ALASKA RETIREMENT MANAGEMENT BOARD
Work Session – Unfunded Liability

August 8, 2013
9:00 am – 5:00 pm
Dena'Ina Center – K'enakatnu Executive Board Room
600 West 7th Avenue
Anchorage, Alaska

Work Session Purpose: Provide an opportunity for members of the Alaska Retirement Management Board (ARMB) and stakeholders to discuss the retirement systems' unfunded liability and potential options to mitigate the impact on future state budgets.

Work Session Outcomes

1. Shared understanding of the impact on future state budgets that will result from the current approach to addressing the unfunded liability (status quo).
2. Identify and discuss options to address the unfunded liability.
3. Explore criteria/sideboards relevant to acceptability of potential solutions.
4. Determine if there are any points of consensus regarding potential solutions, criteria/sideboards, and/or next steps.
5. Following the workshop – Develop a "white paper" that captures the work session's discussion and outcomes, including any recommendations developed by participants.

AGENDA

Coffee/refreshments

9:00 ***Opening***

- Welcome & Introductions – Gail Schubert, Chair, ARMB Board
- Review work session outcomes, agenda and format – Jan Caulfield, Facilitator

9:15 ***Presentations and Q/A***

- **Unfunded Liability: Background, Past ARMB Actions and Recommendations**
  Kristin Erchinger, ARMB Trustee
- **Revenue Projections/Cash Flow**
  Commissioner Bryan Butcher, DOR / Karen Rehfeld, Director, OMB
- **Current Trends in Pension Funding**
  Steven Kantor, Managing Director, First Southwest Company

10:15 **Break**

10:30 **Small Groups: Exploring options for consideration**

In self-facilitated small groups, discuss the following questions. Record key points on flip chart or note pads for report back to the large group.

*Note that this is a time for **brainstorming and initial, short discussion related to the questions below**. The goal is to determine what topics and key points meeting participants would like to discuss in more depth during the afternoon.*

1. What is your level of concern about the status quo – that is, using the current level dollar amortization schedule to pay down the unfunded liability by 2032?
2. What is your level of support for the Board's current recommendation to appropriate $2 billion to the retirement systems (over four years)? What potential sources for that appropriation would you favor or not favor? <u>Why or why not</u>?

   Potential sources for appropriation:

   - Pension Obligation Bonds
   - Use of Reserves
   - Other?
3. What additional idea(s) do you have for paying down the unfunded liability and/or for mitigating impacts on the state budget? <u>Why</u> would you favor these option(s), or at least further exploration of these options?

11:45 **Report back to large group –** Identify topics for more in-depth discussion

12:15 **Lunch**

1:45 **Reconvene in large group**

Additional discussion of topics of greatest interest to participants. Possible outcomes:

- Criteria/sideboards – Is it possible to generate a list of criteria/sideboards that should be used in the future to evaluate option(s)?
- Options – Is it possible narrow the list of option(s) to further pursue or to identify a preferred option?
- Additional research / evaluation – Are there information needs that should be pursued relevant to one or more options?
- Identify any point(s) of consensus developed during discussions.

Mid-afternoon break

4:30 **Review outcomes / Next steps**

5:00 **Adjourn**

Packet Materials:

1. **Trustee Erchinger Presentation**
2. **Updated ARMB Chronology**
3. **Resolution 2013-02 /Requesting $2 Billion FY14-17 With Erchinger and Buck Exhibits**
4. **PERS/TRS Unfunded Liability Status**
5. **Revenue/Cash Flow Projections [Handout at Meeting]**
6. **Pension Obligation Bonds – Primer**
7. **Informational (Moody's/Fitch/S&P)**

Alaska Retirement Management Board

Unfunded Liability Work Session

August 8, 2013

Work Session purpose and outcomes

Outcomes

1. Open dialogue between ARMB, legislature and State administration, regarding the unfunded liability
2. Shared understanding of impact to State budgets resulting from the current approach to paying down the unfunded liability (status quo)
3. Identify and discuss options to address the unfunded liability and to reduce the impact on the state budget
4. Determine acceptability of potential solutions
5. Determine points of consensus regarding potential solutions, criteria and next steps
6. Develop a white paper that captures discussion and outcomes, including any recommendations from participants

Purpose

Provide a forum for the ARMB trustees and stakeholders to discuss potential solutions to pay down the retirement systems' unfunded liability and to mitigate the impact of increasing retirement system contributions on future state budgets.

Problem Definition

At $11.8 Billion as of June 30, 2012, the unfunded liability of the retirement systems creates pressures on the state budget which will increase in the coming years as the annual contributions exceed $1 billion per year under the current amortization schedule

- Status quo: $608M in 2013 rises to $975M in 2015 (62% increase); > $1 Billion for 8 years; remains > $850M through 2029

- PERS/TRS unfunded liability grew $889 Million last year as a result of insufficient assets upon which to earn interest.

- Typically, approx. 70% of pension and health benefits are funded through interest earnings. When the system is underfunded employer contributions must fill the void.

Where We Have Been

The Alaska Retirement Management Board has taken actions to address the pension systems' unfunded liability and other issues over the past seven years including:

- ❖ Supporting cost-sharing multiple employer system for PERS
- ❖ Supporting direct appropriations to PERS and TRS
- ❖ Supporting pension obligation bonds
- ❖ Reducing the earnings assumption rate to 8%
- ❖ Adopting level-dollar amortization to fund costs sooner rather than later
- ❖ Outreach to Legislature

[A Detailed Chronology is included in the packet]

Where We Have Been

The Alaska Retirement Management Board evaluated 40 potential scenarios in 2011.

Recommended:

- 25-year or 30-year amortization
- Lump-sum contributions with continued State assistance
- Change to level dollar amortization

Rejected:

- Lump-sum contributions with no further State assistance > 22%
- Cost-shifting from State to municipalities and vice-versa
- Requiring assets outside trust fund be used to set rates
- Extension of amortization if significantly higher costs than status quo

Resolution 2013-02

At its February 2013 meeting ARMB passed Resolution 2013-02 requesting:

....that the Alaska Legislature, in addition to state assistance, appropriate in each of the next four sessions the sum of $500 million toward retirement of the unfunded liability of the Alaska Public Employees' Retirement System and Teachers' Retirement System.

*Resolution included in packet

Details of Funding Request

FY 2014-2017 appropriation cycle = $2B infusion

* $250 Million to PERS x 4 years
* $250 Million to TRS x 4 years

Current Actuarial Assumptions Remain in Place

* 8% Earnings Assumption
* Level Dollar Amortization

Details of Funding Request (continued)

Baseline State Assistance PERS and TRS Contributions (2013-2031)	State Assistance after FY14-17 Appropriations $250 Million Each to PERS/TRS
$16.7 Billion	$14.9 Billion

$1.7 Billion Savings in State of Alaska Assistance Contributions

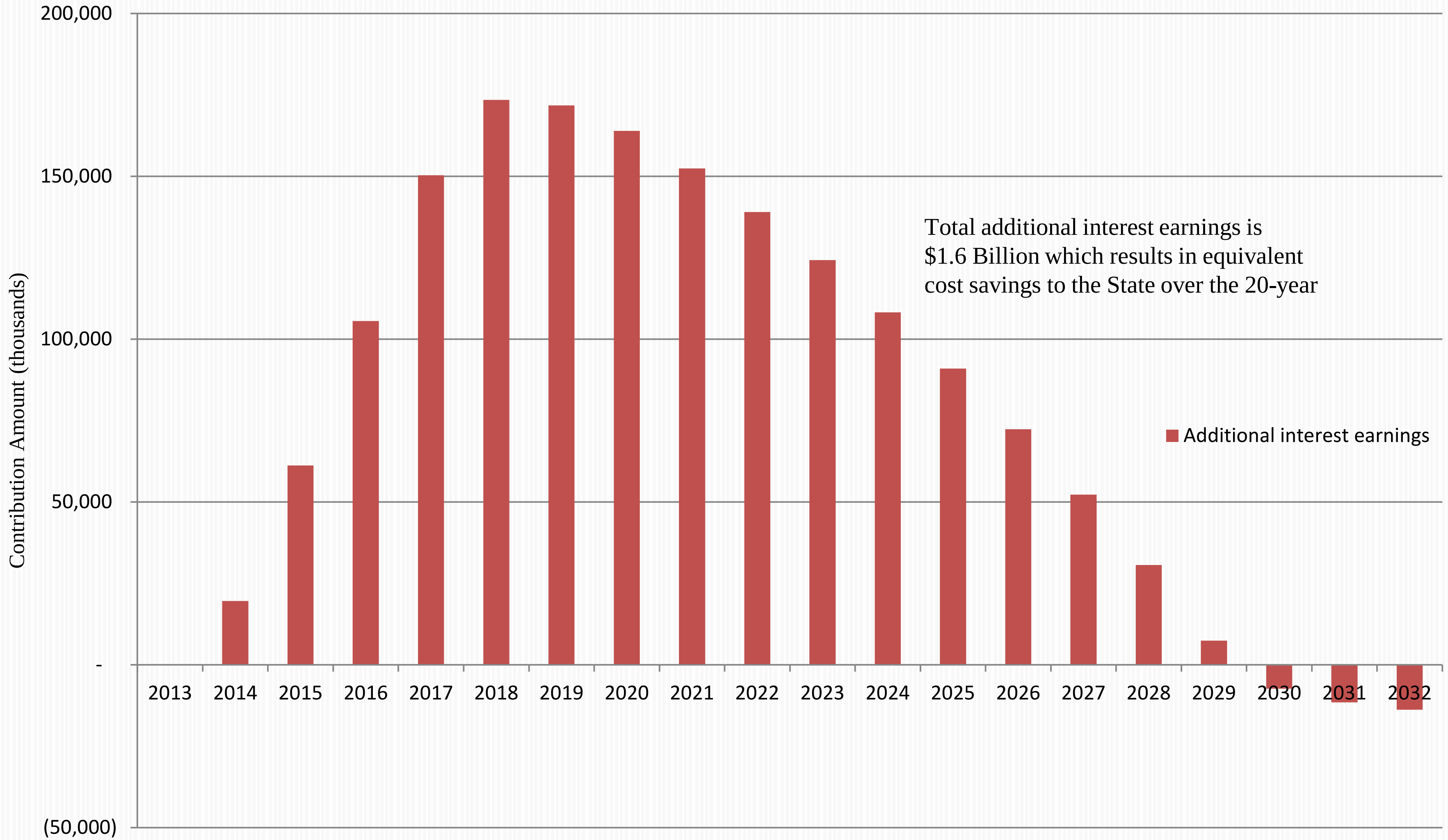
[$91.8 Million Savings Each Year]

$33 Million Savings in Employer Contributions 2013-2031

[$1.65 Million Savings Each Year – Includes Savings to State as an Employer]

State Assistance: Baseline vs. $2B injection

Added Interest Earnings with $2B injection



Annual Savings from $2B (vs. status quo)

	Baseline - Level Dollar and 8% return			Level Dollar and 8% return PLUS $250M to PERS and $250M to TRS each year FY14 - FY17			Annual Savings
	PERS	TRS	PERS + TRS	PERS	TRS	PERS + TRS	
2013	310,528	298,101	608,629	310,528	298,101	608,629	-
2014	319,456	315,053	634,509	569,456	565,053	1,134,509	(500,000)
2015	519,676	455,904	975,580	769,676	705,904	1,475,580	(500,000)
2016	572,439	489,935	1,062,374	815,639	733,165	1,548,804	(486,430)
2017	576,925	502,245	1,079,170	787,294	712,891	1,500,185	(421,015)
2018	563,734	503,650	1,067,384	486,636	426,968	913,604	153,780
2019	566,220	511,074	1,077,294	446,414	392,443	838,857	238,437
2020	549,597	510,979	1,060,576	397,960	360,845	758,805	301,771
2021	530,984	511,071	1,042,055	372,455	354,025	726,480	315,575
2022	511,130	510,919	1,022,049	348,993	350,213	699,206	322,843
2023	490,148	510,769	1,000,917	327,713	349,007	676,720	324,197
2024	469,924	510,255	980,179	307,485	347,931	655,416	324,763
2025	449,483	509,478	958,961	287,253	347,339	634,592	324,369
2026	429,310	508,993	938,303	267,492	347,179	614,671	323,632
2027	407,509	508,033	915,542	245,981	346,594	592,575	322,967
2028	384,751	506,783	891,534	224,501	345,865	570,366	321,168
2029	360,954	505,441	866,395	201,123	344,827	545,950	320,445
2030	10,870	291,874	302,744	-	262,474	262,474	40,270
2031	-	230,333	230,333	-	213,718	213,718	16,615
2032	-	-	-	-	-	-	-
	8,023,638	8,690,890	16,714,528	7,166,599	7,804,542	14,971,141	1,743,387
Savings:	857,039	886,348	1,743,387				

Funding Request (continued)

For every $1 contributed today, the State saves an *additional* $1 in required future State assistance

$500M added contribution for four years saves > $300M per year over ten years, at a time when oil production is declining and the State budget is strained

Where Do We Go From Here

The Alaska Retirement Management Board recognizes that funding for the retirement systems and the increasing amounts to pay down the unfunded liability compete with other needs for the residents of Alaska

Where Do We Go From Here

Moving forward, working together, discussing and considering all possible solutions to solve the problem while mitigating the impact on the state budget:

Status Quo – Current Amortization Schedule in Place to Pay Down the unfunded liability by 2032

Funding Sources – Traditional, Non-Traditional and Creative Ways to solve this problem

POSSIBLE SOLUTION TOPICS

Outside the Box

- Loan to Retirement Fund (AS37.10.089)
- ____________________
- ____________________

Traditional Funding

- Status Quo
- Direct Appropriation
- Pension Obligation Bonds
- ____________________
- ____________________

Thank You

Thanks very much for attending our work session and contributing your thoughts and ideas toward solving our unfunded liability issues and its impact on our state's budget and resources.

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD

Relating to the Unfunded Liability of the State Retirement Systems

Resolution 2013-02

WHEREAS, the State of Alaska, pursuant to the State's Constitution, established the Alaska Public Employees' Retirement System and the Alaska Teachers' Retirement System as set forth in Alaska Statutes 39.35, 14.25 and 39.30; and

WHEREAS, the Alaska Retirement Management Board (Board) was established by Alaska Statute 37.10 to serve as trustee to the assets of the State's retirement systems; and

WHEREAS, the combined unfunded liabilities of these two retirement systems have grown from approximately $6.9 billion dollars in 2005 when the defined benefit systems were closed to entry by new participants, to approximately $11.9 billion by June 2012; and

WHEREAS, it is anticipated that the annual amount of state assistance required to manage and pay down the combined unfunded liabilities of the two retirement systems will soon exceed $1 billion; and

NOW, THEREFORE BE IT RESOLVED that the Alaska Retirement Management Board hereby reaffirms its prior requests that the Legislature appropriate funds to enable the systems to responsibly meet their retirement liability obligations; and

BE IT FURTHER RESOLVED that the Board respectfully requests the Legislature, with the support of the Governor, to appropriate, in addition to state assistance, the sum of $500 million dollars in this legislative session and each of the next three legislative sessions, toward the retirement of the unfunded liabilities of the Alaska Public Employees' and the Alaska Teachers' Retirement Systems.

DATED this 15th day of March, 2013.

Chair

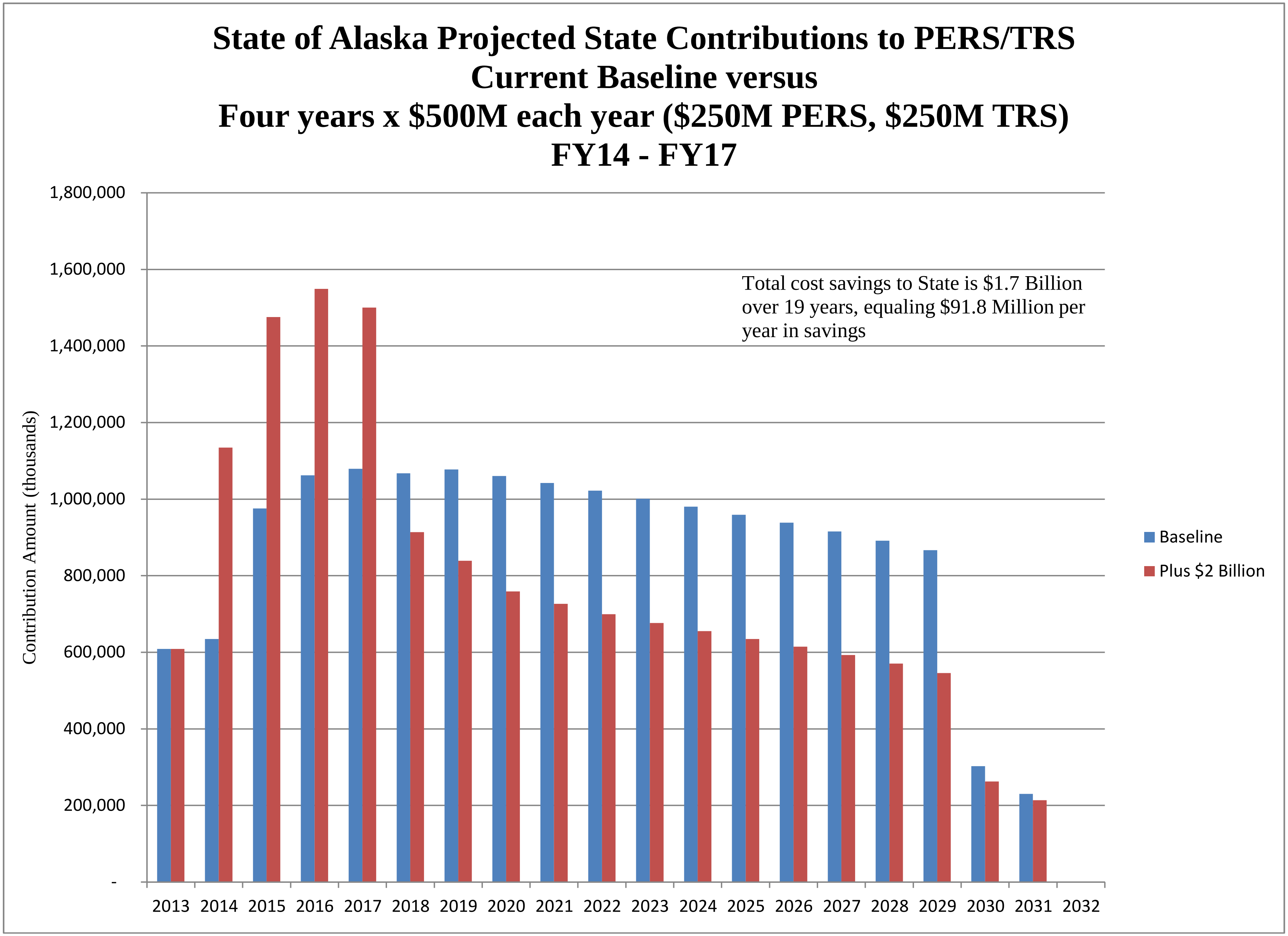
State of Alaska PERS and TRS
Financial Projections (in Thousands)
State Contribution

	Baseline - Level Dollar and 8% return			Level Dollar and 8% return PLUS $250M to PERS and $250M to TRS each year FY14 - FY17		
	PERS	TRS	PERS + TRS	PERS	TRS	PERS + TRS
2013	310,528	298,101	608,629	310,528	298,101	608,629
2014	319,456	315,053	634,509	569,456	565,053	1,134,509
2015	519,676	455,904	975,580	769,676	705,904	1,475,580
2016	572,439	489,935	1,062,374	815,639	733,165	1,548,804
2017	576,925	502,245	1,079,170	787,294	712,891	1,500,185
2018	563,734	503,650	1,067,384	486,636	426,968	913,604
2019	566,220	511,074	1,077,294	446,414	392,443	838,857
2020	549,597	510,979	1,060,576	397,960	360,845	758,805
2021	530,984	511,071	1,042,055	372,455	354,025	726,480
2022	511,130	510,919	1,022,049	348,993	350,213	699,206
2023	490,148	510,769	1,000,917	327,713	349,007	676,720
2024	469,924	510,255	980,179	307,485	347,931	655,416
2025	449,483	509,478	958,961	287,253	347,339	634,592
2026	429,310	508,993	938,303	267,492	347,179	614,671
2027	407,509	508,033	915,542	245,981	346,594	592,575
2028	384,751	506,783	891,534	224,501	345,865	570,366
2029	360,954	505,441	866,395	201,123	344,827	545,950
2030	10,870	291,874	302,744	-	262,474	262,474
2031	-	230,333	230,333	-	213,718	213,718
2032	-	-	-	-	-	-
	8,023,638	8,690,890	16,714,528	7,166,599	7,804,542	14,971,141
Savings:	857,039	886,348	1,743,387			

Finding:

By contributing a total of $2 Billion into the retirement system from FY14 - FY17, the State will save $1.7 Billion in additional required contributions over the period 2013 - 2031 (19 years) averaging $91.8 Million in savings per year.

State of Alaska saves $1.7 Billion by early injection into PERS/TRS


State of Alaska Projected State Contributions to PERS/TRS
Current Baseline versus
Four years x $500M each year ($250M PERS, $250M TRS)
FY14 - FY17
Total cost savings to State is $1.7 Billion over 19 years, equaling $91.8 Million per year in savings
Contribution Amount (thousands)
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
-
2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032
Baseline
Plus $2 Billion

State of Alaska PERS and TRS
Financial Projections (in Thousands)
Employer Contributions

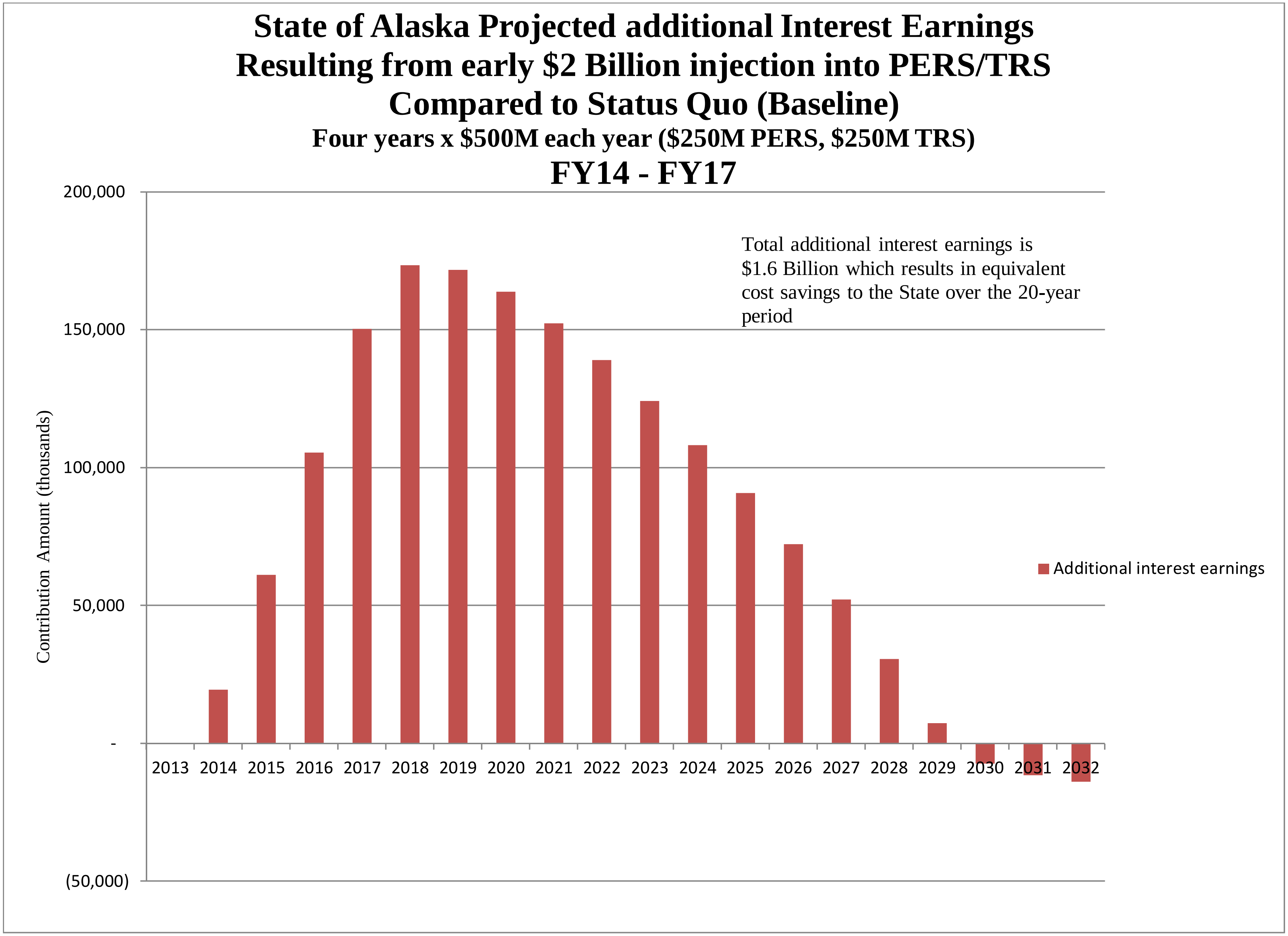
	Baseline - Level Dollar and 8% return			Level Dollar and 8% return PLUS $250M to PERS and $250M to TRS each year FY14 - FY17		
	PERS	TRS	PERS + TRS	PERS	TRS	PERS + TRS
2013	426,731	70,604	497,335	426,731	70,604	497,335
2014	422,343	67,056	489,399	422,343	67,056	489,399
2015	419,865	63,594	483,459	419,865	63,594	483,459
2016	418,974	60,182	479,156	418,974	60,182	479,156
2017	419,623	56,857	476,480	419,623	56,857	476,480
2018	421,668	53,492	475,160	421,668	53,492	475,160
2019	425,077	50,127	475,204	425,077	50,127	475,204
2020	429,205	46,741	475,946	429,205	46,741	475,946
2021	434,392	43,341	477,733	434,392	43,341	477,733
2022	440,335	40,113	480,448	440,335	40,113	480,448
2023	447,292	37,146	484,438	447,292	37,146	484,438
2024	455,655	34,243	489,898	455,655	34,243	489,898
2025	465,089	31,420	496,509	465,089	31,420	496,509
2026	475,818	28,735	504,553	475,818	28,735	504,553
2027	487,669	26,156	513,825	487,669	26,156	513,825
2028	500,820	23,808	524,628	500,820	23,808	524,628
2029	515,334	21,748	537,082	515,334	21,748	537,082
2030	531,126	19,918	551,044	513,405	19,918	533,323
2031	480,889	18,342	499,231	465,335	18,342	483,677
2032	5,408	2,433	7,841	5,408	2,433	7,841
	8,623,313	796,056	9,419,369	8,590,038	796,056	9,386,094
Savings:	33,275	-	33,275			

Finding: There is an overall savings to non-State employers of $33 Million over 20 years, or $1.65Million per year. Essentially, there is no cost-shifting from the State to Employers in this Scenario.

