methods used to determine the ARC vary. 	<ul style="list-style-type: none"> « A recommended contribution for plan funding in accordance with actuarial standards. GASB 68 does not specify any further requirements.
<i>Accounting Expense</i>	
<i>Annual Pension Cost (APC)</i>	<i>Pension Expense</i>
<ul style="list-style-type: none"> « Measure of an employer's periodic pension cost, which includes the ARC plus interest on the NPO, minus an ARC adjustment to offset the amount of interest and principal (if any) from past under/over-contributions already included in the ARC. 	<ul style="list-style-type: none"> « Standardized expense recognition in pension accounting. For example, entry age-based service cost will be recognized immediately while demographic experience gains and losses will be recognized over the average remaining years of service of plan members.

Source: GASB Statements 67 and 68

Moody's Related Research

[Moody's US Public Pension Analysis Largely Unchanged By New GASB 67/68 Standards](#)

[US State and Local Government Pensions Lose Ground Despite Meeting Return Targets](#)

To access any of these reports, click on the entry above. Note that these references are current as of the date of publication of this report and that more recent reports may be available. All research may not be available to all clients.

Endnotes

- 1 Under previous GASB 27 accounting standards, the ARC standard drove pension expense for government-wide income statements. GASB 27 called for the recognition of pension expense equal to the Annual Pension Cost (APC). The APC related to single-employer and multi-employer agent plans was equal to the ARC, unless the government had accumulated ARC payment shortfalls, recognized as the Net Pension Obligation (NPO). In such cases, the APC was equivalent to the current year ARC plus interest on the NPO at the assumed rate of return, less an ARC adjustment to avoid double-counting of costs. For multi-employer cost-sharing plans, the APC was equivalent to the government's contractually required payment to the plan. Failure to remit such payments is very rare, and thus NPOs associated with cost-sharing plans are rare among states and local governments.
- 2 Zorn, Paul. "GRS Insight: Comparing Public Pension Accounting and Funding Measures." Gabriel, Roeder, Smith & Company. October 2013.

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AUTHOR
Tom Aaron