State of Alaska PERS and TRS
Financial Projections (in Thousands)
Investment Earnings

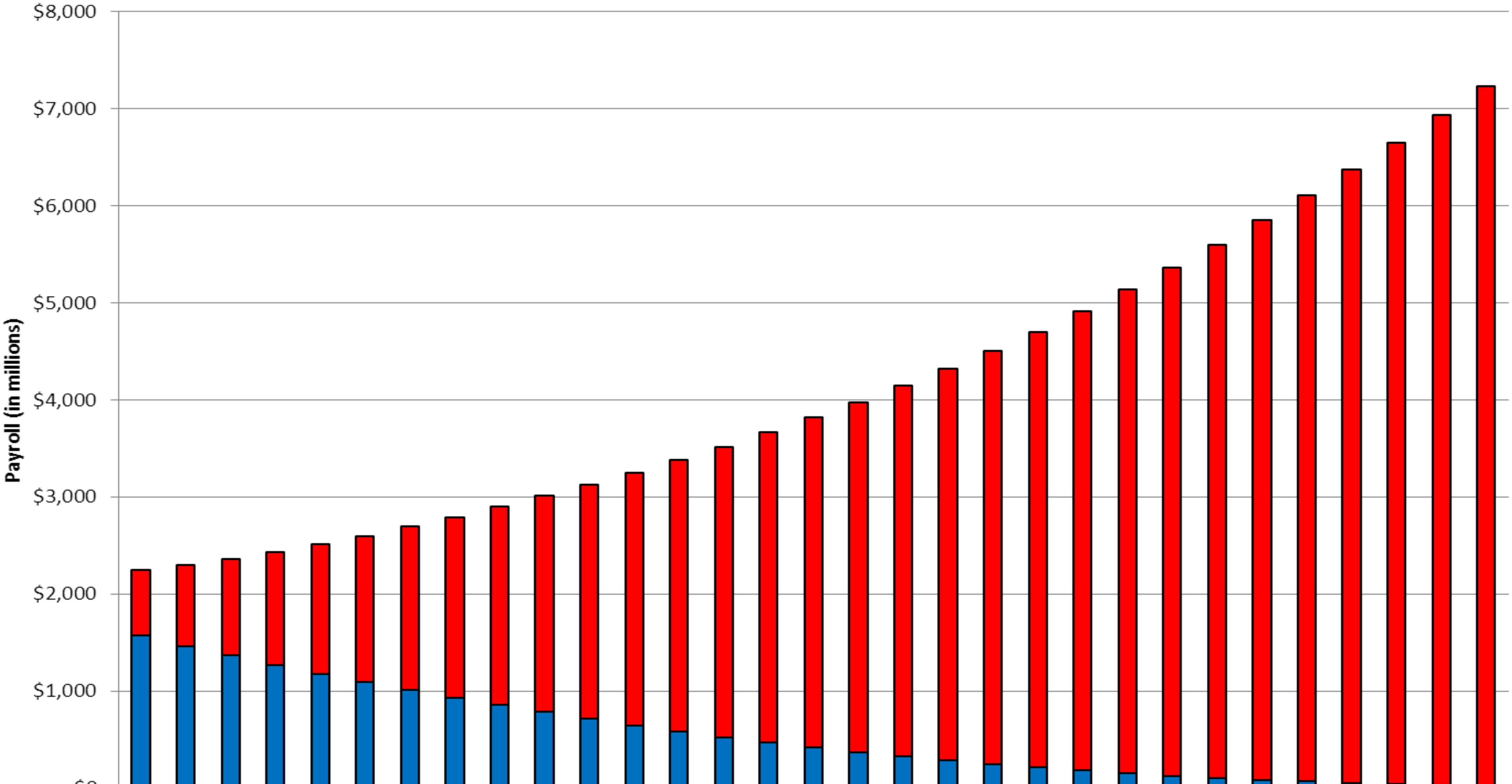
	Baseline - Level Dollar and 8% return			Level Dollar and 8% return PLUS $250M to PERS and $250M to TRS each year FY14 - FY17			Annual Addtl. Interest Earnings
	PERS	TRS	PERS + TRS	PERS	TRS	PERS + TRS	
2013	895,328	365,348	1,260,676	895,328	365,348	1,260,676	-
2014	954,254	385,521	1,339,775	964,061	395,328	1,359,389	19,614
2015	1,018,994	410,755	1,429,749	1,049,587	441,347	1,490,934	61,185
2016	1,091,721	442,154	1,533,875	1,144,494	494,928	1,639,422	105,547
2017	1,165,513	475,018	1,640,531	1,240,675	550,194	1,790,869	150,338
2018	1,238,321	508,327	1,746,648	1,325,048	595,097	1,920,145	173,497
2019	1,310,226	541,935	1,852,161	1,396,049	627,866	2,023,915	171,754
2020	1,380,906	575,518	1,956,424	1,462,761	657,597	2,120,358	163,934
2021	1,449,192	608,690	2,057,882	1,525,194	685,084	2,210,278	152,396
2022	1,515,032	641,653	2,156,685	1,584,290	711,418	2,295,708	139,023
2023	1,578,111	674,368	2,252,479	1,639,927	736,817	2,376,744	124,265
2024	1,638,773	707,053	2,345,826	1,692,540	761,535	2,454,075	108,249
2025	1,696,792	739,754	2,436,546	1,741,874	785,615	2,527,489	90,943
2026	1,752,074	771,893	2,523,967	1,787,800	808,465	2,596,265	72,298
2027	1,805,114	803,609	2,608,723	1,830,764	830,176	2,660,940	52,217
2028	1,856,035	835,419	2,691,454	1,870,865	851,217	2,722,082	30,628
2029	1,905,401	867,474	2,772,875	1,908,614	871,675	2,780,289	7,414
2030	1,940,806	891,345	2,832,151	1,936,638	888,180	2,824,818	(7,333)
2031	1,957,626	903,147	2,860,773	1,951,348	897,878	2,849,226	(11,547)
2032	1,949,510	901,354	2,850,864	1,942,096	894,987	2,837,083	(13,781)
	30,099,729	13,050,335	43,150,064	30,889,953	13,850,752	44,740,705	1,590,641
Savings:	790,224	800,417	1,590,641				

Findings: Earlier contributions of $2 Billion result in additional interest earnings of $1.6 Billion, which is what results in the State having to pay $1.7 Billion in lower contributions overall.



Prepared by K. Erchinger using Buck Consulting data

PERS Membership Projection
Projected DB and DCR Payroll



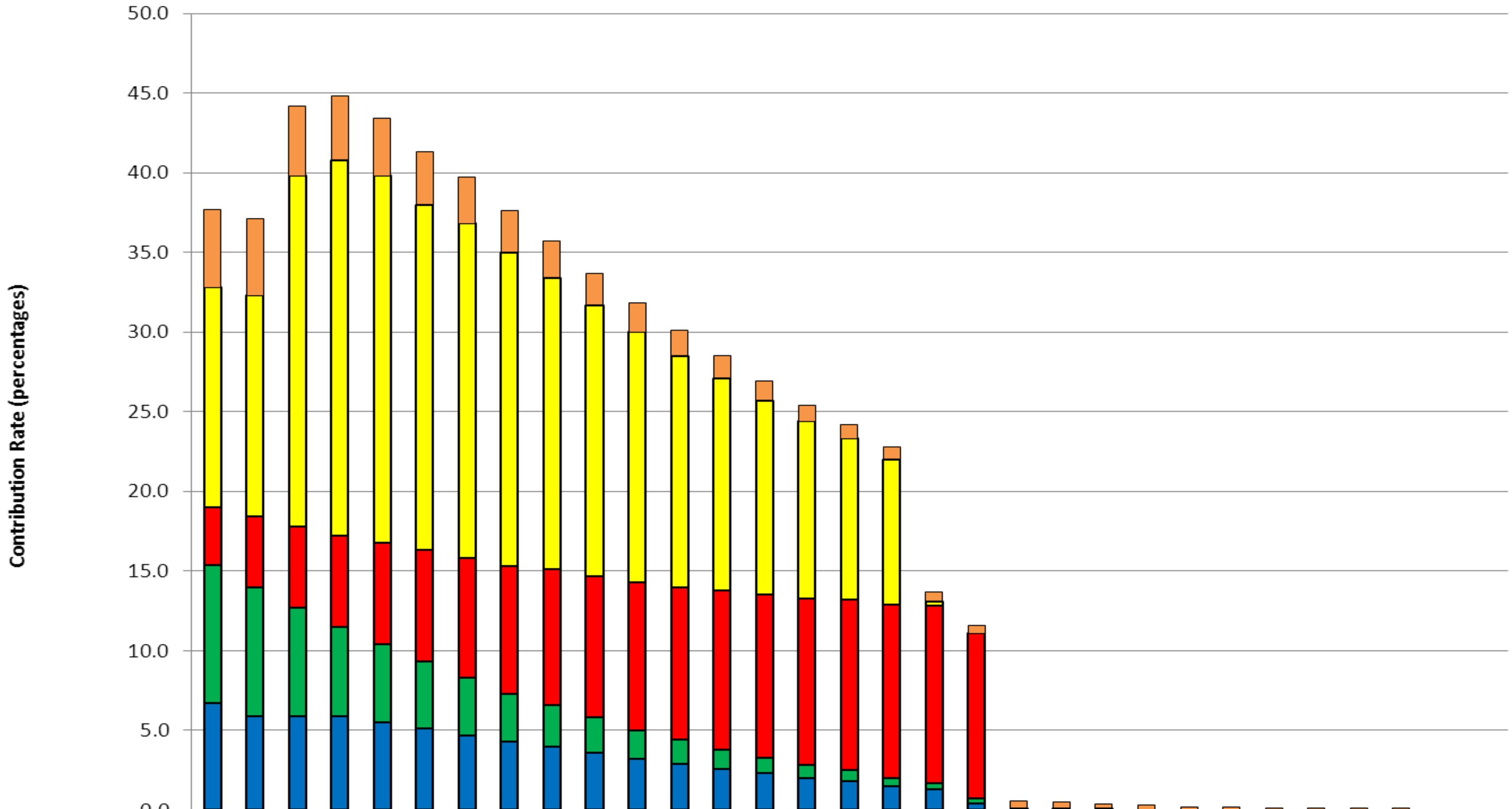
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
DCR Payroll	676	831	993	1,159	1,328	1,501	1,679	1,860	2,041	2,224	2,409	2,601	2,795	2,992	3,193
DB Payroll	1,570	1,465	1,365	1,270	1,180	1,095	1,013	933	858	785	715	648	584	526	470

	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
DCR Payroll	3,398	3,606	3,818	4,035	4,259	4,489	4,733	4,982	5,235	5,494	5,762	6,036	6,315	6,603	6,899	7,206
DB Payroll	417	370	326	285	248	214	182	154	128	106	85	68	54	42	33	25

Fiscal Year Ending June 30

DB Payroll   DCR Payroll

State of Alaska PERS
Projected Employer/State Contribution Rates
Baseline - Level Dollar Amortization and 8% Investment Return



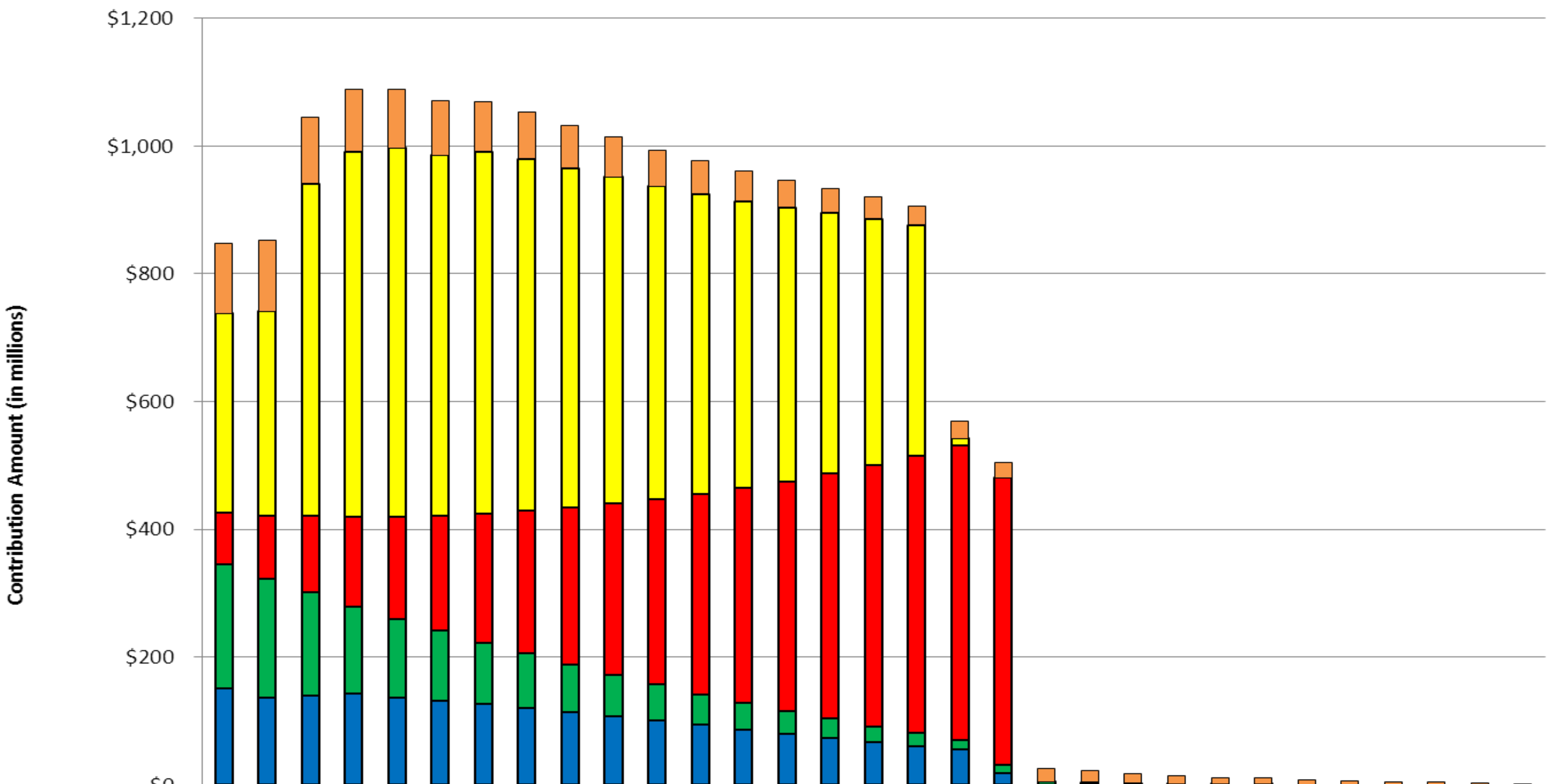
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
DB EE Contributions	4.9	4.8	4.4	4.0	3.6	3.3	2.9	2.6	2.3	2.0	1.8	1.6	1.4	1.2	1.0	0.9
State Assistance	13.8	13.9	22.0	23.6	23.0	21.7	21.0	19.7	18.3	17.0	15.7	14.5	13.3	12.2	11.1	10.1
DB ER Contributions on DCR Pay	3.6	4.4	5.1	5.7	6.4	7.0	7.5	8.0	8.5	8.9	9.3	9.6	10.0	10.2	10.5	10.7
DB ER Contributions on DB Pay-NC	8.7	8.1	6.8	5.6	4.9	4.2	3.6	3.0	2.6	2.2	1.8	1.5	1.2	1.0	0.8	0.7
DB ER Contributions on DB Pay-Unf	6.7	5.9	5.9	5.9	5.5	5.1	4.7	4.3	4.0	3.6	3.2	2.9	2.6	2.3	2.0	1.8

	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
DB EE Contributions	0.8	0.6	0.5	0.5	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0
State Assistance	9.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DB ER Contributions on DCR Pay	10.9	11.1	10.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DB ER Contributions on DB Pay-NC	0.5	0.4	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DB ER Contributions on DB Pay-Unf	1.5	1.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Fiscal Year Ending June 30

DB ER Contributions on DB Pay-Unf | DB ER Contributions on DB Pay-NC | DB ER Contributions on DCR Pay | State Assistance | DB EE Contributions

State of Alaska PERS
Projected Employer/State Contribution Amounts
Baseline - Level Dollar Amortization and 8% Investment Return



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
DB EE Contributions	110	111	104	97	91	85	79	73	67	62	57	52	47
State Assistance	311	319	520	572	577	564	566	550	531	511	490	470	449
DB ER Contributions on DCR Pay	81	100	120	140	160	181	202	224	246	268	290	313	337
DB ER Contributionson DB Pay-NC	195	186	161	136	123	109	96	85	74	65	56	48	41
DB ER Contributions on DB Pay-Unf	151	136	140	143	137	132	127	121	114	108	101	94	87

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
DB EE Contributions	42	38	34	30	27	23	21	18	15	13	11	10	8	6	5	4	3	2
State Assistance	429	408	385	361	11	0	0	0	0	0	0	0	0	0	0	0	0	0
DB ER Contributions on DCR Pay	360	384	409	434	460	449	0	0	0	0	0	0	0	0	0	0	0	0
DB ER Contributionson DB Pay-NC	35	30	25	20	16	13	5	4	3	2	1	1	0	0	0	0	0	0
DB ER Contributions on DB Pay-Unf	80	74	67	61	55	19	0	0	0	0	0	0	0	0	0	0	0	0

Fiscal Year Ending June 30

DB ER Contributions on DB Pay-Unf | DB ER Contributionson DB Pay-NC | DB ER Contributions on DCR Pay | State Assistance | DB EE Contributions

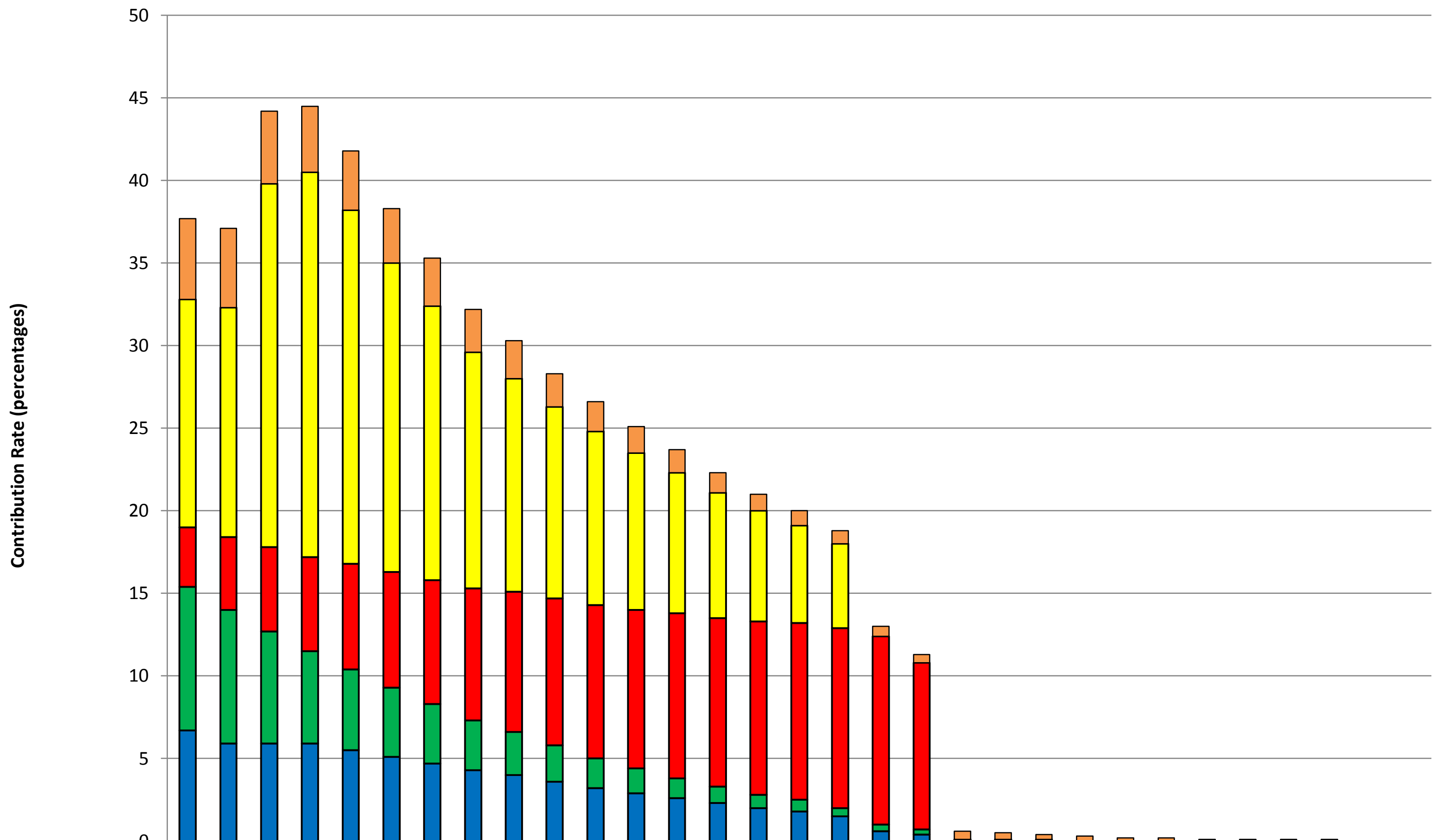
State of Alaska PERS
Financial Projections (in Thousands)
Baseline - Level Dollar Amortization and 8% Investment Return

Investment Return: 8.00%

Fiscal Year End	Valuation Amounts on July 1 (Beginning of Fiscal Year): Actuarial Assets	Accrued Liability	Funding Ratio	Surplus (Deficit)	Flow Amounts During Following 12 Months: DB Salaries	DCR Salaries	Total Salaries	Employer/State Ctb Rate	E'r Normal Cost Contribs	E'r Contribs to Unfunded Liability
--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------
2013	$11,832,030	$19,292,361	61.3%	($7,460,331)	1,569,710	675,976	$2,245,686	32.83%	$194,701	$232,030
2014	12,088,182	20,109,112	60.1%	(8,020,930)	1,464,862	831,019	2,295,881	32.31%	186,426	235,917
2015	12,943,523	20,885,260	62.0%	(7,941,737)	1,365,140	992,553	2,357,693	39.85%	160,795	259,070
2016	13,937,354	21,614,302	64.5%	(7,676,948)	1,270,187	1,158,557	2,428,744	40.82%	136,495	282,479
2017	14,724,838	22,291,137	66.1%	(7,566,299)	1,180,474	1,327,827	2,508,301	39.73%	122,656	296,967
2018	15,683,423	22,919,638	68.4%	(7,236,215)	1,095,082	1,500,814	2,595,896	37.96%	108,768	312,900
2019	16,622,375	23,501,895	70.7%	(6,879,520)	1,012,813	1,679,466	2,692,279	36.82%	95,845	329,232
2020	17,557,839	24,035,658	73.0%	(6,477,819)	933,050	1,859,539	2,792,589	35.05%	84,615	344,590
2021	18,464,937	24,512,466	75.3%	(6,047,529)	857,635	2,040,521	2,898,156	33.31%	74,193	360,199
2022	19,338,270	24,925,074	77.6%	(5,586,804)	784,540	2,223,568	3,008,108	31.63%	64,975	375,360
2023	20,181,372	25,278,587	79.8%	(5,097,215)	714,810	2,408,950	3,123,760	30.01%	56,228	391,064
2024	20,982,354	25,570,418	82.1%	(4,588,064)	647,856	2,600,929	3,248,785	28.49%	48,407	407,248
2025	21,762,442	25,795,109	84.4%	(4,032,667)	584,472	2,795,322	3,379,794	27.06%	41,233	423,856
2026	22,496,208	25,934,450	86.7%	(3,438,242)	525,664	2,992,129	3,517,793	25.73%	35,178	440,640
2027	23,203,843	26,004,608	89.2%	(2,800,765)	469,702	3,193,055	3,662,757	24.44%	29,668	458,001
2028	23,879,524	25,997,577	91.9%	(2,118,053)	417,448	3,398,023	3,815,471	23.21%	24,801	476,019
2029	24,531,440	25,917,989	94.7%	(1,386,549)	369,542	3,606,357	3,975,899	22.04%	19,879	495,455
2030	25,166,229	25,769,017	97.7%	(602,788)	325,514	3,818,189	4,143,703	13.08%	16,160	514,966
2031	25,448,654	25,549,181	99.6%	(100,527)	285,169	4,035,487	4,320,656	11.13%	12,962	467,927
2032	25,607,215	25,227,017	101.5%	380,198	247,895	4,258,697	4,506,592	0.12%	5,408	0
									$ 1,519,393	$ 7,103,920

Fiscal Year End	Employer Contribs	State Contribs	Employer/State Contribs	Employee Contribs	Total Contribs	Benefit Payments	Net Contribs	Investment Earnings	Recognized Asset Gain/(Loss)	Ending Actuarial Assets
--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------
2013	$426,731	$310,528	$737,259	$118,692	$855,951	$973,954	($118,003)	$895,328	($521,173)	$12,088,182
2014	422,343	319,456	741,799	120,633	862,432	1,056,528	(194,096)	954,254	95,183	12,943,523
2015	419,865	519,676	939,541	114,150	1,053,691	1,140,515	(86,824)	1,018,994	61,661	13,937,354
2016	418,974	572,439	991,413	107,781	1,099,194	1,225,841	(126,647)	1,091,721	(177,590)	14,724,838
2017	419,623	576,925	996,548	101,655	1,098,203	1,305,131	(206,928)	1,165,513	0	15,683,423
2018	421,668	563,734	985,402	95,970	1,081,372	1,380,741	(299,369)	1,238,321	0	16,622,375
2019	425,077	566,220	991,297	90,469	1,081,766	1,456,528	(374,762)	1,310,226	0	17,557,839
2020	429,205	549,597	978,802	85,274	1,064,076	1,537,884	(473,808)	1,380,906	0	18,464,937
2021	434,392	530,984	965,376	80,182	1,045,558	1,621,417	(575,859)	1,449,192	0	19,338,270
2022	440,335	511,130	951,465	75,193	1,026,658	1,698,588	(671,930)	1,515,032	0	20,181,372
2023	447,292	490,148	937,440	56,540	993,980	1,771,109	(777,129)	1,578,111	0	20,982,354
2024	455,655	469,924	925,579	51,656	977,235	1,835,920	(858,685)	1,638,773	0	21,762,442
2025	465,089	449,483	914,572	46,641	961,213	1,924,239	(963,026)	1,696,792	0	22,496,208
2026	475,818	429,310	905,128	42,214	947,342	1,991,781	(1,044,439)	1,752,074	0	23,203,843
2027	487,669	407,509	895,178	38,093	933,271	2,062,704	(1,129,433)	1,805,114	0	23,879,524
2028	500,820	384,751	885,571	33,958	919,529	2,123,648	(1,204,119)	1,856,035	0	24,531,440
2029	515,334	360,954	876,288	30,217	906,505	2,177,117	(1,270,612)	1,905,401	0	25,166,229
2030	531,126	10,870	541,996	26,520	568,516	2,226,897	(1,658,381)	1,940,806	0	25,448,654
2031	480,889	0	480,889	23,332	504,221	2,303,286	(1,799,065)	1,957,626	0	25,607,215
2032	5,408	0	5,408	20,730	26,138	2,351,333	(2,325,195)	1,949,510	0	25,231,530
	$ 8,623,313	$ 8,023,638	$ 16,646,951	$ 1,359,900	$ 18,006,851					

State of Alaska PERS
Projected Employer/State Contribution Rates
Scenario A - Level Dollar Amortization and 8% Investment Return
with $250M Appropriated to PERS in Each Year FY14 - FY17 - REVISED



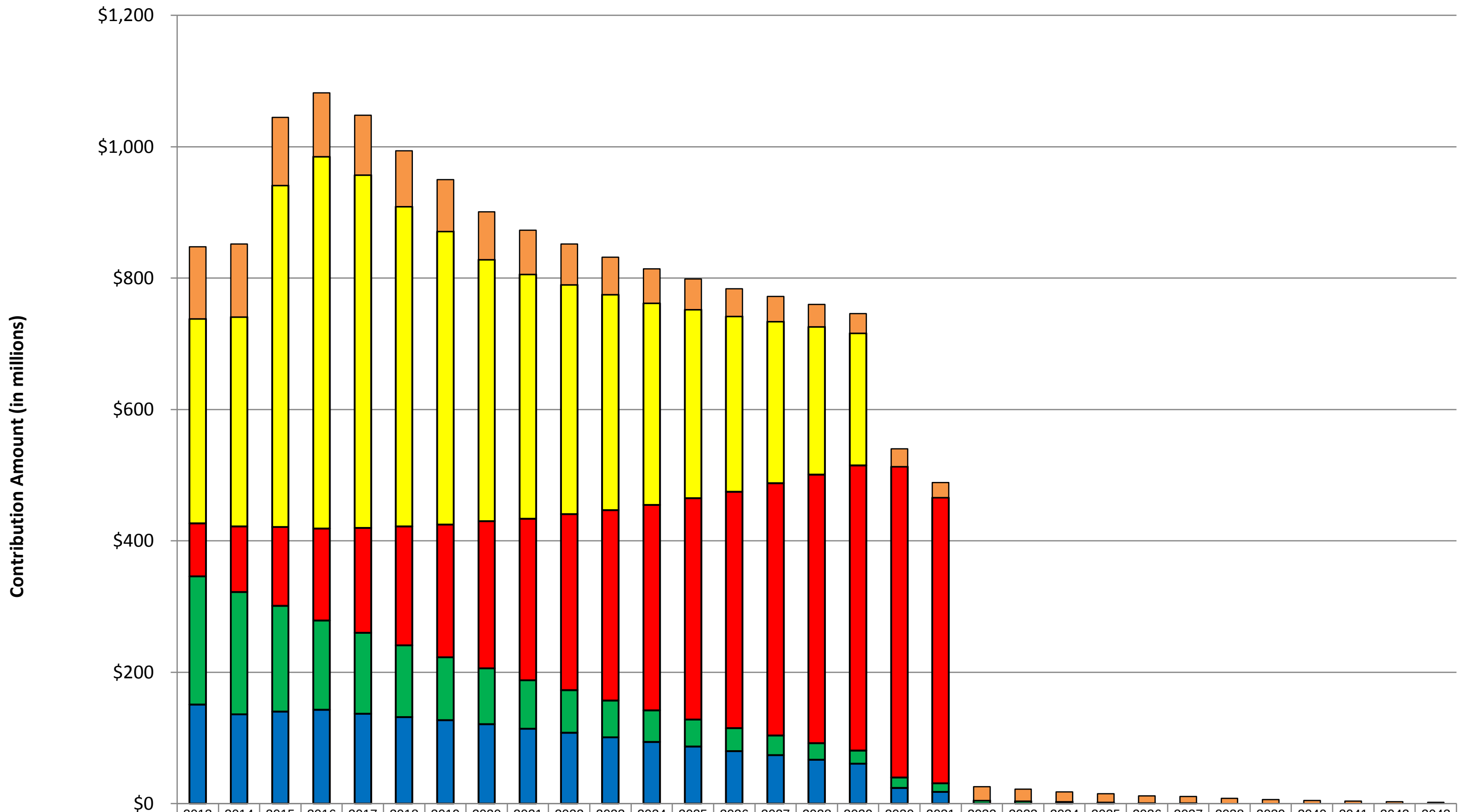
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
DB EE Contributions	4.9	4.8	4.4	4	3.6	3.3	2.9	2.6	2.3	2	1.8	1.6	1.4	1.2	1	0.9
State Assistance	13.8	13.9	22	23.3	21.4	18.7	16.6	14.3	12.9	11.6	10.5	9.5	8.5	7.6	6.7	5.9
DB ER Contributions on DCR Pay	3.6	4.4	5.1	5.7	6.4	7	7.5	8	8.5	8.9	9.3	9.6	10	10.2	10.5	10.7
DB ER Contributions on DB Pay-NC	8.7	8.1	6.8	5.6	4.9	4.2	3.6	3	2.6	2.2	1.8	1.5	1.2	1	0.8	0.7
DB ER Contributions on DB Pay-Unf	6.7	5.9	5.9	5.9	5.5	5.1	4.7	4.3	4	3.6	3.2	2.9	2.6	2.3	2	1.8

	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
DB EE Contributions	0.8	0.6	0.5	0.5	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0	0
State Assistance	5.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DB ER Contributions on DCR Pay	10.9	11.4	10.1	0	0	0	0	0	0	0	0	0	0	0	0
DB ER Contributions on DB Pay-NC	0.5	0.4	0.3	0.1	0.1	0.1	0	0	0	0	0	0	0	0	0
DB ER Contributions on DB Pay-Unf	1.5	0.6	0.4	0	0	0	0	0	0	0	0	0	0	0	0

Fiscal Year Ending June 30

DB ER Contributions on DB Pay-Unf | DB ER Contributions on DB Pay-NC | DB ER Contributions on DCR Pay | State Assistance | DB EE Contributions

State of Alaska PERS
Projected Employer/State Contribution Amounts
Scenario A - Level Dollar Amortization and 8% Investment Return
with $250M Appropriated to PERS in Each Year FY14 - FY17 - REVISED



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
DB EE Contributions	110	111	104	97	91	85	79	73	67	62	57	52	47	42	38	34
State Assistance	311	319	520	566	537	487	446	398	372	349	328	307	287	267	246	225
DB ER Contributions on DCR Pay	81	100	120	140	160	181	202	224	246	268	290	313	337	360	384	409
DB ER Contributionson DB Pay-NC	195	186	161	136	123	109	96	85	74	65	56	48	41	35	30	25
DB ER Contributions on DB Pay-Unf	151	136	140	143	137	132	127	121	114	108	101	94	87	80	74	67

	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
DB EE Contributions	30	27	23	21	18	15	13	11	10	8	6	5	4	3	2
State Assistance	201	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DB ER Contributions on DCR Pay	434	473	435	0	0	0	0	0	0	0	0	0	0	0	0
DB ER Contributionson DB Pay-NC	20	16	13	5	4	3	2	1	1	0	0	0	0	0	0
DB ER Contributions on DB Pay-Unf	61	24	18	0	0	0	0	0	0	0	0	0	0	0	0

Fiscal Year Ending June 30

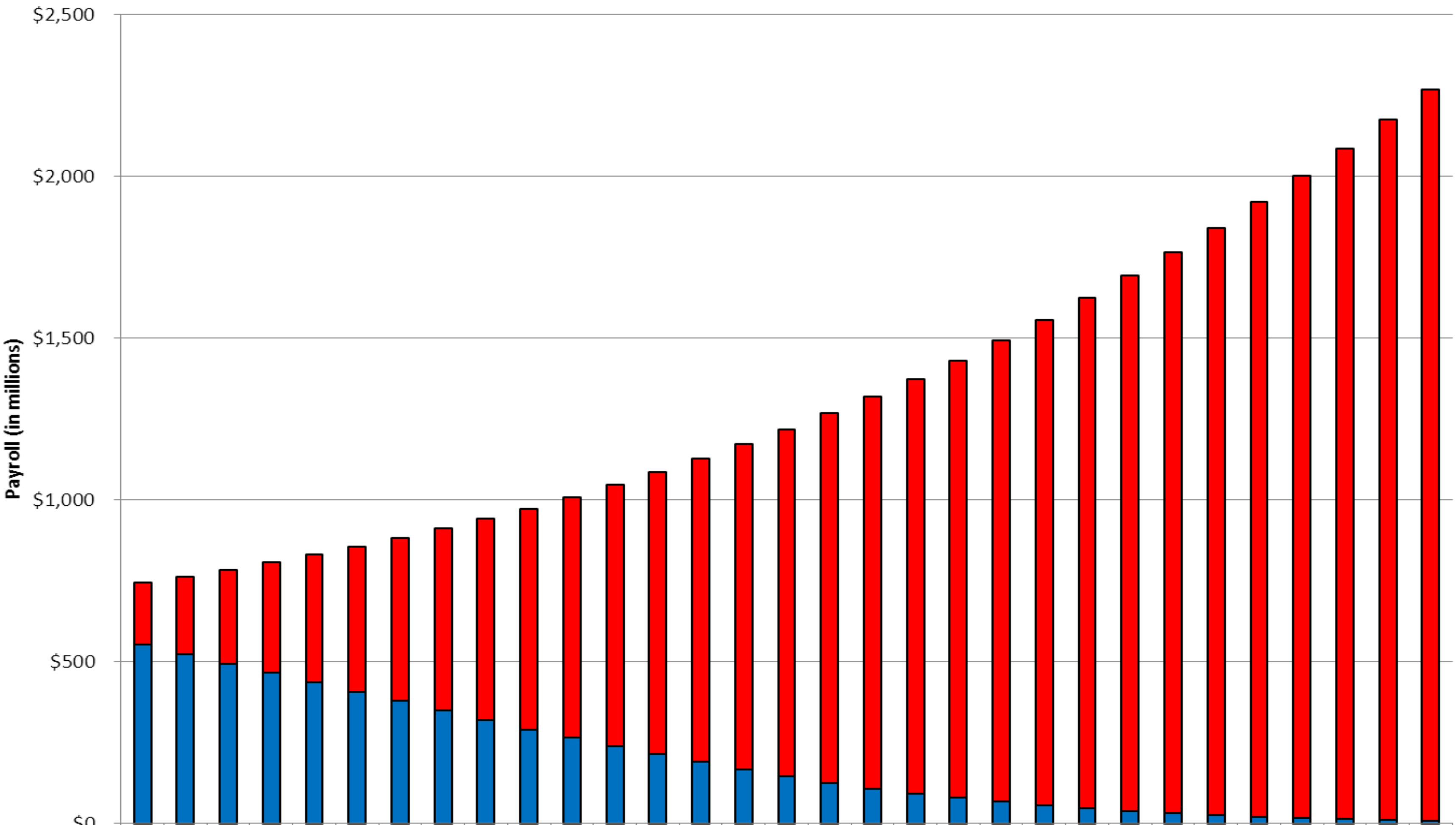
DB ER Contributions on DB Pay-Unf | DB ER Contributionson DB Pay-NC | DB ER Contributions on DCR Pay | State Assistance | DB EE Contributions

State of Alaska PERS
Financial Projections (in Thousands)
Scenario A - Level Dollar Amortization and 8% Investment Return
with $250M Appropriated to PERS in Each Year FY14 - FY17 - REVISED

Investment Return: 8.00%

	Valuation Amounts on July 1 (Beginning of Fiscal Year)				Flow Amounts During Following 12 Months															
Fiscal Year End	Actuarial Assets	Accrued Liability	Funding Ratio	Surplus (Deficit)	DB Salaries	DCR Salaries	Total Salaries	Employer/State Ctb Rate	E'r Normal Cost Contribs	E'r Contribs to Unfunded Liability	Employer Contribs	State Contribs	Employer/State Contribs	Employee Contribs	Total Contribs	Benefit Payments	Net Contribs	Investment Earnings	Recognized Asset Gain/(Loss)	Ending Actuarial Assets
--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------
2013	$11,832,030	$19,292,361	61.3%	($7,460,331)	1,569,710	675,976	$2,245,686	32.83%	$194,701	$232,030	$426,731	$310,528	$737,259	$118,692	$855,951	$973,954	($118,003)	$895,328	($521,173)	$12,088,182
2014	12,088,182	20,109,112	60.1%	(8,020,930)	1,464,862	831,019	2,295,881	43.20%	186,426	235,917	422,343	569,456	991,799	120,633	1,112,432	1,056,528	55,904	964,061	95,183	13,203,330
2015	13,203,330	20,885,260	63.2%	(7,681,930)	1,365,140	992,553	2,357,693	50.45%	160,795	259,070	419,865	769,676	1,189,541	114,150	1,303,691	1,140,515	163,176	1,049,587	61,661	14,477,754
2016	14,477,754	21,614,302	67.0%	(7,136,548)	1,270,187	1,158,557	2,428,744	50.83%	136,495	282,479	418,974	815,639	1,234,613	107,781	1,342,394	1,225,841	116,553	1,144,494	(177,590)	15,561,211
2017	15,561,211	22,291,137	69.8%	(6,729,926)	1,180,474	1,327,827	2,508,301	48.12%	122,656	296,967	419,623	787,294	1,206,917	101,655	1,308,572	1,305,131	3,441	1,240,675	0	16,805,327
2018	16,805,327	22,919,638	73.3%	(6,114,311)	1,095,082	1,500,814	2,595,896	34.99%	108,768	312,900	421,668	486,636	908,304	95,970	1,004,274	1,380,741	(376,467)	1,325,048	0	17,753,908
2019	17,753,908	23,501,895	75.5%	(5,747,987)	1,012,813	1,679,466	2,692,279	32.37%	95,845	329,232	425,077	446,414	871,491	90,469	961,960	1,456,528	(494,568)	1,396,049	0	18,655,389
2020	18,655,389	24,035,658	77.6%	(5,380,269)	933,050	1,859,539	2,792,589	29.62%	84,615	344,590	429,205	397,960	827,165	85,274	912,439	1,537,884	(625,445)	1,462,761	0	19,492,705
2021	19,492,705	24,512,466	79.5%	(5,019,761)	857,635	2,040,521	2,898,156	27.84%	74,193	360,199	434,392	372,455	806,847	80,182	887,029	1,621,417	(734,388)	1,525,194	0	20,283,511
2022	20,283,511	24,925,074	81.4%	(4,641,563)	784,540	2,223,568	3,008,108	26.24%	64,975	375,360	440,335	348,993	789,328	75,193	864,521	1,698,588	(834,067)	1,584,290	0	21,033,734
2023	21,033,734	25,278,587	83.2%	(4,244,853)	714,810	2,408,950	3,123,760	24.81%	56,228	391,064	447,292	327,713	775,005	56,540	831,545	1,771,109	(939,564)	1,639,927	0	21,734,097
2024	21,734,097	25,570,418	85.0%	(3,836,321)	647,856	2,600,929	3,248,785	23.49%	48,407	407,248	455,655	307,485	763,140	51,656	814,796	1,835,920	(1,021,124)	1,692,540	0	22,405,513
2025	22,405,513	25,795,109	86.9%	(3,389,596)	584,472	2,795,322	3,379,794	22.26%	41,233	423,856	465,089	287,253	752,342	46,641	798,983	1,924,239	(1,125,256)	1,741,874	0	23,022,131
2026	23,022,131	25,934,450	88.8%	(2,912,319)	525,664	2,992,129	3,517,793	21.13%	35,178	440,640	475,818	267,492	743,310	42,214	785,524	1,991,781	(1,206,257)	1,787,800	0	23,603,674
2027	23,603,674	26,004,608	90.8%	(2,400,934)	469,702	3,193,055	3,662,757	20.03%	29,668	458,001	487,669	245,981	733,650	38,093	771,743	2,062,704	(1,290,961)	1,830,764	0	24,143,477
2028	24,143,477	25,997,577	92.9%	(1,854,100)	417,448	3,398,023	3,815,471	19.01%	24,801	476,019	500,820	224,501	725,321	33,958	759,279	2,123,648	(1,364,369)	1,870,865	0	24,649,973
2029	24,649,973	25,917,989	95.1%	(1,268,016)	369,542	3,606,357	3,975,899	18.02%	19,879	495,455	515,334	201,123	716,457	30,217	746,674	2,177,117	(1,430,443)	1,908,614	0	25,128,144
2030	25,128,144	25,769,017	97.5%	(640,873)	325,514	3,818,189	4,143,703	12.39%	16,160	497,245	513,405	0	513,405	26,520	539,925	2,226,897	(1,686,972)	1,936,638	0	25,377,810
2031	25,377,810	25,549,181	99.3%	(171,371)	285,169	4,035,487	4,320,656	10.77%	12,962	452,373	465,335	0	465,335	23,332	488,667	2,303,286	(1,814,619)	1,951,348	0	25,514,539
2032	25,514,539	25,227,017	101.1%	287,522	247,895	4,258,697	4,506,592	0.12%	5,408	0	5,408	0	5,408	20,730	26,138	2,351,333	(2,325,195)	1,942,096	0	25,131,440
									$ 1,519,393	$ 7,070,645	$ 8,590,038	$ 7,166,599	$ 15,756,637	$ 1,359,900	$ 17,116,537					

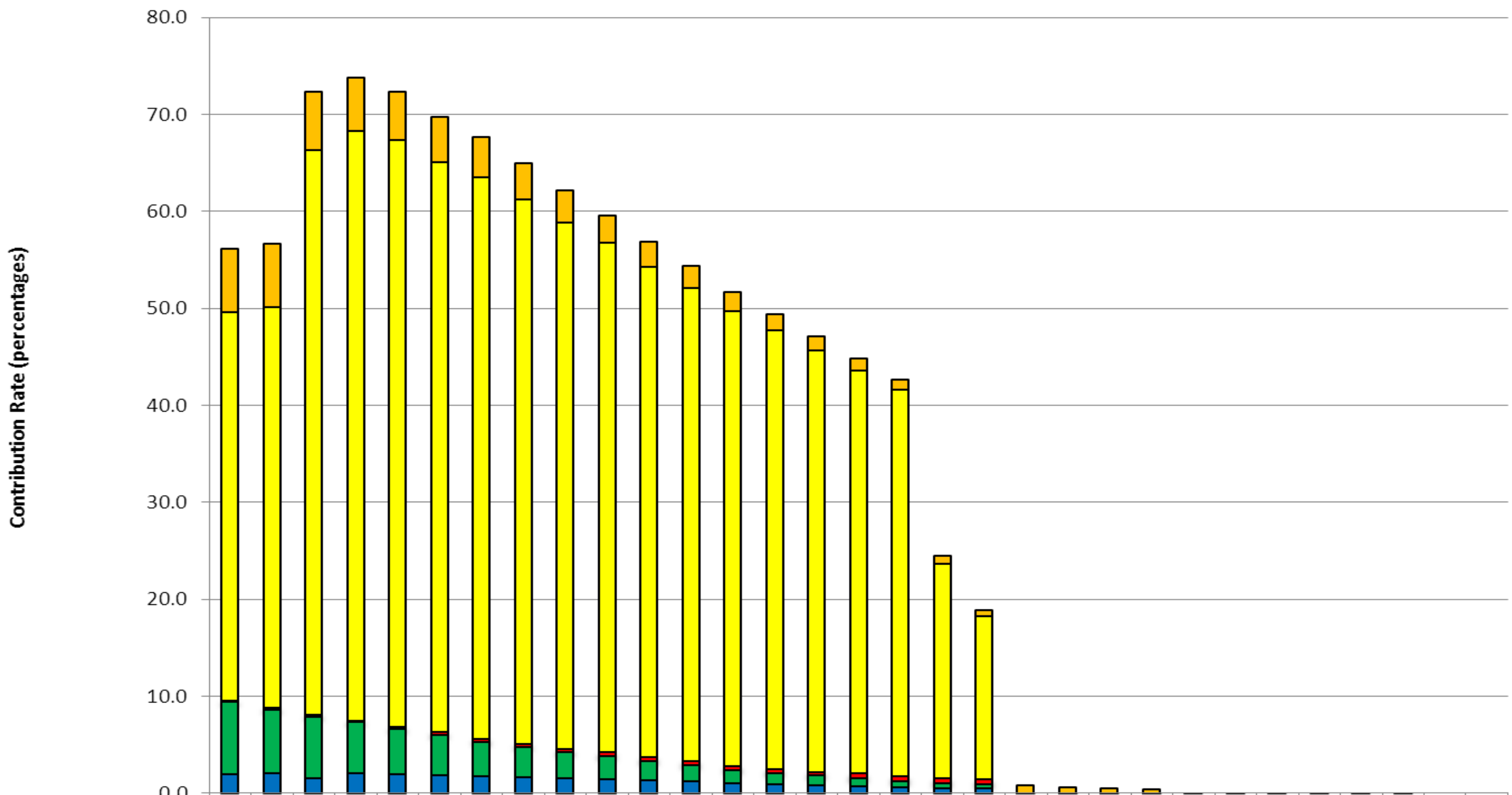
TRS Membership Projection
Projected DB and DCR Payroll



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
DCR Payroll	190	239	289	341	394	449	504	562	622	682	744	807	871	937	1,004	1,072	1,141	1,210	1,280	1,352	1,425	1,500	1,576	1,654	1,733	1,815	1,899	1,984	2,073	2,164	2,259
DB Payroll	554	524	494	465	436	407	378	349	319	291	265	239	214	190	167	145	126	108	93	79	67	56	47	39	32	26	21	17	13	10	8

Fiscal Year Ending June 30

State of Alaska TRS
Projected Employer/State Contribution Rates
Baseline - Level Dollar Amortization and 8% Investment Return



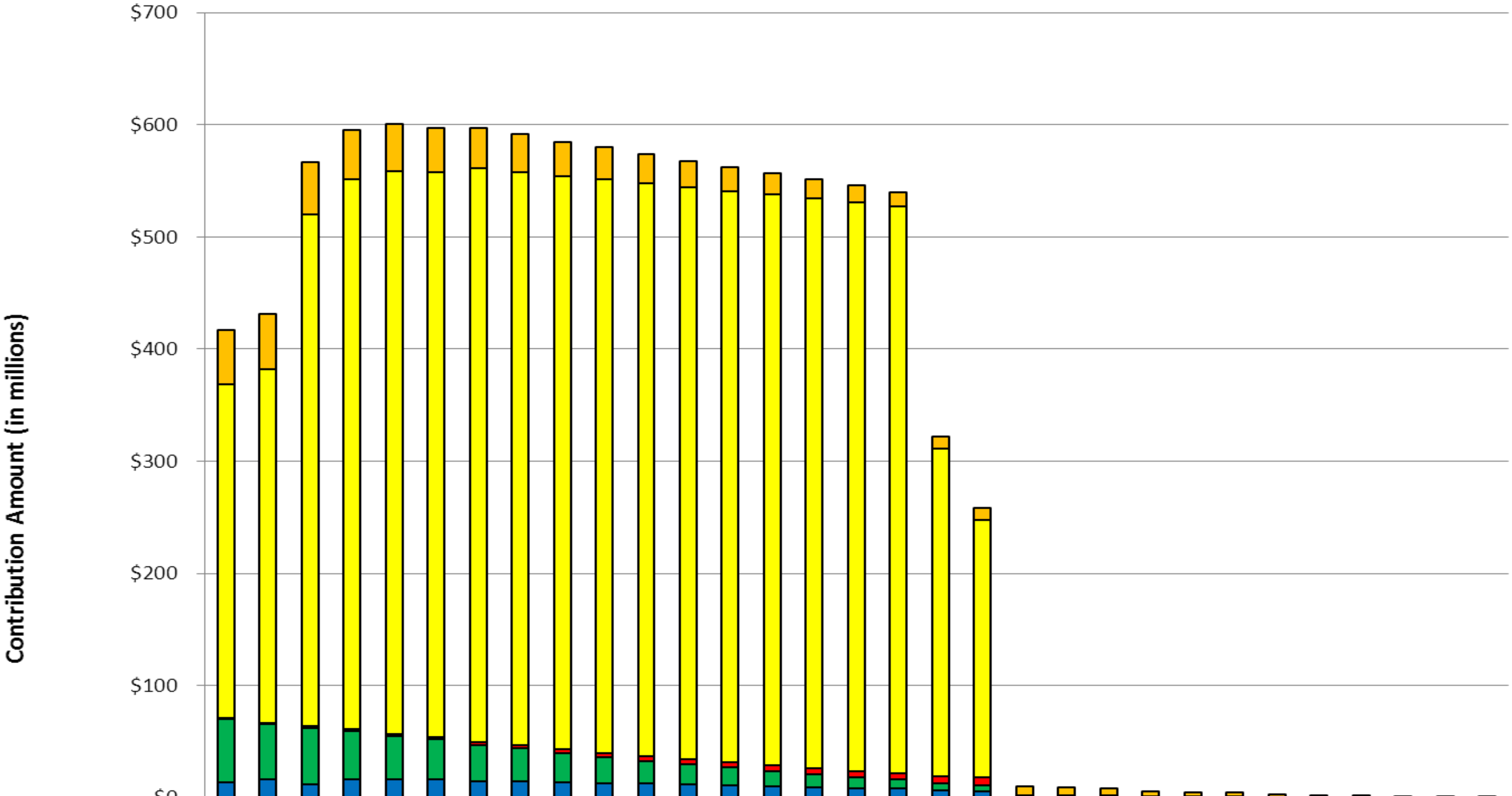
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
DB EE Contributions	6.5	6.5	6.0	5.5	5.0	4.6	4.1	3.7	3.3	2.9	2.6	2.3	2.0	1.7	1.5	1.2
State Assistance	40.1	41.3	58.2	60.8	60.5	58.8	57.9	56.1	54.3	52.5	50.6	48.8	46.9	45.2	43.4	41.6
DB ER Contributions on DCR Pay	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.5
DB ER Contributions on DB Pay-NC	7.5	6.6	6.4	5.3	4.7	4.2	3.6	3.2	2.7	2.4	2.0	1.7	1.4	1.2	1.0	0.8
DB ER Contributions on DB Pay-Unf	1.9	2.0	1.5	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.0	0.9	0.8	0.7

	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
DB EE Contributions	1.0	0.9	0.7	0.6	0.5	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0
State Assistance	39.9	22.1	16.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DB ER Contributions on DCR Pay	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DB ER Contributions on DB Pay-NC	0.6	0.5	0.4	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DB ER Contributions on DB Pay-Unf	0.6	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Fiscal Year Ending June 30

DB EE Contributions | State Assistance | DB ER Contributions on DCR Pay | DB ER Contributions on DB Pay-NC | DB ER Contributions on DB Pay-Unf

State of Alaska TRS
Projected Employer/State Contribution Amounts
Baseline - Level Dollar Amortization and 8% Investment Return



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
DB EE Contributions	48	49	47	44	42	39	36	34	31	29	26	24	21	19	17	15	13	11	10	8	7	6	5	4	4	3	2	2	1	1	1
State Assistance	298	315	456	490	502	504	511	511	511	511	511	510	509	509	508	507	505	292	230	0	0	0	0	0	0	0	0	0	0	0	0
DB ER Contributions on DCR Pay	1	1	2	2	2	2	3	3	3	4	4	4	5	5	5	6	6	6	7	0	0	0	0	0	0	0	0	0	0	0	0
DB ER Contributions on DB Pay-NC	56	50	50	43	39	36	32	29	26	23	20	18	16	14	12	10	8	6	5	2	2	2	1	1	1	0	0	0	0	0	0
DB ER Contributions on DB Pay-Unf	14	16	12	16	16	16	15	15	14	13	13	12	11	10	9	8	8	7	6	0	0	0	0	0	0	0	0	0	0	0	0

Fiscal Year Ending June 30

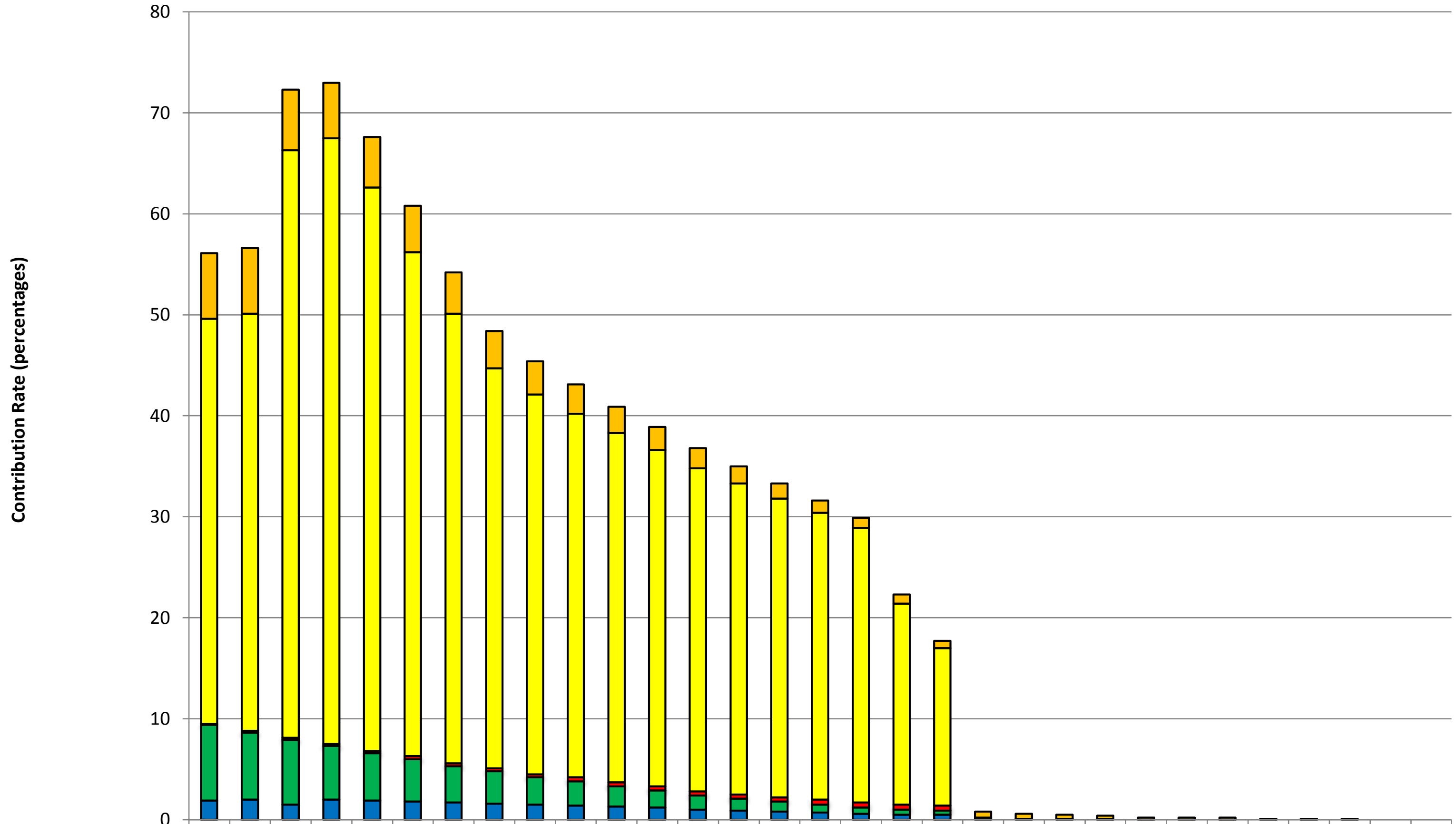
DB ER Contributions on DB Pay-Unf DB ER Contributions on DB Pay-NC DB ER Contributions on DCR Pay State Assistance DB EE Contributions

State of Alaska TRS
Financial Projections (in Thousands)
Baseline - Level Dollar Amortization and 8% Investment Return

Investment Return: 8.00%

	Valuation Amounts on July 1 (Beginning of Fiscal Year)								Flow Amounts During Following 12 Months											
Fiscal Year End	Actuarial Assets	Accrued Liability	Funding Ratio	Surplus (Deficit)	DB Salaries	DCR Salaries	Total Salaries	Employer/State Ctb Rate	E'r Normal Cost Contribs	E'r Contribs to Unfunded Liability	Employer Contribs	State Contribs	Employer/State Contribs	Employee Contribs	Total Contribs	Benefit Payments	Net Contribs	Investment Earnings	Recognized Asset Gain/(Loss)	Ending Actuarial Assets
--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------
2013	$4,869,154	$9,346,444	52.1%	($4,477,290)	554,277	189,680	$743,957	49.56%	$55,574	$15,030	$70,604	$298,101	$368,705	$53,161	$421,866	$525,672	($103,806)	$365,348	($231,878)	$4,898,818
2014	4,898,818	9,651,582	50.8%	(4,752,764)	524,007	238,685	762,692	50.10%	50,261	16,795	67,056	315,053	382,109	54,446	436,555	556,844	(120,289)	385,521	46,525	5,210,575
2015	5,210,575	9,944,626	52.4%	(4,734,051)	494,355	289,083	783,438	66.31%	50,140	13,454	63,594	455,904	519,498	52,102	571,600	586,966	(15,366)	410,755	29,306	5,635,270
2016	5,635,270	10,223,597	55.1%	(4,588,327)	465,046	340,868	805,914	68.26%	42,633	17,549	60,182	489,935	550,117	49,736	599,853	618,454	(18,601)	442,154	(73,420)	5,985,403
2017	5,985,403	10,485,997	57.1%	(4,500,594)	436,372	393,896	830,268	67.34%	39,106	17,751	56,857	502,245	559,102	47,420	606,522	648,576	(42,054)	475,018	0	6,418,367
2018	6,418,367	10,731,508	59.8%	(4,313,141)	407,319	448,506	855,825	65.10%	35,602	17,890	53,492	503,650	557,142	45,199	602,341	675,904	(73,563)	508,327	0	6,853,131
2019	6,853,131	10,963,107	62.5%	(4,109,976)	378,216	504,453	882,669	63.58%	32,129	17,998	50,127	511,074	561,201	42,905	604,106	705,092	(100,986)	541,935	0	7,294,080
2020	7,294,080	11,177,357	65.3%	(3,883,277)	348,869	562,141	911,010	61.22%	28,879	17,862	46,741	510,979	557,720	40,631	598,351	739,563	(141,212)	575,518	0	7,728,386
2021	7,728,386	11,367,833	68.0%	(3,639,447)	319,334	621,623	940,957	58.92%	25,876	17,465	43,341	511,071	554,412	38,284	592,696	771,294	(178,598)	608,690	0	8,158,478
2022	8,158,478	11,533,410	70.7%	(3,374,932)	291,122	682,260	973,382	56.61%	23,166	16,947	40,113	510,919	551,032	35,978	587,010	799,992	(212,982)	641,653	0	8,587,149
2023	8,587,149	11,678,589	73.5%	(3,091,440)	264,969	743,526	1,008,495	54.33%	20,372	16,774	37,146	510,769	547,915	26,120	574,035	825,117	(251,082)	674,368	0	9,010,435
2024	9,010,435	11,804,774	76.3%	(2,794,339)	239,232	806,673	1,045,905	52.06%	17,780	16,463	34,243	510,255	544,498	23,847	568,345	847,540	(279,195)	707,053	0	9,438,293
2025	9,438,293	11,906,243	79.3%	(2,467,950)	214,087	871,181	1,085,268	49.84%	15,628	15,792	31,420	509,478	540,898	21,488	562,386	877,945	(315,559)	739,754	0	9,862,488
2026	9,862,488	11,978,919	82.3%	(2,116,431)	189,996	936,844	1,126,840	47.72%	13,522	15,213	28,735	508,993	537,728	19,269	556,997	915,165	(358,168)	771,893	0	10,276,213
2027	10,276,213	12,014,999	85.5%	(1,738,786)	166,680	1,004,017	1,170,697	45.63%	11,590	14,566	26,156	508,033	534,189	17,092	551,281	942,377	(391,096)	803,609	0	10,688,726
2028	10,688,726	12,019,893	88.9%	(1,331,167)	145,170	1,072,062	1,217,232	43.59%	9,738	14,070	23,808	506,783	530,591	14,972	545,563	965,075	(419,512)	835,419	0	11,104,633
2029	11,104,633	11,999,271	92.5%	(894,638)	125,921	1,140,751	1,266,672	41.62%	7,853	13,895	21,748	505,441	527,189	13,047	540,236	988,765	(448,529)	867,474	0	11,523,578
2030	11,523,578	11,947,250	96.5%	(423,672)	108,494	1,209,865	1,318,359	23.65%	6,460	13,458	19,918	291,874	311,792	11,338	323,130	1,015,267	(692,137)	891,345	0	11,722,786
2031	11,722,786	11,862,365	98.8%	(139,579)	93,037	1,280,099	1,373,136	18.11%	5,355	12,987	18,342	230,333	248,675	9,749	258,424	1,052,765	(794,341)	903,147	0	11,831,592
2032	11,831,592	11,727,157	100.9%	104,435	79,081	1,351,836	1,430,917	0.17%	2,433	0	2,433	0	2,433	8,442	10,875	1,071,218	(1,060,343)	901,354	0	11,672,603
									$ 494,097	$ 301,959	$ 796,056	$ 8,690,890	$ 9,486,946	$ 625,226	$ 10,112,172					

State of Alaska TRS
Projected Employer/State Contribution Rates
Scenario A - Level Dollar Amortization and 8% Investment Return
with $250M Appropriated to TRS in Each Year FY14 - FY17 - REVISED



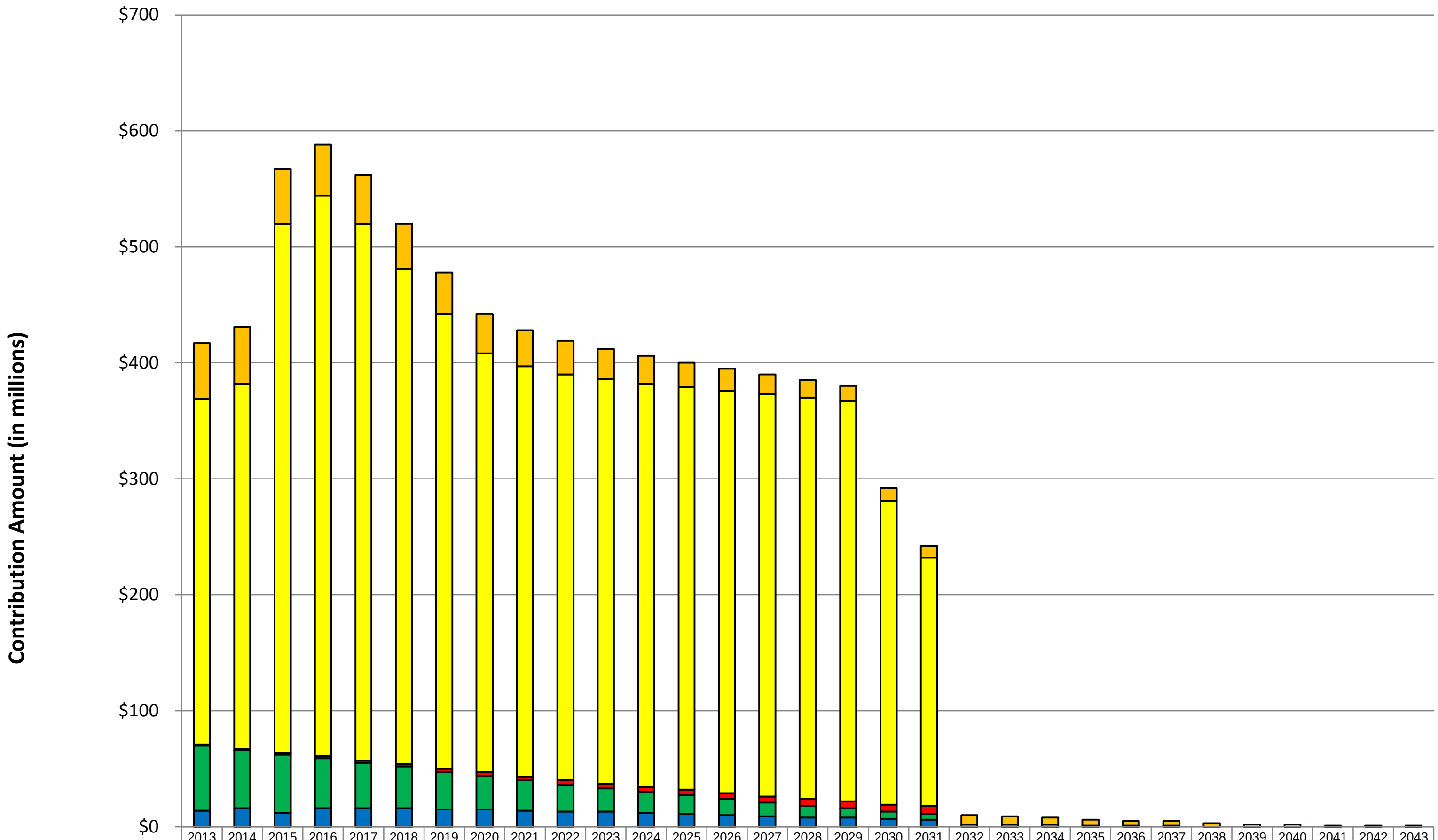
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
DB EE Contributions	6.5	6.5	6	5.5	5	4.6	4.1	3.7	3.3	2.9	2.6	2.3	2	1.7	1.5	1.2
State Assistance	40.1	41.3	58.2	60	55.8	49.9	44.5	39.6	37.6	36	34.6	33.3	32	30.8	29.6	28.4
DB ER Contributions on DCR Pay	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.5
DB ER Contributions on DB Pay-NC	7.5	6.6	6.4	5.3	4.7	4.2	3.6	3.2	2.7	2.4	2	1.7	1.4	1.2	1	0.8
DB ER Contributions on DB Pay-Unf	1.9	2	1.5	2	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1	0.9	0.8	0.7

	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
DB EE Contributions	1	0.9	0.7	0.6	0.5	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0	0
State Assistance	27.2	19.9	15.6	0	0	0	0	0	0	0	0	0	0	0	0
DB ER Contributions on DCR Pay	0.5	0.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0
DB ER Contributions on DB Pay-NC	0.6	0.5	0.4	0.2	0.1	0.1	0.1	0	0	0	0	0	0	0	0
DB ER Contributions on DB Pay-Unf	0.6	0.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0

Fiscal Year Ending June 30

DB EE Contributions | State Assistance | DB ER Contributions on DCR Pay | DB ER Contributions on DB Pay-NC | DB ER Contributions on DB Pay-Unf

State of Alaska TRS
Projected Employer/State Contribution Amounts
Scenario A - Level Dollar Amortization and 8% Investment Return
with $250M Appropriated to TRS in Each Year FY14 - FY17 - REVISED



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
DB EE Contributions	48	49	47	44	42	39	36	34	31	29	26	24	21	19	17
State Assistance	298	315	456	483	463	427	392	361	354	350	349	348	347	347	347
DB ER Contributions on DCR Pay	1	1	2	2	2	2	3	3	3	4	4	4	5	5	5
DB ER Contributions on DB Pay-NC	56	50	50	43	39	36	32	29	26	23	20	18	16	14	12
DB ER Contributions on DB Pay-Unf	14	16	12	16	16	16	15	15	14	13	13	12	11	10	9

	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
DB EE Contributions	15	13	11	10	8	7	6	5	4	4	3	2	2	1	1	1
State Assistance	346	345	262	214	0	0	0	0	0	0	0	0	0	0	0	0
DB ER Contributions on DCR Pay	6	6	6	7	0	0	0	0	0	0	0	0	0	0	0	0
DB ER Contributions on DB Pay-NC	10	8	6	5	2	2	2	1	1	1	0	0	0	0	0	0
DB ER Contributions on DB Pay-Unf	8	8	7	6	0	0	0	0	0	0	0	0	0	0	0	0

Fiscal Year Ending June 30

DB ER Contributions on DB Pay-Unf | DB ER Contributions on DB Pay-NC | DB ER Contributions on DCR Pay | State Assistance | DB EE Contributions

State of Alaska TRS
Financial Projections (in Thousands)
Scenario A - Level Dollar Amortization and 8% Investment Return
with $250M Appropriated to TRS in Each Year FY14 - FY17 - REVISED

Investment Return: 8.00%

	Valuation Amounts on July 1 (Beginning of Fiscal Year)				Flow Amounts During Following 12 Months														Recognized	Ending
Fiscal Year End	Actuarial Assets	Accrued Liability	Funding Ratio	Surplus (Deficit)	DB Salaries	DCR Salaries	Total Salaries	Employer/State Ctb Rate	E'r Normal Cost Contribs	E'r Contribs to Unfunded Liability	Employer Contribs	State Contribs	Employer/State Contribs	Employee Contribs	Total Contribs	Benefit Payments	Net Contribs	Investment Earnings	Asset Gain/(Loss)	Actuarial Assets
2013	$4,869,154	$9,346,444	52.1%	($4,477,290)	554,277	189,680	$743,957	49.56%	$55,574	$15,030	$70,604	$298,101	$368,705	$53,161	$421,866	$525,672	($103,806)	$365,348	($231,878)	$4,898,818
2014	4,898,818	9,651,582	50.8%	(4,752,764)	524,007	238,685	762,692	82.88%	50,261	16,795	67,056	565,053	632,109	54,446	686,555	556,844	129,711	395,328	46,525	5,470,382
2015	5,470,382	9,944,626	55.0%	(4,474,244)	494,355	289,083	783,438	98.22%	50,140	13,454	63,594	705,904	769,498	52,102	821,600	586,966	234,634	441,347	29,306	6,175,669
2016	6,175,669	10,223,597	60.4%	(4,047,928)	465,046	340,868	805,914	98.44%	42,633	17,549	60,182	733,165	793,347	49,736	843,083	618,454	224,629	494,928	(73,420)	6,821,806
2017	6,821,806	10,485,997	65.1%	(3,664,191)	436,372	393,896	830,268	92.71%	39,106	17,751	56,857	712,891	769,748	47,420	817,168	648,576	168,592	550,194	0	7,540,592
2018	7,540,592	10,731,508	70.3%	(3,190,916)	407,319	448,506	855,825	56.14%	35,602	17,890	53,492	426,968	480,460	45,199	525,659	675,904	(150,245)	595,097	0	7,985,444
2019	7,985,444	10,963,107	72.8%	(2,977,663)	378,216	504,453	882,669	50.14%	32,129	17,998	50,127	392,443	442,570	42,905	485,475	705,092	(219,617)	627,866	0	8,393,693
2020	8,393,693	11,177,357	75.1%	(2,783,664)	348,869	562,141	911,010	44.74%	28,879	17,862	46,741	360,845	407,586	40,631	448,217	739,563	(291,346)	657,597	0	8,759,944
2021	8,759,944	11,367,833	77.1%	(2,607,889)	319,334	621,623	940,957	42.23%	25,876	17,465	43,341	354,025	397,366	38,284	435,650	771,294	(335,644)	685,054	0	9,109,354
2022	9,109,354	11,533,410	79.0%	(2,424,056)	291,122	682,260	973,382	40.10%	23,166	16,947	40,113	350,213	390,326	35,978	426,304	799,992	(373,688)	711,418	0	9,447,084
2023	9,447,084	11,678,589	80.9%	(2,231,505)	264,969	743,526	1,008,495	38.29%	20,372	16,774	37,146	349,007	386,153	26,120	412,273	825,117	(412,844)	736,817	0	9,771,057
2024	9,771,057	11,804,774	82.8%	(2,033,717)	239,232	806,673	1,045,905	36.54%	17,780	16,463	34,243	347,931	382,174	23,847	406,021	847,540	(441,519)	761,535	0	10,091,073
2025	10,091,073	11,906,243	84.8%	(1,815,170)	214,087	871,181	1,085,268	34.90%	15,628	15,792	31,420	347,339	378,759	21,488	400,247	877,945	(477,698)	785,615	0	10,398,990
2026	10,398,990	11,978,919	86.8%	(1,579,929)	189,996	936,844	1,126,840	33.36%	13,522	15,213	28,735	347,179	375,914	19,269	395,183	915,165	(519,982)	808,465	0	10,687,473
2027	10,687,473	12,014,999	89.0%	(1,327,526)	166,680	1,004,017	1,170,697	31.84%	11,590	14,566	26,156	346,594	372,750	17,092	389,842	942,377	(552,535)	830,176	0	10,965,114
2028	10,965,114	12,019,893	91.2%	(1,054,779)	145,170	1,072,062	1,217,232	30.37%	9,738	14,070	23,808	345,865	369,673	14,972	384,645	965,075	(580,430)	851,217	0	11,235,901
2029	11,235,901	11,999,271	93.6%	(763,370)	125,921	1,140,751	1,266,672	28.94%	7,853	13,895	21,748	344,827	366,575	13,047	379,622	988,765	(609,143)	871,675	0	11,498,433
2030	11,498,433	11,947,250	96.2%	(448,817)	108,494	1,209,865	1,318,359	21.42%	6,460	13,458	19,918	262,474	282,392	11,338	293,730	1,015,267	(721,537)	888,180	0	11,665,076
2031	11,665,076	11,862,365	98.3%	(197,289)	93,037	1,280,099	1,373,136	16.90%	5,355	12,987	18,342	213,718	232,060	9,749	241,809	1,052,765	(810,956)	897,878	0	11,751,998
2032	11,751,998	11,727,157	100.2%	24,841	79,081	1,351,836	1,430,917	0.17%	2,433	0	2,433	0	2,433	8,442	10,875	1,071,218	(1,060,343)	894,987	0	11,586,642
									$ 494,097	$ 301,959	$ 796,056	$ 7,804,542	$ 8,600,598	$ 625,226	$ 9,225,824					

Public Employees' Retirement System

Changes in Unfunded Liability Since Last Year
($ in millions)

Development of Change in Unfunded Liability during FY12		
1. 2011 Unfunded Liability		$6,927
a. Interest on unfunded liability	$554	
b. Normal cost	289	
c. Employee contributions	(113)	
d. Employer contributions	(406)	
e. State relief under SB 125	(243)	
f. Medicare Part D subsidy	(32)	
g. Interest on b., c., d., e., and f.	(8)	
h. Expected change in unfunded liability during FY12		41
2. Expected 2012 Unfunded Liability		$6,968
a. Liability (gains)	$(540)	
b. Assets losses	805	
c. Change in healthcare assumptions	227	
d. Other changes in unfunded liability during FY12		492
3. Actual 2012 Unfunded Liability		$7,460

Teachers' Retirement System

Changes in Unfunded Liability Since Last Year
($ in millions)

Development of Change in Unfunded Liability during FY12		
1. 2011 Unfunded Liability		$4,191
a. Interest on unfunded liability	$335	
b. Normal cost	98	
c. Employee contributions	(52)	
d. Employer contributions	(74)	
e. State relief under SB 125	(235)	
f. Medicare Part D subsidy	(13)	
g. Interest on b., c., d., e., and f.	(7)	
h. Expected change in unfunded liability during FY12		52
2. Expected 2012 Unfunded Liability		$4,243
a. Liability (gains)	$(192)	
b. Assets losses	359	
c. Change in healthcare assumptions	67	
d. Other changes in unfunded liability during FY12		234
3. Actual 2012 Unfunded Liability		$4,477

Revenue Forecast and Budget Outlook

Long-term outlook - forecast reflects both strong reserves and out-year challenges:

Spring 2013 Revenue Forecast and Projected Reserve Balances

($ millions)	2013	2014	2015	2016	2017	2018	2019
Oil Price and Production							
Forecast ANS West Coast Price ($/barrel)	$109.21	$109.61	$111.67	$114.88	$116.22	$117.16	$118.29
Forecast Production (Million Barrels per Day) *	0.539	0.527	0.513	0.500	0.477	0.443	0.422
Revenue versus Spending							
General Fund Revenues*	$7,585.5	$6,162.7	$5,993.5	$6,232.3	$6,206.5	$5,864.6	$5,775.0
General Fund Expenses	$7,969.9	$6,830.6	$6,775.0	$6,750.0	$6,725.0	$6,700.0	$6,700.0
Budget Surplus / (Deficit)	($384.4)	($667.9)	($781.5)	($517.7)	($518.5)	($835.4)	($925.0)
Reserve Balances							
Constitutional Budget Reserve	$11,604.5	$12,055.4	$12,560.9	$13,124.5	$13,751.4	$14,447.0	$15,216.6
Statutory Budget Reserve	$5,103.6	$4,435.7	$3,654.2	$3,136.5	$2,618.0	$1,782.6	$857.6
Total Reserve Balances	**$16,708.1**	**$16,491.1**	**$16,215.1**	**$16,261.0**	**$16,369.4**	**$16,229.6**	**$16,074.2**

*Includes oil tax reform and assumes no new production

Source: State of Alaska Spring 2013 Revenue Sources Book, Governor's Office of Management & Budget

Alaska Retirement Management Board

August 8, 2013

Pension Funding

State has the constitutional obligation to fund its retirement obligations

The State has actively managed its mandate to fund pension obligations

- Prior to 2001: Alaska's main retirement systems enjoyed funding ratios over 100%
- Since 2001: Investment losses, recalibration of OPEB liabilities and changes in actuarial methods resulted in an unfunded liability
- 2005: State establishes the Alaska Retirement Management Board (ARM Board) to consolidate oversight and investment management of the major systems
- 2006: State closes the Defined Benefit (DB) plans, and established a Defined Contributions (DC) plan for new employees (SB141)
- 2008: (SB 125) State reforms and caps employer contribution rates
  - *Employer contribution rates rose dramatically for school districts, local governments, and state agencies*
  - *To establish a fair and equitable solution, the State capped employer rates at 22% for PERS* (AS 39.35.255) *and 12.56% for TRS* (AS 14.25.070)
  - *State now funds the difference between these caps and annual required contribution as a separate line item (referred to as the "SB 125 Contribution")*
- 2008: Final passage of $5 billion bond authorization (AS 37.15.900 et. Seq.)

Pension Funding

State has the constitutional obligation to fund its retirement obligations

The State has actively managed its mandate to fund pension obligations

- PERS: House Bill 65 appropriates $312.5 million from the general fund to the Department of Administration for deposit in the System's defined benefit pension fund and retiree healthcare trust as partial payment of the participating employers' contributions for the fiscal year ending June 30, 2014. This appropriation is to fund the difference between the statutory required contribution established in Senate Bill 125 of 22.00% and the Board adopted rate of 35.68% for fiscal year 2014.

- TRS: House Bill 65 appropriates $316.8 million from the general fund to the Department of Administration for deposit in the System's defined benefit pension fund and retiree healthcare trust as partial payment of the participating employers' contributions for the fiscal year ending June 30, 2014. This appropriation is to fund the difference between the statutory required contribution established in Senate Bill 125 of 12.56% and the Board adopted rate of 53.62% for fiscal year 2014.

Pension Obligation Bonds

A pension obligation bond allows the State to:

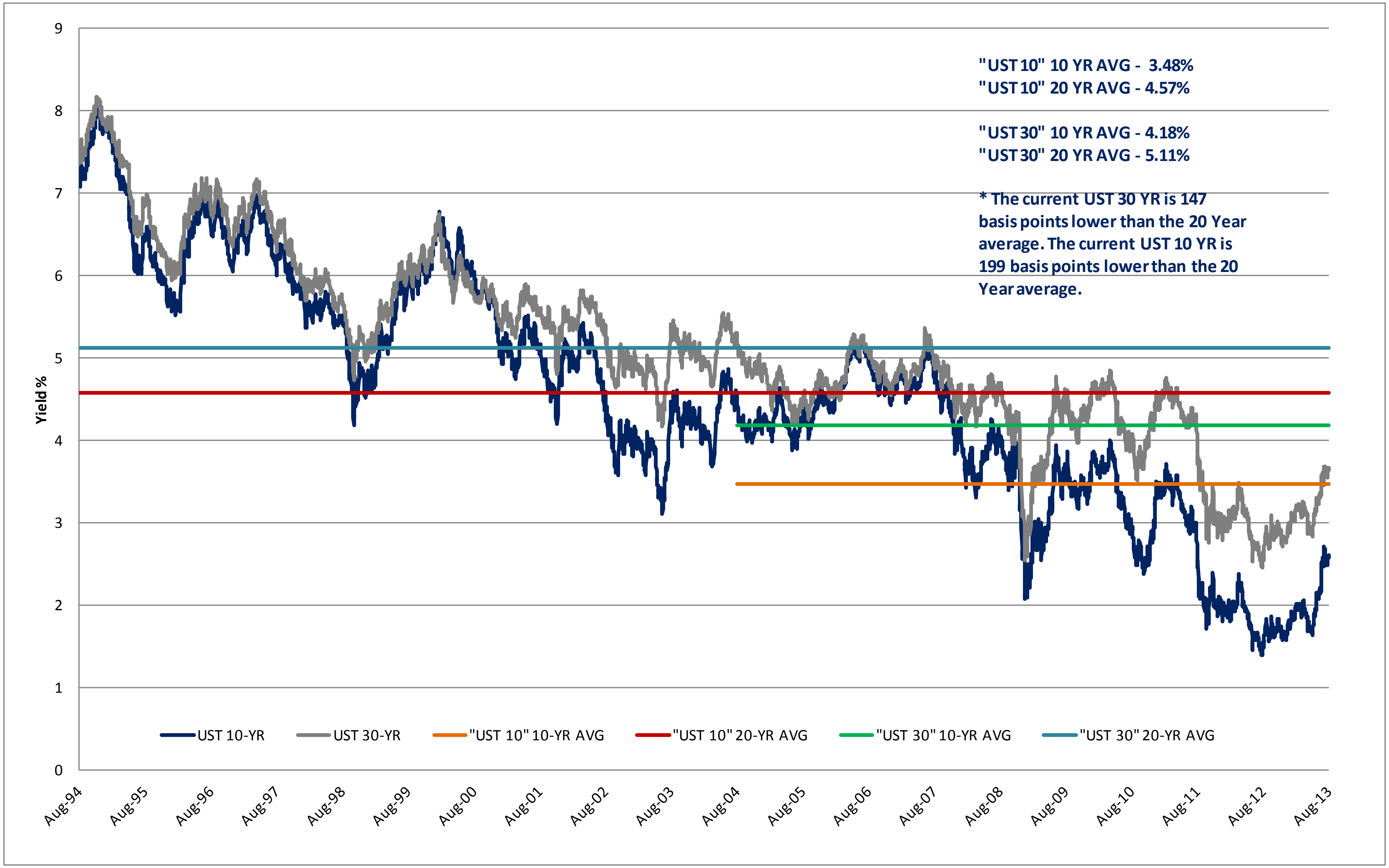
- Come closer to full funding of pension obligation
- Take advantage of low interest rates
- Trade upon the excellent investment performance
- Use the AAA ratings from the 3 major rating agencies to obtain a high rating
- Provide savings to and maintain liquidity of the general fund

Advantages and Challenges of POB

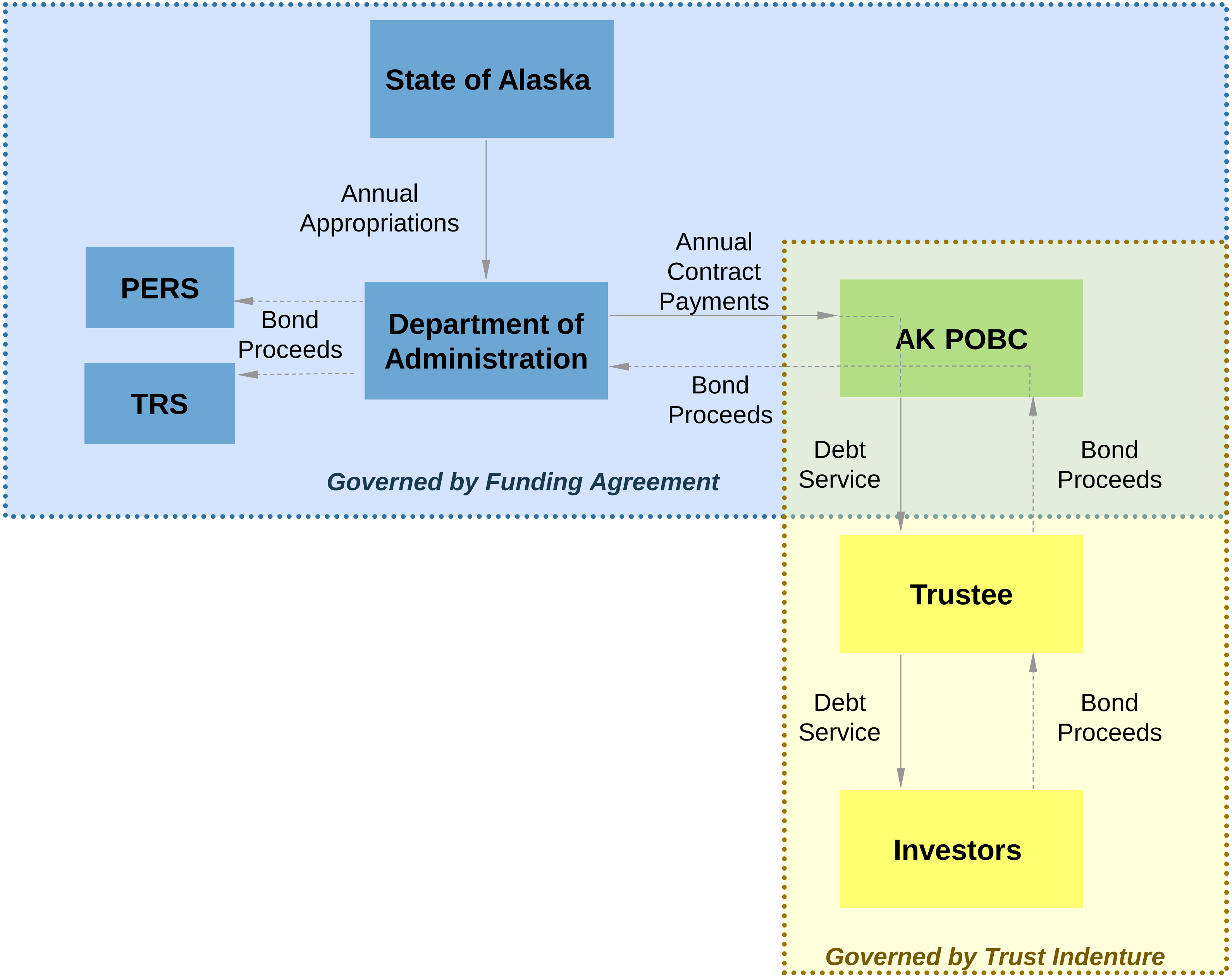
- Advantages
  - Can be a significant tool in funding pension liability
  - Provides funding at low interest rates levels
  - Can be issued as variable or fixed rate bonds
  - Can be structured to anticipate future general fund strengths and weaknesses

- Challenges
  - Income from investment of bond proceeds may not be greater than debt service
  - Does not eliminate the potential of future funding deficits

Historical 30-Year & 10-Year US Treasury*



Flow of Funds



Current Events: Chicago

Moody's downgrades Chicago to A3 from Aa3, affecting $8.2 billion of GO and sales tax debt; due in large part to pension funding

Outlook: Negative

The downgrade of the GO rating reflects Chicago's very large and growing pension liabilities and accelerating budget pressures associated with those liabilities. The city's budgetary flexibility is already burdened by high fixed costs, including unrelenting public safety demands and significant debt service payments. The current administration has made efforts to reduce costs and achieve operational efficiencies, but the magnitude of the city's pension obligations has precluded any meaningful financial improvements. These credit challenges are balanced against key credit strengths that support the A3 rating, particularly Chicago's long-standing role as the center of one of the most diverse economies in the nation and its broad legal authority to generate revenues from a large property tax base and a larger sales tax base.

The negative outlook reflects the formidable legal and political barriers to pension reform in the State of Illinois and the scheduled dramatic increase in city pension contributions required in 2015 under current state law. While the onus is on the state to reduce the city's pension obligations, it is the purview of the city to increase revenues to support those obligations. Absent significant growth in the city's operating revenues, escalating pension funding requirements will increasingly strain the city's operating budget, as pension outlays compete with other spending priorities, including debt service and public safety.

Current Events: Detroit

Detroit's filing for bankruptcy protection has significant national implications

Like Alaska, Michigan has a provision in its State Constitution that protects Pensions

§ 24 Public pension plans and retirement systems, obligation.

Sec. 24. The accrued financial benefits of each pension plan and retirement system of the state and its political subdivisions shall be a contractual obligation thereof which shall not be diminished or impaired thereby.

The Emergency Financial Manager has proposed a reduction in Detroit's pension obligation

Michigan AG to defend public pensions, state constitution in Detroit bankruptcy filing (Detroit Free Press, July 29, 2013)

Detroit's bankruptcy filing has brought uncertainty to the marketplace.

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A Bumpy Road Lies Ahead For U.S. Public Pension Funded Levels

Primary Credit Analyst:
John A Sugden, New York (1) 212-438-1678; john.sugden@standardandpoors.com

Secondary Contacts:
Robin L Prunty, New York (1) 212-438-2081; robin.prunty@standardandpoors.com
Gabriel J Petek, CFA, San Francisco (1) 415-371-5042; gabriel.petek@standardandpoors.com

Research Contributors:
Robert Tu, San Francisco (1) 415-371-5087; robert.tu@standardandpoors.com
Akshay S Aggarwal, Mumbai; akshay.aggarwal@standardandpoors.com
Katilyn Pulcher, ASA, CERA, Chicago (1) 312-233-7055; katilyn.pulcher@standardandpoors.com

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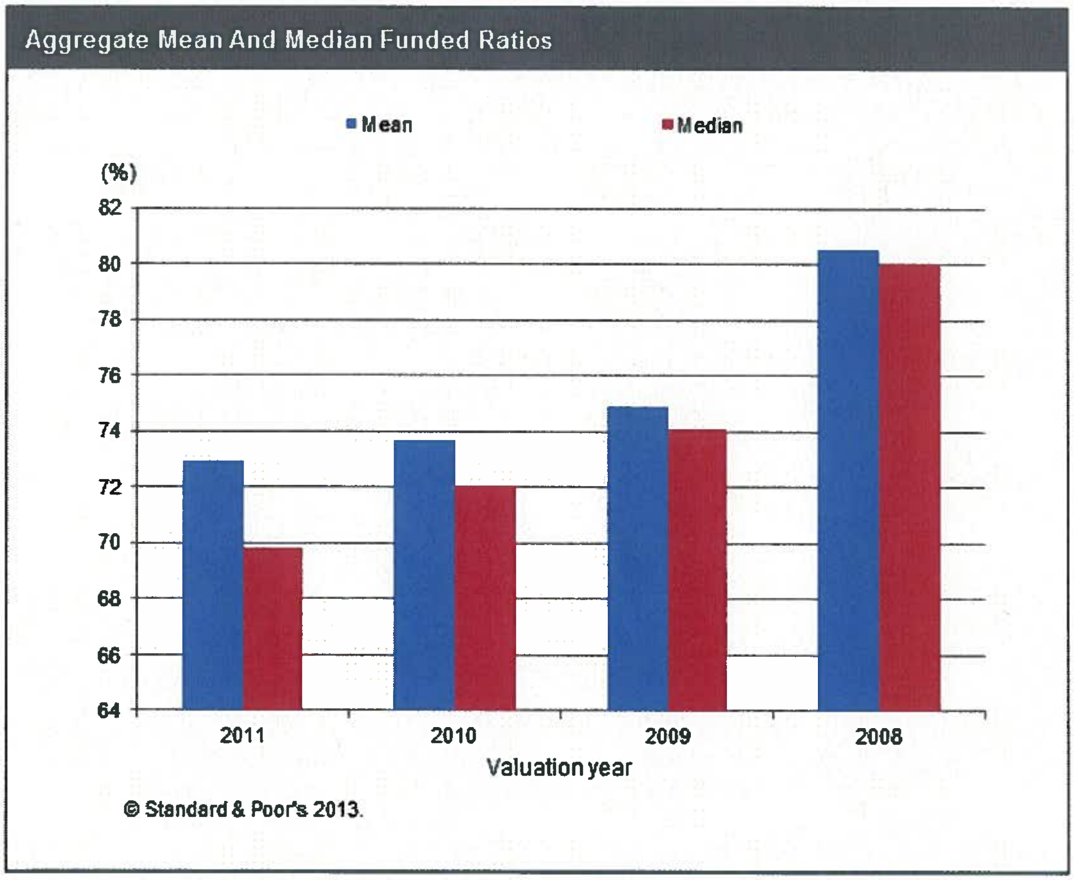
A Bumpy Road Lies Ahead For U.S. Public Pension Funded Levels

U.S. state pensions are showing some signs of stabilization, but significant improvement in funded levels will take many more years, according to Standard & Poor's Ratings Services' 2013 annual survey. The 50-state average funded ratio--or actuarial value of assets divided by the actuarial accrued liabilities--fell by about 1% to 72.9% in 2011 compared with 73.7% in 2010. This is slightly smaller than the 1.6% drop in 2010 and much smaller than the 7% decline from 2008 to 2009. The 50-state median fell by 2.2% to 69.8% from 72%--a similar rate of decline as in 2010 (2.1%) and much lower than the 6% decline in 2009 (see chart 1). This recent trend of smaller declines in the past three years could lead some market watchers to believe that the worst is over and that pension funded levels have bottomed out. Recent equity market performance could also suggest a similar conclusion.

Chart 1



In our view, however, the road to pension funded level improvement will be bumpy. Although a decelerating rate of decline is positive, we expect states will need to actively manage pension funds to ensure their long-term sustainability. Contributing to the ups and downs we expect in pension valuations are market volatility, the implementation of Governmental Accounting Standards Board (GASB) Statements 67 and 68, ongoing pension reform efforts, and, for those with weaker funded systems, a problematic funding environment as growth in pension contributions consumes a larger part of those states' budgets. We believe this increased level of volatility will require a continued emphasis on pension liabilities management.

Overview

- **U.S. state pension funded levels have begun to stabilize but significant improvement will take many more years.**
- **GASB changes will introduce more volatility but should lead to better comparability and disclosure.**
- **Continued pension liability management will be key to achieving long-term sustainability.**
- **States' funding policy decisions and funding discipline will be crucial determinants of pension funded levels.**

Managing Pension Funding In A Tight Revenue Setting

States continue to operate cautiously, given uncertain revenues and expenditures. Although revenues for most states have returned to pre-recession levels, they have not kept pace with spending pressures. State officials face increasing budget challenges as they deal with demands to restore service levels, reduce taxes, and implement the provisions of the Affordable Care Act. Establishing a good baseline for fiscal 2014 revenues is difficult due to the uncertainty surrounding sequestration and the potential that fiscal 2013 revenue increases may have been a one-time event -- the result of taxpayers' efforts to take bonuses and capital gains in fiscal 2013 to avoid higher federal tax rates in fiscal 2014. As policymakers adjust to the current post-recession fiscal climate of slow and uncertain economic growth against a backdrop of federal funding uncertainty, the decisions they face are increasingly difficult and pension reform is among their options to rein in long- and short-term spending pressure.

We continue to incorporate governmental liability management--including pensions--into our rating analysis as we have for decades. Given the state sector's generally strong credit profile and the long-term nature of these obligations, we do not view pension liabilities as immediately jeopardizing state governments' capacity to fund their debt service obligations, but we believe they can weaken a state's relative credit profile if left unmanaged. When we've concluded that states are insufficiently managing their pension liabilities, it has detracted from our assessment of overall credit quality. Some states whose pension liabilities management has contributed to lower credit ratings or negative outlooks include Illinois, Kentucky, New Jersey, and Pennsylvania.

Overall, our interpretation of this year's survey results and the credit implications of liabilities for pension systems of the states reflect that:

- Pension funded ratios continue to decline as the investment losses from 2008 and 2009 are smoothed into actuarial value of assets. However, these declines seem to be decelerating.
- Efforts to reform pension systems are far from over and, if anything, are intensifying as more and more policymakers look to make structural changes to their systems that will significantly lower liabilities.
- The implementation of GASB pension reporting and accounting changes, in most cases, will result in the reporting of a greater and more volatile unfunded pension liability.

- States' decisions on what pension funding policy to adopt and their discipline in adhering to the policy are likely to shape the future direction of pension funded levels.
- Most states have sufficient assets in their pension trusts to fund benefits payments over the near to medium term and in many cases, long term. Under the new GASB statements, the crossover point used for discount rate blending will better identify situations when assets will no longer be available to fund benefits. Contributions to fund the state share of pension benefits typically represent a relatively manageable portion of state budgets and, consequently, do not hinder their ability to meet debt service obligations in the near term. However, we will continue to differentiate states' credit profiles with large and growing liabilities, insufficient contributions to effectively amortize the liability, and limited action on reform initiatives.
- Long-term liability management, including pensions, will remain a key component of our analysis.

2013 Pension Survey Results

Standard & Poor's has compiled the latest complete data (see tables 3A-3C), covering valuation data through 2011 for all state-sponsored plans. The data show that the average funded ratio continued to weaken, although only slightly. The data are from 2011 valuations and reported in the states' 2012 comprehensive annual financial reports (CAFRs), the latest year for which CAFRs are available. The wide spread between the highest and lowest funded state plans shows the significant variation among the funded ratios of state plans (see table 1).

In 2011, pension funded ratios dropped for 34 of the 50 U.S. states, remained unchanged for six, and increased for the remaining 10 states. The average funded ratio change for the 50 states was negative 0.8% but changes to individual plans ranged from a 7.3% decline to as much as an 11.6% increase (see table 2). When looking only at the states that had declines, we found that the average drop was 2.5% with a median decline of 2.2%. Of the 13 states that had increased funded levels, the average increase was 3.9% with a median increase of 1.6% and ranged from 0.2% to 11.6% increases in individual funded ratios.

Table 1

Top Five And Bottom Five States By Funded Level

Top five states	Funded level (%)
Wisconsin	99.9
South Dakota	96.3
North Carolina	95.3
Washington	93.7
New York	92.7
Bottom five states	**Funded level (%)**
Illinois	43.4
Kentucky	53.4
Connecticut	55.0
Louisiana	56.2
New Hampshire	57.4

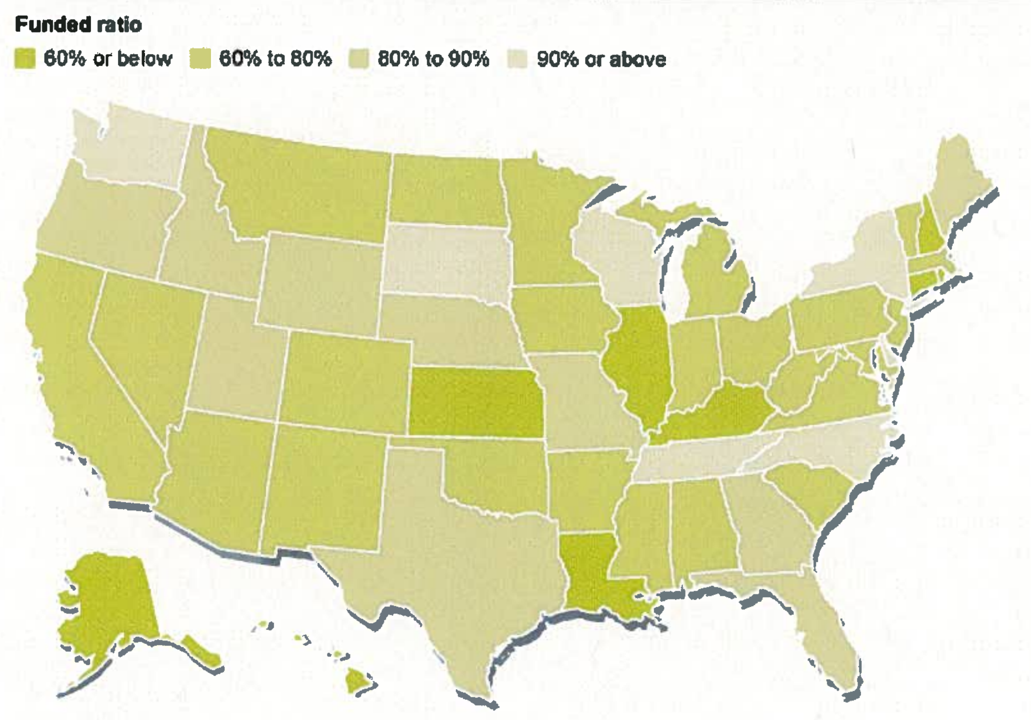
*Does not include Puerto Rico, which is 11.1% funded.

Table 2

Top Five And Bottom Five States By Change In Funded Level

Top five states	% change
Idaho	11.6
Oklahoma	10.8
Maine	9.9
West Virginia	6.1
Massachusetts	3.5
Bottom five states	**% change**
Pennsylvania	(7.3)
Michigan	(6.5)
New Mexico	(5.4)
Oregon	(5.0)
Colorado	(4.7)

Pension Funded Ratio Distribution 2011



Changes From GASB Statements 67 And 68

On June 25, 2012, the GASB adopted Statements 67 and 68, related to financial reporting for pension plans and to financial accounting and reporting for pensions, respectively. The statements do not change the employer's obligations or the employee's benefits, but rather how state and local governments' financial statements calculate, account for, and report pension plan liabilities. Among the major changes are:

- Use of a blended rate to discount pension plan liabilities;
- Market valuation of assets;
- Elimination of a prescribed annual required contribution (ARC) calculation through the separation of pension funding from pension accounting and reporting;
- Use of one actuarial cost method;
- For multiemployer cost-sharing plans, the proportional reporting of the liability at the employer level; and
- Reporting of net pension liability on employers' balance sheets.

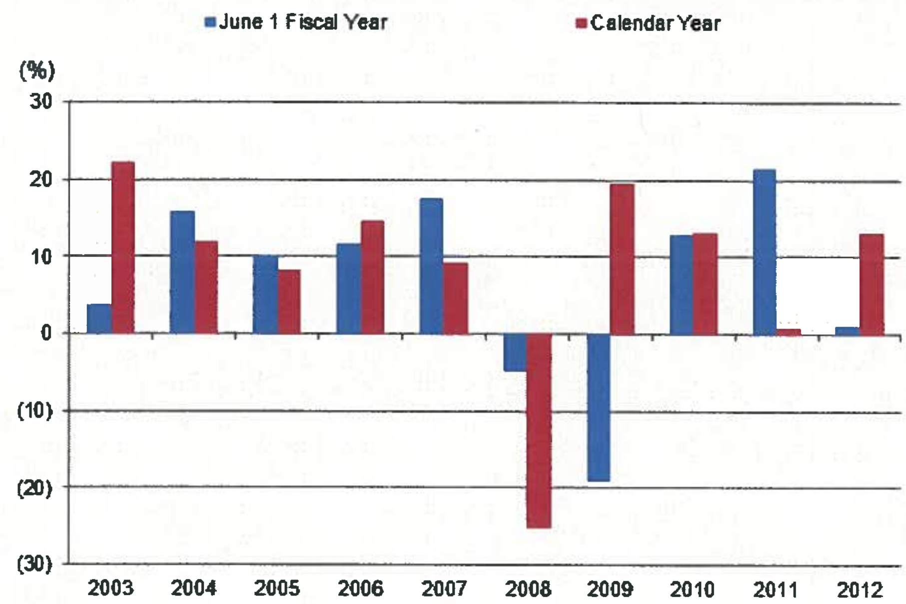
In our view, some of the changes will lead to more conservative liability estimates as well as enhanced comparability and disclosure. However, the use of market valuation of assets is likely to inject a greater degree of volatility into pension liability calculations. Likewise, the separation of pension reporting and accounting from pension funding will create two competing evaluations of the same liability, making the evaluation of pension liabilities more challenging. We believe the loss of a standardized ARC calculation could make pension funding practices more opaque from an analytical perspective and potentially be a setback to a government's funding discipline. (For more information on Standard & Poor's views on GASB changes and their potential impact on state ratings, please see "Credit FAQ: Standard & Poor's Approach to Pension Liabilities In Light Of GASB 67 And 68," published July 16, 2013, on RatingsDirect).

Smoothing Reduces Funding Volatility, For Now

Due to the actuarial smoothing a majority of states employ, current pension valuations have not fully captured the rebound in equity markets that followed the large losses of 2008 and early 2009 (see chart 2). Smoothing methods allow public pension plans to phase in investment gains and losses over several years and moderate the effect of investment market volatility on actuarial valuation of assets and annual pension contributions. About 88% of public pension plans have a smoothing period of four years or longer, with five years being the most common. This smoothing allows governments time to adjust budgets over several years rather than absorb the pension fund gains or losses in one year (see "How “Smoothing” Can Ease The Pain Of Pension Fund Losses For State And Local Governments," Jan. 27, 2009). However, just as there was a lag between the market losses of 2008 and the increased pension contributions, we expect that it will also take time for improved investment performance to reduce the upward pressure on pension contributions. For systems that use five-year smoothing, the impact of the 2008 and 2009 market downturn will be reflected until the 2013 valuations. For fiscal 2014, pension plans will be reporting and accounting net pension liability based on market value of assets under the new GASB statements.

Chart 2

State Pension Plans Median Investment Returns



Source: Callan Associates.

Under the new GASB pension reporting standards, assets will no longer be smoothed for accounting and reporting purposes. Market value of assets will result in much greater volatility in pension funded ratios. These standards will become effective in fiscal 2014 for pension plans and fiscal 2015 for pension reporting at the employer level. The separation of reporting and accounting of pensions from pension funding will create at least two separate sets of assumptions and results.

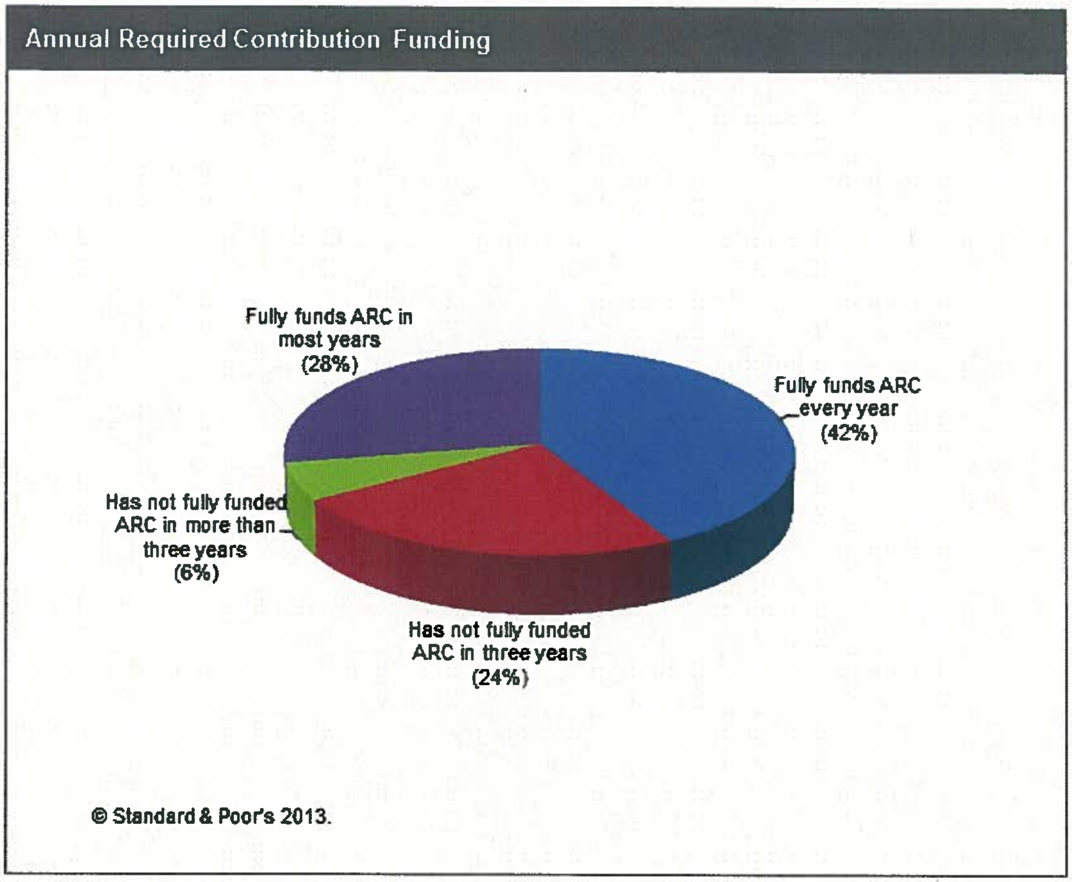
The Dilemma Of Whether To Fund The ARC

The question of how much of their resources to dedicate to funding pension liabilities continues to involve real and frequently difficult tradeoffs. Even as revenues for most states return to pre-recession levels, policymakers must decide between restoring service levels, reducing tax rates, and funding growth in current services. For some states that decided to achieve budgetary relief by underfunding their pensions during the Great Recession or more chronically, a significant portion of the new revenue would be absorbed by restoring higher contributions to their pension systems, making this decision even more difficult. The decision to underfund the ARC might have turned out to be a very costly one.

We evaluate the frequency with which a state fully funds its ARC as part of our review of overall debt and liabilities. Our analysis of pension funding levels suggests that a substantial number of states demonstrated a strong commitment to fully funding their actuarially determined ARCs even throughout the Great Recession (see chart 3). Although about one-quarter of the states might not have contributed their full ARC in some of the most recent years, they had demonstrated a commitment to full ARC funding in at least one of the past three years. And although some states might not be paying their full ARC, they are, nevertheless, typically paying a high percentage of their ARC. We've observed that persistent underfunding of ARC correlates highly with pension funding contributions that are statutorily or contractually determined. Even states whose pension funding contributions are not statutorily or contractually determined may opt for funding less than the ARC as a short-term budgetary management strategy. We believe that not fully funding the ARC is a short-term solution that will likely result in a larger unfunded actuarial accrued liability down the line.

For instance, for Pennsylvania, which has underfunded its ARC over the past eight years, funding the full ARC in fiscal 2014 would require an additional $1.2 billion in funding. This is almost twice the actual growth in spending of $678 million in the 2014 budget, which already includes more than $200 million for pensions. If Pennsylvania were funding its pension ARC, the cost for fiscal 2014 would be $2.6 billion or 9% of the total budget. New Jersey's 2014 budget, to provide another example, increased by $754 million, or 2.3% in fiscal 2014; however, $646 million, or 86% of the total growth in spending, was tied to increases in pension contributions. And current slow revenue growth amplifies even small increases in costs relative to growth in overall spending.

Chart 3



We believe the ARC has become an easily recognizable and understandable measure for governments both large and small. It has provided a certain discipline to pension funding strategies and helped to improve funding levels over time. Under the new GASB standards, plans that have a pension funding policy based on an actuarially determined required contribution will have to report the actuarially determined contribution, while those whose funding is based on statutorily or contractually determined contributions will not have to disclose an actuarially determined contribution. The elimination of the ARC reporting requirement could open the door for weaker funding discipline.

Given the increased attention that pensions have been receiving from taxpayers, government employees, pensioners, regulators, bond market investors, and industry groups, all eyes will be on policymakers as they develop their funding policies and make important decisions on their commitment to funding pensions. Policymakers face an interesting question: Will they use ARC or not to calculate pension funding? Industry groups, including the Big 7 state and local government associations (National Governors Association, the National Conference of State Legislatures, The Council of State Governments, the National Association of Counties, the National League of Cities, The U.S. Conference of Mayors and the International City/County Management Association), the Government Finance and Officers Association, and the Conference of Consulting Actuaries, are developing best practices and guidelines for pension funding. These groups recommend pension funding policies based on actuarially determined contributions. Because

GASB Statement 67 replaces GASB Statement 25, which set out the parameters for calculating the ARC, even those who continue to use the ARC could potentially make some changes to how they calculate their ARC, such as extending the amortization period, which in our view would indicate a weaker funding commitment. From a credit standpoint, a government's funding policy and discipline will continue to be an important element of our pension analysis.

Pension Reform: The New Normal

States, for the most part, have strongly committed to managing their long-term liabilities, including pensions. The unprecedented amount of pension reform efforts in the past few years demonstrates this. Governments and employees alike once considered public employee benefits sacrosanct but are now revisiting them as lawmakers face the difficult trade-off between maintaining current benefits for their retired and active workforce and providing services or tax relief to their taxpayers. While pension reform efforts began to gain steam in 2009, in our view, they have intensified since and have become part of the new normal.

According to the National Conference of State Legislatures (NCSL), between 2009 and 2013, 48 states and Puerto Rico enacted some type of pension reform. Alaska and Idaho, the two states missing from this list, have proposed pension legislation in 2013 and Idaho already enacted its bill. According to NCSL's pension legislation database, all 50 states introduced pension legislation and approximately 1,260 bills so far in 2013; this compares with approximately 980 bills in 44 states in 2012. Of the retirement system bills introduced this year, 35 states, Puerto Rico, and DC have enacted more than 191 with some state legislatures still evaluating some of the proposed bills. Although the actual number of bills introduced is not as important as the measures included in the enacted bills, the number of bills introduced reflects legislators' willingness to address pension issues. Pension reform strategies have varied significantly by state and include:

- Modification of benefit levels for future employees and, in some cases, current employees,
- Increased vesting periods,
- Increased age and service requirements for current and future employees,
- Eliminating or limiting cost of living adjustments (COLAs),
- Increased employee contributions, and
- Closing of defined benefit plans or creation of hybrid defined benefit/defined contribution plans.

In our view, pension reform efforts emphasize sustainability; however, the financial impact on pension liabilities will vary based on the strategy or strategies employed. For the most part, states are considering a range of options as part of a more comprehensive approach to pension reform. To the extent that reform measures, such as increased vesting periods or age and service requirements, apply strictly to future employees, we believe that they could provide opportunity for cost containment over time. However, their impact on current pension liabilities is somewhat limited. Changes to pensions that affect current employees and retirees, such as reductions to or elimination of COLAs and increased employee contributions, are more likely to result in a more immediate reduction of current liabilities and ARC.

According to the NCSL, since 2009, 24 states have adopted current employee pension contribution increases while 11 states have enacted changes to or elimination of COLAs to current employees and retirees, with additional states making changes for at least some active employees or future hires. However, these reform measures also are more likely to be subject to litigation from current employees with the ultimate result not known until all legal venues have been exhausted. Colorado, Florida, Minnesota, and Puerto Rico have had success in court, which may contribute to broader initiatives relating to current employees. However, pension benefit protections vary from state to state, so achieving these changes might be more difficult in some states than others.

Although limited, there has been some shift from defined benefit to defined contribution plans, cash balance, or hybrid plans. These new plans typically offer less generous benefits than the plans they replace, making them more affordable in the long term. However, these changes bring with them some legacy costs and could potentially enlarge the unfunded actuarially accrued liability in the near term, creating an additional hurdle. Nevertheless, we believe that such reforms, despite potentially adding more near-term budgetary costs, can be important components of a government's overall liability management and contribute to greater plan affordability over time.

The Rate Debate Continues

Public pension plans use their assumed long-term rate of return to both discount their liabilities and to determine the amount that will be funded by investment returns versus contributions that employers and employees fund. Investment earnings play an important part in a pension system's overall funding policy. Assumed rates of return have been hotly debated by market participants and observers in recent years due to both the divergence of assumed returns and actual experience over different timeframes and the return volatility of the past few years. The blending of the assumed rate with a high-quality, tax-exempt bond rate of return under the new GASB standards will ensure that this continues to be a topic of frequent and lively discussion in the years to come. Although it is just one of the many assumptions that states use to calculate a pension liability, it is important because it addresses numerous questions regarding a pension system's funding structure:

- How much should a pension plan rely on investment returns versus employer and employee contributions?
- Who should pay if the plan investments do not perform as assumed, the employee or the taxpayers, current employees or future employees?
- What is the right timeframe over which to measure investment performance?
- How much risk should a pension plan take to achieve its assumed rate of return?

In fiscal 2011, investment earnings accounted for 79.5% of total revenue for state-administered pension systems with government and employee contribution making up the balance (see charts 4, 5, and 6). Even when accounting for the losses of 2008 and 2009, investment earnings still contributed more than half of the revenues for public pension plans from fiscal 2007 to fiscal 2011.

Chart 4

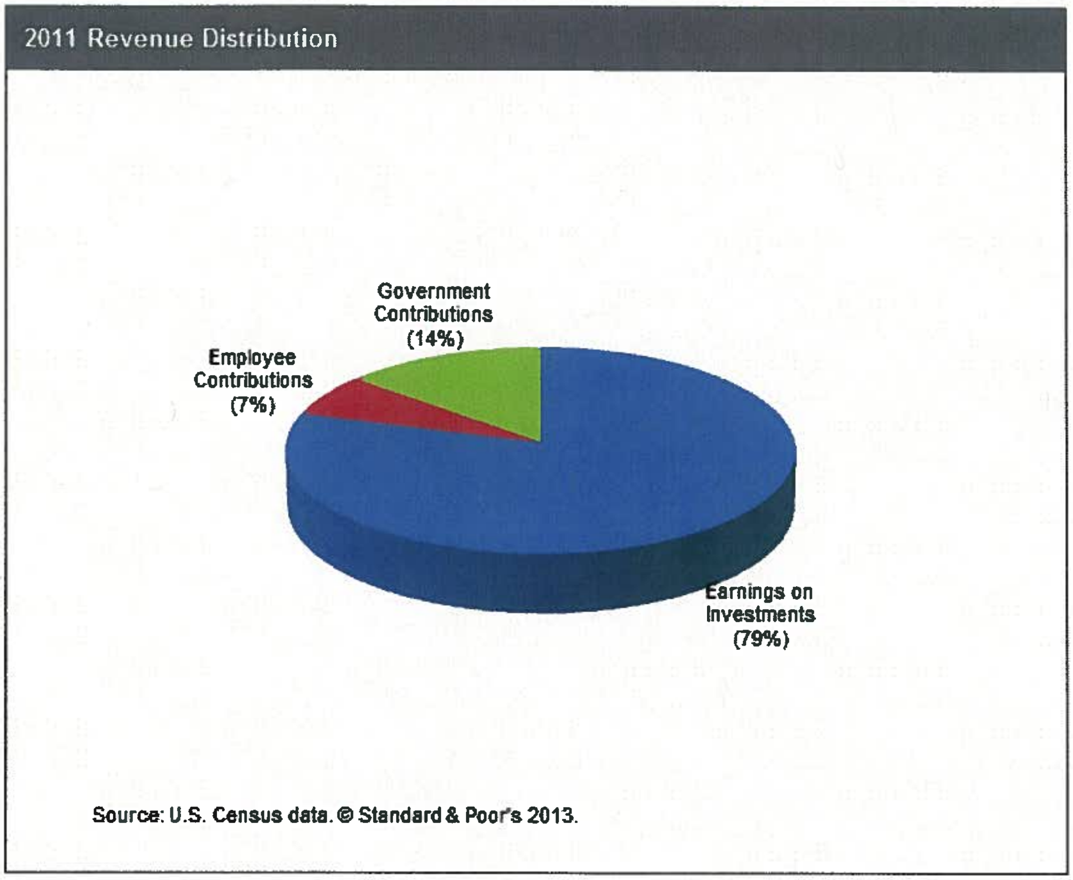
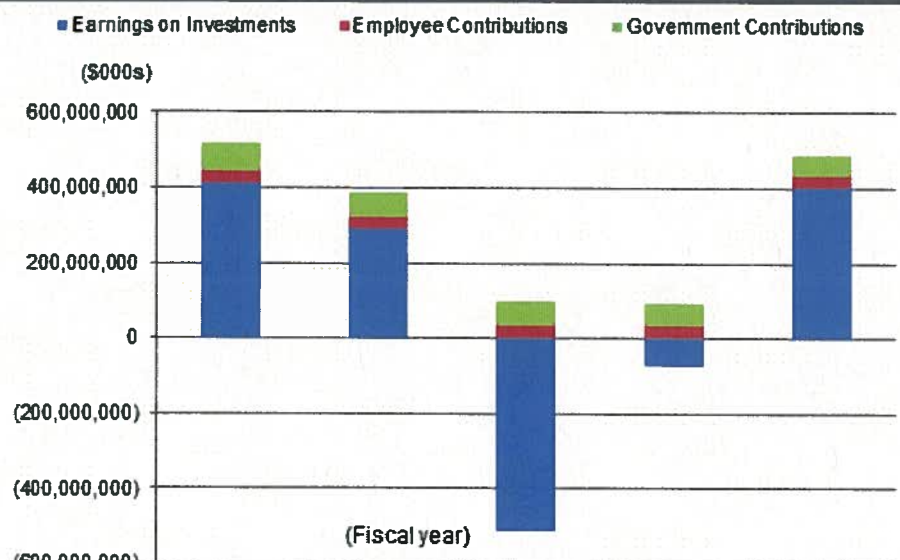

2011 Revenue Distribution
Government Contributions (14%)
Employee Contributions (7%)
Earnings on Investments (79%)
Source: U.S. Census data. © Standard & Poor's 2013.

Chart 5

State Pension Revenue By Source

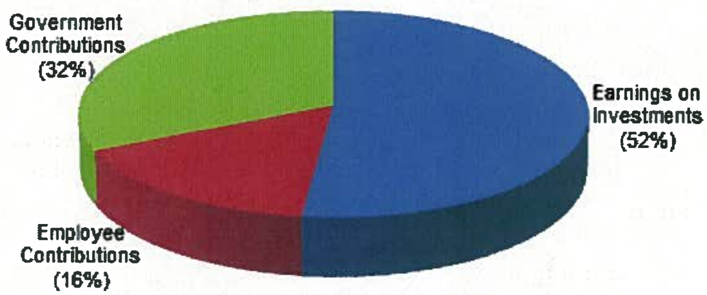


	2011	2010	2009	2008	2007
Government Contributions	71,734,901	64,796,837	63,526,722	64,307,264	57,765,406
Employee Contributions	34,160,452	33,163,241	33,370,232	31,905,999	29,323,427
Earnings on Investments	410,580,940	291,060,107	(511,544,873)	(71,743,687)	402,274,323

Source: U.S. Census data. © Standard & Poor's 2013.

Chart 6

Aggregate Contribution Distribution Fiscal Years 2007-2011



Source: U.S. Census data. © Standard & Poor's 2013.

We consider the discount rate in our overall view of a sponsor state's management of its pension liabilities. Relatively high discount rates that reflect rate-of-return assumptions that a plan's historical investment performance or current asset allocation don't support could result in current contribution requirements that are artificially depressed and expose the plan to increased risk to achieve the desired return. Likewise, a risk-free rate of return assumption may not align with a plan's actual and future investment performance and could substantially increase required contribution levels. Overfunded plans in the past have led to pressure from participants or other stakeholders to increase benefit levels.

Given low interest rates and in light of recent market volatility, some policymakers are re-evaluating their rate of return assumptions. Most of the public pension plans in our survey use between a 7.5%-8% rate of return assumption. According to the National Association of State Retirement Administrators, the median public pension annualized investment return for 2012 was 7.5% over 10 years, 7.9% over 20 years, and 8.9% over 25 years, which suggests that long-term investment performance is close to the 7.5%-8% range that most plans assume. However, due to compounding, even if pension systems are meeting their average rate of return target, losses of asset value could still occur.

We expect that any changes to rate of return assumptions will be gradual as plan sponsors try to balance the interest of all of their stakeholders. However, the disclosure of a relatively higher liability based on GASB standards might encourage policymakers to reconsider their assumed rates of return. To the extent that policymakers revise current rates of return downward, actuarial accrued liabilities and thus, ARCs, will increase. Depending on management's response to these increases, the result could be higher costs to taxpayers, higher contributions from employees, or reduced benefits to employees.

State Pension Funding History: Funded Levels Were Low Previously

Most state governments have a long-term track record of making adjustments and improving funding ratios. Before GASB accounting changes in the 1980s, many public sector pension plans had weak funded ratios and limited asset accumulation by today's standards. According to a Federal Reserve study, in 1975 the aggregate funded ratio of public pensions for states was 51%. However, as Baby Boomers reach retirement age, and given increased longevity, the risks from weaker funded ratios are higher now than they were in the 1970s.

State pension funded ratios made what we consider strong gains in the 1990s, climbing to funded ratios above 100% by 2000, compared with approximately 80% a decade earlier. Above-average investment returns, particularly from equities, contributed to this rapid increase. From 1990 to 2000, the average annual increase of the S&P 500 Index of domestic equities was 15%, compared with an average actuarial return assumption of about 8%. Public pension fund investment allocations to domestic equity rose to about 60% (from 40%) over the same period. This combination of factors, coupled with steadily declining interest rates, helped to produce strong fixed-income returns as well, enabling public funds to exceed their investment return assumptions and achieve the actuarial gains that led to the dramatically improved funded ratios.

During the past decade, however, the funded ratio trend shifted quite rapidly when public pension funds suffered a number of setbacks, including two recessions. In terms of investment yields, the S&P 500 fell 16% in fiscal 2001 and was down 19% in fiscal 2002. Furthermore, the index fell 14.9% in fiscal 2008 followed by a 28.5% decline in fiscal 2009. In addition to these drops in asset values, other factors, such as plan members' increased longevity and the phasing-in of previously granted benefit enhancements for employees, led to rising liabilities. The combination of falling assets and rising liabilities caused average state pension funding levels to fall from their peak in 2000.

Rating Criteria Consider Pension Liabilities

Pension liabilities and the annual costs associated with funding them are important credit factors in our review of state governments. Standard & Poor's views pension obligations as long-term liabilities that must be funded over time. Although the funding schedule can be more flexible than that for a fixed-debt repayment, it can also be more volatile and may cause fiscal stress if not managed, in our opinion. Under our U.S. state ratings criteria (see U.S. State Ratings Methodology, Jan. 3, 2011), a state's debt and liability profile is one of the five major factors that determine a rating. Within this factor, debt, pension liabilities, and other postemployment benefits, which we score individually, are the key metrics. Because pension and retiree health benefits are long-term obligations that must be funded over time, our analysis equally weights the size and management of these liabilities with debt.

Strictly quantitative comparisons are difficult due to the significant variation in how we calculate these liabilities, however. Actuarial treatment of investment returns and governments' smoothing methods also exhibit high variability and can materially affect estimated state pension liabilities. For this reason, we do not evaluate a state's reported unfunded pension and retiree health benefit liabilities plus existing debt in the aggregate when computing debt ratios. Instead, we analyze the state's management of its debt portfolio, pension liabilities, and retiree health benefits liabilities individually before consolidating our view of the state's debt and liability profile. For pensions specifically, we measure a state's pension funded ratio, its track record of fully funding its actuarially required contributions, and unfunded actuarial accrued liability (UAAL) per capita and as a percentage of personal income.

States have varying degrees of responsibility for funding pension plans that they report on in their financial disclosure. For example, in the case of multiemployer agent systems, a state would make contributions to plans that include its employees only, with local agencies contributing to their respective plans. For multiemployer cost-sharing systems, which can include a number of local jurisdictions like school districts with contributions from both employers and employees, the state may be a non-employer contributor. Therefore, with some exceptions, states are generally not directly responsible for fully funding the liabilities of these pension systems. However, even in cases where pensions are direct liabilities of and funded from local agencies, a portion of the local agencies' funding often derives from the states.

Pension Liabilities And State Debt

Our data are mostly as of 2011 valuations as reported in the fiscal 2012 state CAFRs (fiscal year-end 2011 for debt data), which is the most recent year with complete data availability (see tables 3A-3C). We combine the pension data for the state-sponsored, defined-benefit pension funds: generally the public employees' retirement system, including state and local employees in most cases, plus the teachers' retirement system. In some cases, a state may have just one combined system for all employees, while others may have additional systems for specific categories of employees, such as public safety officials, judges, and legislators among others.

In our annual survey, we have reported state debt and unfunded pension liabilities separately and on a combined basis in recent years to give a comparative framework for these liabilities. The pension information includes the systems' funded ratio for each state and the UAAL; the UAAL is also expressed on a per capita basis. We break out tax-supported debt for each state in total as well as on a per capita basis. Pension and debt figures are combined on a per capita basis and then expressed as a percent of per capita income and per capita gross state product as measures of economic resources to meet these obligations.

Highlights of the data include:

- State debt rose to $474 billion in fiscal 2011 from $466 billion in fiscal 2010, a 1.7% increase.
- Unfunded pension liabilities totaled $833 billion as of 2011 and were up from $757 billion, an increase of 10%.
- Average debt per capita increased modestly to $1,334 in fiscal 2012 from $1,322 in fiscal 2011, a 2% increase.
- The average UAAL per capita was $2,902 in 2011 compared with $2,725 in 2010, a 6.5% increase.
- Even with the aggregate decline in funded ratios, seven states remain more than 90% funded, 24 states retain funded ratios of 70% or higher, and 41 states have funded ratios of 60% or higher.

- In relation to the resources available to service these requirements, debt per capita and the per capita unfunded pension liability relative to per capita gross state product had a 50-state average of 9% in 2011, up from 8.8% in 2010.

Table 3A

State Retirement Systems And Debt Statistics: 2011

(Alphabetical)

State	(%) Funded ratio	Increased/Decreased/Unchanged Funded ratio relative to prior year	($) UAAL (mil.)	UAAL PC	Debt (mil.)	Debt PC	Debt PC + UAAL PC	(%) Debt PC + UAAL PC/Income PC	Debt PC+ UAAL PC/GSP PC	GO rating
Alabama	66.9	Decreased	14,415	3,001	3,579	745	3,746	10.7	10.4	AA/Stable
Alaska	59.2	Decreased	7,082	9,799	1,853	2,564	12,363	27.1	17.4	AAA/Stable
Arizona	72.7	Decreased	13,390	2,065	5,663	874	2,939	8.4	7.4	AA-/Stable
Arkansas	72.5	Decreased	6,928	2,358	989	337	2,695	8.0	7.5	AA/Stable
California	77.4	Decreased	124,011	3,290	88,932	2,359	5,650	12.9	10.9	A/Stable
Colorado	60.0	Decreased	22,912	4,478	2,653	518	4,996	11.3	9.7	AA/Stable
Connecticut	55.0	Increased	20,215	5,645	18,371	5,131	10,776	18.6	16.8	AA/Stable
Delaware	90.7	Decreased	787	867	2,175	2,398	3,265	7.9	4.5	AAA/Stable
Florida	86.9	Unchanged	18,956	995	25,250	1,325	2,320	5.9	5.9	AAA/Stable
Georgia	82.5	Decreased	14,684	1,496	9,227	940	2,436	6.8	5.7	AAA/Stable
Hawaii	59.4	Decreased	8,154	5,931	5,427	3,947	9,878	23.0	20.3	AA/Stable
Idaho	89.9	Increased	1,302	822	233	147	969	2.9	2.7	AA+/Stable
Illinois	43.4	Decreased	82,907	6,442	33,633	2,613	9,056	20.7	17.4	A-/Negative
Indiana	63.0	Decreased	14,590	2,239	3,052	468	2,707	7.6	6.3	AAA/Stable
Iowa	79.5	Decreased	5,910	1,930	1,123	367	2,296	5.6	4.7	AAA/Stable
Kansas	59.2	Decreased	9,228	3,214	3,411	1,188	4,402	10.8	9.7	AA+/Stable
Kentucky	53.4	Decreased	23,604	5,402	8,387	1,920	7,322	21.5	19.4	AA-/Negative
Louisiana	56.2	Unchanged	18,512	4,046	5,300	1,158	5,205	13.5	9.6	AA/Stable
Maine	80.2	Increased	2,688	2,024	972	732	2,756	7.2	7.1	AA/Stable
Maryland	63.9	Increased	18,771	3,221	9,577	1,643	4,864	9.6	9.4	AAA/Stable
Massachusetts	71.4	Increased	18,307	2,779	30,803	4,676	7,455	13.9	12.5	AA+/Stable
Michigan	65.1	Decreased	28,358	2,871	6,557	664	3,535	9.7	9.1	AA-/Positive
Minnesota	78.6	Decreased	12,935	2,420	6,338	1,186	3,606	8.1	6.8	AA+/Stable
Mississippi	62.1	Decreased	12,676	4,256	4,845	1,627	5,882	18.4	17.9	AA/Stable
Missouri	81.9	Increased	9,892	1,646	4,689	780	2,426	6.4	5.8	AAA/Stable
Montana	66.3	Decreased	3,861	3,868	174	175	4,042	11.2	10.6	AA/Stable
Nebraska	81.9	Decreased	1,899	1,031	27	15	1,046	2.5	2.0	AAA/Stable
Nevada	70.1	Unchanged	11,038	4,053	2,037	748	4,801	13.0	10.0	AA/Stable
New Hampshire	57.4	Decreased	4,258	3,230	702	532	3,762	8.2	7.8	AA/Stable
New Jersey	67.8	Decreased	41,087	4,658	33,719	3,823	8,480	16.2	15.4	AA-/Negative
New Mexico	67.0	Decreased	10,689	5,133	2,958	1,421	6,554	19.2	17.2	AA+/Stable
New York	92.7	Decreased	18,589	955	50,477	2,593	3,548	6.9	6.0	AA/Positive

Table 3A

State Retirement Systems And Debt Statistics: 2011 (cont.)

North Carolina	95.3	Decreased	3,897	404	7,090	734	1,138	3.2	2.5	AAA/Stable
North Dakota	68.8	Decreased	1,627	2,380	237	346	2,726	5.8	4.6	AA+/Positive
Ohio	67.3	Unchanged	70,423	6,100	10,677	925	7,025	18.6	16.8	AA+/Stable
Oklahoma	66.7	Increased	10,568	2,787	1,707	450	3,237	8.6	7.9	AA+/Stable
Oregon	82.0	Decreased	11,030	2,849	6,823	1,762	4,611	12.3	9.2	AA+/Stable
Pennsylvania	67.8	Decreased	41,163	3,230	13,422	1,053	4,284	10.1	9.4	AA/Negative
Rhode Island	59.2	Decreased	4,369	4,156	1,835	1,746	5,901	13.5	12.4	AA/Stable
South Carolina	67.9	Increased	13,973	2,986	2,344	501	3,487	10.4	9.8	AA+/Stable
South Dakota	96.3	Unchanged	288	350	134	163	513	1.2	1.1	AA+/Stable
Tennessee	91.5	Increased	3,389	529	2,036	318	847	2.3	2.0	AA+/Positive
Texas	82.9	Decreased	28,871	1,124	10,005	390	1,514	3.8	3.0	AA+/Stable
Utah	82.8	Decreased	4,404	1,563	3,442	1,222	2,785	8.3	6.3	AAA/Stable
Vermont	70.4	Decreased	1,192	1,902	492	785	2,688	6.5	6.5	AA+/Positive
Virginia	69.5	Decreased	23,950	2,958	8,720	1,077	4,035	8.8	7.6	AAA/Stable
Washington	93.7	Decreased	4,103	601	16,119	2,360	2,961	6.7	5.7	AA+/Stable
West Virginia	64.2	Increased	5,709	3,077	2,125	1,145	4,223	12.6	11.7	AA/Stable
Wisconsin	99.9	Unchanged	99	17	11,751	2,057	2,075	5.2	4.7	AA/Stable
Wyoming	85.9	Decreased	1,090	1,918	36	63	1,982	4.1	3.0	AAA/Stable
Puerto Rico	11.1	Decreased	32,796	2,574	36,936	9,914	12,487	78.3	72.6	BBB-/Negative
Average of states	72.9		16,656	2,902	9,443	1,334	4,236	10.3	9.0	
Median of states	69.8		10,860	2,818	4,134	997	3,577	8.7	7.9	
Total liability			832,779							

Puerto Rico is not included in the average and median. For Puerto Rico, this calculation includes Employees' Retirement System and Teachers' Retirement System, which for 2010 were 13.5% funded. Changes in funded ratio of less than 0.5% in either direction are shown as unchanged. UAAL--Unfunded accrued actuarial liabilities. PC--Per capita. GSP--Gross state product. Ratings are as of April 2, 2013

Table 3B

State Retirement Systems And Debt Statistics: 2011

(Ranked by Funded Ratio)

	(%)	Increased/Decreased/Unchanged	($)					(%)		
State	Funded ratio	Funded ratio relative to prior year	UAAL (mil.)	UAAL PC	Debt (mil.)	Debt PC	Debt PC + UAAL PC	Debt PC + UAAL PC/Income PC	Debt PC+ UAAL PC/GSP PC	GO rating
Wisconsin	99.9	Unchanged	99	17	11,751	2,057	2,075	5.2	4.7	AA/Stable
South Dakota	96.3	Unchanged	288	350	134	163	513	1.2	1.1	AA+/Stable
North Carolina	95.3	Decreased	3,897	404	7,090	734	1,138	3.2	2.5	AAA/Stable
Washington	93.7	Decreased	4,103	601	16,119	2,360	2,961	6.7	5.7	AA+/Stable
New York	92.7	Decreased	18,589	955	50,477	2,593	3,548	6.9	6.0	AA/Positive
Tennessee	91.5	Increased	3,389	529	2,036	318	847	2.3	2.0	AA+/Positive

Table 3B

State Retirement Systems And Debt Statistics: 2011 (cont.)										
Delaware	90.7	Decreased	787	867	2,175	2,398	3,265	7.9	4.5	AAA/Stable
Idaho	89.9	Increased	1,302	822	233	147	969	2.9	2.7	AA+/Stable
Florida	86.9	Unchanged	18,956	995	25,250	1,325	2,320	5.9	5.9	AAA/Stable
Wyoming	85.9	Decreased	1,090	1,918	36	63	1,982	4.1	3.0	AAA/Stable
Texas	82.9	Decreased	28,871	1,124	10,005	390	1,514	3.8	3.0	AA+/Stable
Utah	82.8	Decreased	4,404	1,563	3,442	1,222	2,785	8.3	6.3	AAA/Stable
Georgia	82.5	Decreased	14,684	1,496	9,227	940	2,436	6.8	5.7	AAA/Stable
Oregon	82.0	Decreased	11,030	2,849	6,823	1,762	4,611	12.3	9.2	AA+/Stable
Missouri	81.9	Increased	9,892	1,646	4,689	780	2,426	6.4	5.8	AAA/Stable
Nebraska	81.9	Decreased	1,899	1,031	27	15	1,046	2.5	2.0	AAA/Stable
Maine	80.2	Increased	2,688	2,024	972	732	2,756	7.2	7.1	AA/Stable
Iowa	79.5	Decreased	5,910	1,930	1,123	367	2,296	5.6	4.7	AAA/Stable
Minnesota	78.6	Decreased	12,935	2,420	6,338	1,186	3,606	8.1	6.8	AA+/Stable
California	77.4	Decreased	124,011	3,290	88,932	2,359	5,650	12.9	10.9	A/Stable
Arizona	72.7	Decreased	13,390	2,065	5,663	874	2,939	8.4	7.4	AA-/Stable
Arkansas	72.5	Decreased	6,928	2,358	989	337	2,695	8.0	7.5	AA/Stable
Massachusetts	71.4	Increased	18,307	2,779	30,803	4,676	7,455	13.9	12.5	AA+/Stable
Vermont	70.4	Decreased	1,192	1,902	492	785	2,688	6.5	6.5	AA+/Positive
Nevada	70.1	Unchanged	11,038	4,053	2,037	748	4,801	13.0	10.0	AA/Stable
Virginia	69.5	Decreased	23,950	2,958	8,720	1,077	4,035	8.8	7.6	AAA/Stable
North Dakota	68.8	Decreased	1,627	2,380	237	346	2,726	5.8	4.6	AA+/Positive
South Carolina	67.9	Increased	13,973	2,986	2,344	501	3,487	10.4	9.8	AA+/Stable
Pennsylvania	67.8	Decreased	41,163	3,230	13,422	1,053	4,284	10.1	9.4	AA/Negative
New Jersey	67.8	Decreased	41,087	4,658	33,719	3,823	8,480	16.2	15.4	AA-/Negative
Ohio	67.3	Unchanged	70,423	6,100	10,677	925	7,025	18.6	16.8	AA+/Stable
New Mexico	67.0	Decreased	10,689	5,133	2,958	1,421	6,554	19.2	17.2	AA+/Stable
Alabama	66.9	Decreased	14,415	3,001	3,579	745	3,746	10.7	10.4	AA/Stable
Oklahoma	66.7	Increased	10,568	2,787	1,707	450	3,237	8.6	7.9	AA+/Stable
Montana	66.3	Decreased	3,861	3,868	174	175	4,042	11.2	10.6	AA/Stable
Michigan	65.1	Decreased	28,358	2,871	6,557	664	3,535	9.7	9.1	AA-/Positive
West Virginia	64.2	Increased	5,709	3,077	2,125	1,145	4,223	12.6	11.7	AA/Stable
Maryland	63.9	Increased	18,771	3,221	9,577	1,643	4,864	9.6	9.4	AAA/Stable
Indiana	63.0	Decreased	14,590	2,239	3,052	468	2,707	7.6	6.3	AAA/Stable
Mississippi	62.1	Decreased	12,676	4,256	4,845	1,627	5,882	18.4	17.9	AA/Stable
Colorado	60.0	Decreased	22,912	4,478	2,653	518	4,996	11.3	9.7	AA/Stable
Hawaii	59.4	Decreased	8,154	5,931	5,427	3,947	9,878	23.0	20.3	AA/Stable
Kansas	59.2	Decreased	9,228	3,214	3,411	1,188	4,402	10.8	9.7	AA+/Stable
Rhode Island	59.2	Decreased	4,369	4,156	1,835	1,746	5,901	13.5	12.4	AA/Stable
Alaska	59.2	Decreased	7,082	9,799	1,853	2,564	12,363	27.1	17.4	AAA/Stable
New Hampshire	57.4	Decreased	4,258	3,230	702	532	3,762	8.2	7.8	AA/Stable
Louisiana	56.2	Unchanged	18,512	4,046	5,300	1,158	5,205	13.5	9.6	AA/Stable

Table 3B

State Retirement Systems And Debt Statistics: 2011 (cont.)										
Connecticut	55.0	Increased	20,215	5,645	18,371	5,131	10,776	18.6	16.8	AA/Stable
Kentucky	53.4	Decreased	23,604	5,402	8,387	1,920	7,322	21.5	19.4	AA-/Negative
Illinois	43.4	Decreased	82,907	6,442	33,633	2,613	9,056	20.7	17.4	A-/Negative
Puerto Rico	11.1	Decreased	32,796	2,574	36,936	9,914	12,487	78.3	72.6	BBB-/Negative
Average of states	72.9		16,656	2,902	9,443	1,334	4,236	10.3	9.0	
Median of states	69.8		10,860	2,818	4,134	997	3,577	8.7	7.9	
Total liability			832,779							

Puerto Rico is not included in the average and median. For Puerto Rico, this calculation includes Employees' Retirement System and Teachers' Retirement System, which for 2010 were 13.5% funded. Changes in funded ratio of less than 0.5% in either direction are shown as unchanged. UAAL--Unfunded accrued actuarial liabilities. PC--Per capita. GSP--Gross state product. Ratings are as of April 2, 2013

Table 3C

State Retirement Systems And Debt Statistics: 2011

(Ranked By Per Capita Debt and UAAL)

State	(%) Funded ratio	Increased/Decreased/Unchanged Funded ratio relative to prior year	($) UAAL (mil.)	UAAL PC	Debt (mil.)	Debt PC	Debt PC + UAAL PC	(%) Debt PC + UAAL PC/Income PC	Debt PC+ UAAL PC/GSP PC	GO rating
South Dakota	96.3	Unchanged	288	350	134	163	513	1.2	1.1	AA+/Stable
Tennessee	91.5	Increased	3,389	529	2,036	318	847	2.3	2.0	AA+/Positive
Idaho	89.9	Increased	1,302	822	233	147	969	2.9	2.7	AA+/Stable
Nebraska	81.9	Decreased	1,899	1,031	27	15	1,046	2.5	2.0	AAA/Stable
North Carolina	95.3	Decreased	3,897	404	7,090	734	1,138	3.2	2.5	AAA/Stable
Texas	82.9	Decreased	28,871	1,124	10,005	390	1,514	3.8	3.0	AA+/Stable
Wyoming	85.9	Decreased	1,090	1,918	36	63	1,982	4.1	3.0	AAA/Stable
Wisconsin	99.9	Unchanged	99	17	11,751	2,057	2,075	5.2	4.7	AA/Stable
Iowa	79.5	Decreased	5,910	1,930	1,123	367	2,296	5.6	4.7	AAA/Stable
Florida	86.9	Unchanged	18,956	995	25,250	1,325	2,320	5.9	5.9	AAA/Stable
Missouri	81.9	Increased	9,892	1,646	4,689	780	2,426	6.4	5.8	AAA/Stable
Georgia	82.5	Decreased	14,684	1,496	9,227	940	2,436	6.8	5.7	AAA/Stable
Vermont	70.4	Decreased	1,192	1,902	492	785	2,688	6.5	6.5	AA+/Positive
Arkansas	72.5	Decreased	6,928	2,358	989	337	2,695	8.0	7.5	AA/Stable
Indiana	63.0	Decreased	14,590	2,239	3,052	468	2,707	7.6	6.3	AAA/Stable
North Dakota	68.8	Decreased	1,627	2,380	237	346	2,726	5.8	4.6	AA+/Positive
Maine	80.2	Increased	2,688	2,024	972	732	2,756	7.2	7.1	AA/Stable
Utah	82.8	Decreased	4,404	1,563	3,442	1,222	2,785	8.3	6.3	AAA/Stable
Arizona	72.7	Decreased	13,390	2,065	5,663	874	2,939	8.4	7.4	AA-/Stable
Washington	93.7	Decreased	4,103	601	16,119	2,360	2,961	6.7	5.7	AA+/Stable
Oklahoma	66.7	Increased	10,568	2,787	1,707	450	3,237	8.6	7.9	AA+/Stable
Delaware	90.7	Decreased	787	867	2,175	2,398	3,265	7.9	4.5	AAA/Stable

Table 3C

State Retirement Systems And Debt Statistics: 2011 (cont.)

South Carolina	67.9	Increased	13,973	2,986	2,344	501	3,487	10.4	9.8	AA+/Stable
Michigan	65.1	Decreased	28,358	2,871	6,557	664	3,535	9.7	9.1	AA-/Positive
New York	92.7	Decreased	18,589	955	50,477	2,593	3,548	6.9	6.0	AA/Positive
Minnesota	78.6	Decreased	12,935	2,420	6,338	1,186	3,606	8.1	6.8	AA+/Stable
Alabama	66.9	Decreased	14,415	3,001	3,579	745	3,746	10.7	10.4	AA/Stable
New Hampshire	57.4	Decreased	4,258	3,230	702	532	3,762	8.2	7.8	AA/Stable
Virginia	69.5	Decreased	23,950	2,958	8,720	1,077	4,035	8.8	7.6	AAA/Stable
Montana	66.3	Decreased	3,861	3,868	174	175	4,042	11.2	10.6	AA/Stable
West Virginia	64.2	Increased	5,709	3,077	2,125	1,145	4,223	12.6	11.7	AA/Stable
Pennsylvania	67.8	Decreased	41,163	3,230	13,422	1,053	4,284	10.1	9.4	AA/Negative
Kansas	59.2	Decreased	9,228	3,214	3,411	1,188	4,402	10.8	9.7	AA+/Stable
Oregon	82.0	Decreased	11,030	2,849	6,823	1,762	4,611	12.3	9.2	AA+/Stable
Nevada	70.1	Unchanged	11,038	4,053	2,037	748	4,801	13.0	10.0	AA/Stable
Maryland	63.9	Increased	18,771	3,221	9,577	1,643	4,864	9.6	9.4	AAA/Stable
Colorado	60.0	Decreased	22,912	4,478	2,653	518	4,996	11.3	9.7	AA/Stable
Louisiana	56.2	Unchanged	18,512	4,046	5,300	1,158	5,205	13.5	9.6	AA/Stable
California	77.4	Decreased	124,011	3,290	88,932	2,359	5,650	12.9	10.9	A/Stable
Mississippi	62.1	Decreased	12,676	4,256	4,845	1,627	5,882	18.4	17.9	AA/Stable
Rhode Island	59.2	Decreased	4,369	4,156	1,835	1,746	5,901	13.5	12.4	AA/Stable
New Mexico	67.0	Decreased	10,689	5,133	2,958	1,421	6,554	19.2	17.2	AA+/Stable
Ohio	67.3	Unchanged	70,423	6,100	10,677	925	7,025	18.6	16.8	AA+/Stable
Kentucky	53.4	Decreased	23,604	5,402	8,387	1,920	7,322	21.5	19.4	AA-/Negative
Massachusetts	71.4	Increased	18,307	2,779	30,803	4,676	7,455	13.9	12.5	AA+/Stable
New Jersey	67.8	Decreased	41,087	4,658	33,719	3,823	8,480	16.2	15.4	AA-/Negative
Illinois	43.4	Decreased	82,907	6,442	33,633	2,613	9,056	20.7	17.4	A-/Negative
Hawaii	59.4	Decreased	8,154	5,931	5,427	3,947	9,878	23.0	20.3	AA/Stable
Connecticut	55.0	Increased	20,215	5,645	18,371	5,131	10,776	18.6	16.8	AA/Stable
Alaska	59.2	Decreased	7,082	9,799	1,853	2,564	12,363	27.1	17.4	AAA/Stable
Puerto Rico	11.1	Decreased	32,796	2,574	36,936	9,914	12,487	78.3	72.6	BBB-/Negative
Average of states	72.9		16,656	2,902	9,443	1,334	4,236	10.3	9.0	
Median of states	69.8		10,860	2,818	4,134	997	3,577	8.7	7.9	
Total liability			832,779							

Puerto Rico is not included in the average and median. For Puerto Rico, this calculation includes Employees' Retirement System and Teachers' Retirement System, which for 2010 were 13.5% funded. Changes in funded ratio of less than 0.5% in either direction are shown as unchanged. UAAL--Unfunded accrued actuarial liabilities. PC--Per capita. GSP--Gross state product. Ratings are as of April 2, 2013

MOODY'S
INVESTORS SERVICE

MEDIAN REPORT

Adjusted Pension Liability Medians for US States

New measures highlight varying affordability

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Analyst Contacts:

NEW YORK +1.212.553.1653

Marcia Van Wagner +1.212.553.2952
Vice President - Senior Analyst
marcia.vanwagner@moodys.com

Emily Raimes +1.212.553.7203
Vice President - Senior Credit Officer
emily.raimes@moodys.com

John Lombardi +1.212.553.2829
Associate Analyst
john.lombardi@moodys.com

Timothy Blake +1.212.553.0849
Managing Director - Public Finance
timothy.blake@moodys.com

Summary

This inaugural report presents adjusted pension data for the 50 individual states, based on our recently published methodology for analyzing state and local government pension liabilities. The report ranks states based on ratios measuring the size of their adjusted net pension liabilities (ANPL) relative to several measures of economic capacity: state revenues, GDP and personal income. Additionally, the report identifies medians for each ratio. Highlights of the report include:

» **State pension burdens vary widely.** The median value of the ratio of ANPL to governmental revenue is 45.1% for fiscal 2011. Adjusted net pension liabilities for individual states ranged from 6.8% to 241% of governmental revenues in fiscal 2011. Our preliminary analysis of fiscal 2012 data indicates increased adjusted pension liabilities as investment performance flattened and broadly similar variations in pension burdens. Investment performance and interest rate trends in fiscal 2013 should at least partly offset the growth of ANPL in 2012.

» **The largest accumulated liabilities most often reflect management decisions not to fund contributions at levels reflecting actuarial guidelines.** Of the ten states with the largest pension burdens, six have been downgraded in recent years for the magnitude and management of their pension obligations, in part a reflection of persistent underfunding.

» **The level of state contributions to cover pension costs of teachers and other local government employees is a significant factor in the size of state liabilities.** The largest pension burdens are also associated with states that directly cover the cost of local school teacher pensions.

» **Allocating reported pension liabilities of cost-sharing plans to participating local governments leads to the greatest difference between our adjusted and states' reported pension liabilities.** Other factors contributing to changing relative pension burden are whether a state's discount rate is above or below the median and to what degree a state smoothes its asset values.

Moody's Pension Adjustments

To achieve greater comparability and transparency in our credit analysis, we recalculate state and local net pension liabilities based on a market-determined discount rate and the market value of assets. We allocate the net pension liabilities of multiple-employer cost-sharing plans among the plan sponsors based on the pro rata contribution of each sponsor to the plan and additional information from state officials and pension administrators. We transform the Moody's adjusted net pension liability (ANPL) into a measure of pension burden by calculating the ratio of ANPL to governmental revenues (as reported in each state's consolidated annual financial report).[1] A three-year moving average of this ratio is an input to our state rating methodology scorecard, while additional aspects of state pension plan finances and governance are considered by our analysts and rating committees when assigning general obligation ratings to state governments. For greater detail on our adjustments and their application in our ratings methodology, please refer to our reports "Adjustments to US State and Local Reported Pension Data" and "US States Rating Methodology" released in April 2013.

Moody's 2011 state pension database includes 104 pension plans sponsored in whole or in part by the 50 states and Puerto Rico, covering the largest multiple-employer cost-sharing, multiple-employer agent, and single-employer plans. We excluded plans that individually account for less than 5% of an issuer's total liabilities because the financial conditions of those plans would not have a material impact on the issuers and doing so streamlined our data gathering efforts. The addition of these smaller plans to the database is expected in the near-term. Consistent with our 50 state debt medians report, Puerto Rico is not included in the 50-state medians and is shown for comparison purposes.

We have used pension data presented in state pension plan annual financial reports for fiscal 2011. The pension data in these reports and captured in our database may be from valuation periods that do not coincide with a state's own 2011 fiscal year. Reported valuations often lag a year, and sometimes two years. Pension plans may also report on a calendar year or some other basis that differs from the state's fiscal year.

States Exhibit Broad Range of Pension Liabilities

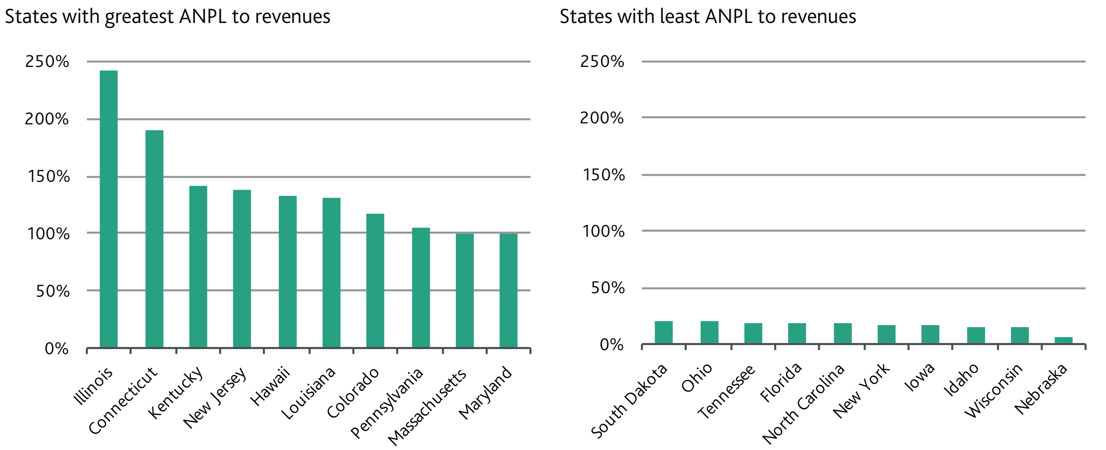
For fiscal 2011, the accumulated pension burden of US states, as measured by adjusted net pension liability relative to all governmental funds revenues, ranges from 6.8% to 241%. The states with the lowest pension burden are Nebraska, Wisconsin, and Idaho at 6.8%, 14.4%, and 14.8%, respectively. Among the states with the highest pension burden are Illinois, Connecticut, and Kentucky, at 241%, 190%, and 141%, respectively. The portfolio median for this metric is 45.1%. Exhibit 1 displays the states with the 10 greatest and the 10 smallest pension burdens.

The median state pension liability as a percent of personal income was 7.1%, more than twice the 2.8% median value of state net tax-supported debt to personal income, although the variation across states is wider for pensions than for debt.

[1] We use governmental revenues because state employment positions are funded from an array of sources that include federal funds. One shortcoming of this approach is that it includes federal Medicaid payments, which are not used to fund government headcount and vary widely across states.

EXHIBIT 1

Wide Range Exists In Pension Burden



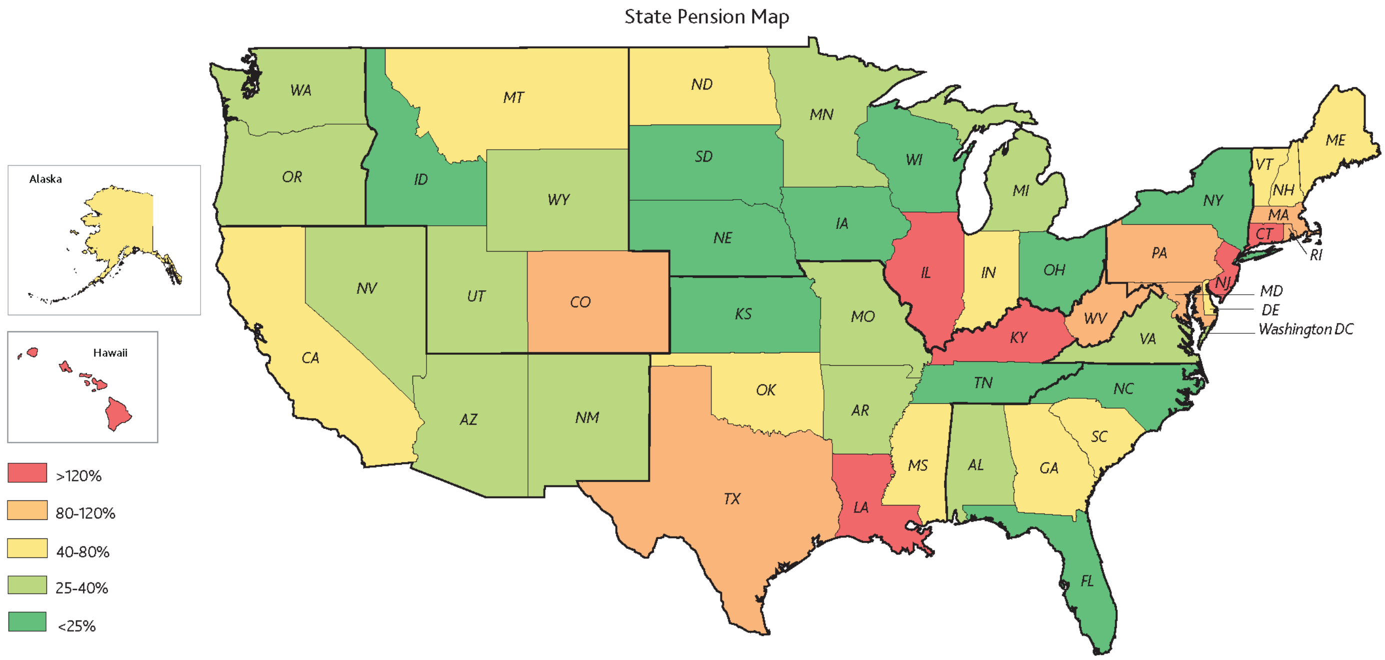
Note: Valuation dates range from 2009 to 2012
Source: Moody's Investors Service

When we compare adjusted net pension liabilities relative to other measures of state economic resources, such as GDP or personal income, relative rankings are very similar to our ANPL/governmental revenues metric as these measures are highly correlated. Please refer to the tables in the Appendix for details.

The variability of US state net pension liability burden is mapped in Exhibit 2. The map shows ANPL/governmental revenues categorized by the ranges adopted in our US states methodology scorecard. In ascending order, the categories are: less than 25%; from 25% to 40%; from 40% to 80%; from 80% to 120%; and greater than 120%. (In our scorecard, there is an additional category for states with ANPL/governmental revenues greater than 180% but we have collapsed the categories for purposes of presentation – see Exhibit 3).

EXHIBIT 2

State Net Pension Liability as a Percent of State Governmental Revenues



Note: Valuation dates range from 2009 to 2012

The wide variation in the accumulation of state net pension liabilities reflects the differences among states in historical funding efforts, management of benefit levels, and the extent to which states assume responsibility for employer pension costs related to teachers and other local government employees in addition to state employees. Geographically, there is some concentration of states with large net pension liabilities relative to their resources in the mid-Atlantic and New England states, and all states in the top category are in the eastern half of the country. In the west, ANPL/governmental revenues tends to be lower, but the lowest pension burden states are concentrated in the mid-west.

EXHIBIT 3

US States Rating Methodology Pension Scoring

Sub-Factor	Measurement	Aaa(1)	Aa1(2)	Aa2(3)	Aa3(4)	A(6)	Baa and below (9)
Pensions	3 Year Avg Adjusted Net Pension Liability/Total Governmental Revenue	Less than 25%	25% - 40%	40% - 80%	80% - 120%	120% - 180%	Greater than 180%

Based on Moody's adjustments, the overall ratio of pension plan assets to plan liabilities, commonly known as the funded ratio, is 48%. This compares to a reported funded ratio of 74% before Moody's adjustments. In our view, the adjusted funded ratio is less useful for credit analysis than the ANPL and measures that compare liabilities to economic capacity because it does not indicate the size of pension liabilities relative to an issuer's resources. However, it can be a good indicator of pension governance and whether or not a plan is heading toward pay-go status.

Large Pension Burdens Associated with Contribution Shortfalls

Large pension burdens are not associated with the size of a state's economy or budget. The states that have the largest relative pension liabilities have at least one thing in common: a history of contributing less to their pension plans than the actuarially required contributions (ARC). In an effort to reduce current expenditures, states that underfund simply increase the portion of their liability that must be amortized, resulting in ever-greater ARCs that become even more difficult to meet. For this reason, funding history is an important credit factor.

For some states, such as Louisiana and Maryland, the shortfall in their contributions is a result of statutory requirements or formulas that have failed to keep up with the pace of growing liabilities and ARCs. However, several states have expanded the gap between an actuarially sound contribution and their actual contributions by taking "pension holidays" or other actions to achieve budget relief. States that have done so are generally rated at less than the average state rating of Aa1. Six of the states in our "top 10" pension burden list—Illinois, Connecticut, Kentucky, New Jersey, Hawaii and Pennsylvania—have been downgraded over the last three years, largely because of the management and growing size of their pension liabilities.

The states with the lowest ratio of ANPL to revenues also have little in common outside of a commitment to making full ARC payments to their pension plans. Nebraska is an exception. The state's conservative pension benefits produce disproportionately low liabilities, which help to offset a history of statutory payments set at less than the ARC. Digging a bit deeper into a state's overall credit profile also can reveal that a small relative pension liability can come at a cost: for example, New York offers a relatively expensive benefit package, and keeping pace with full funding of its ARC has pressured the state's budget. Tennessee is another example of a relatively low ANPL that reflects the state's long trend of fully funding its ARC even as the budgetary cost of doing so has increased.

Cost-sharing Adjustment Has Significant Impact on Relative Pension Burden

Adjusting reported state pension liabilities for cost-sharing makes a significant difference in comparisons of relative state pension liabilities. As shown in Exhibit 4, our cost-sharing allocation results in the state share of liabilities of 18 plans in 15 states being reduced to 25% or less compared to the full plan liabilities reported in state financial reports. In some cases, the liability allocated to a state is quite small, such as the teachers retirement systems in Alabama, Ohio and Washington. The full list of cost-sharing plans in our state database and the share of their liabilities that we have allocated to states for fiscal 2011 is in Appendix Table 4.

EXHIBIT 4

Cost-sharing Plans with Least Share of Liability Allocated to States

State	Cost-Sharing Plan	Moody's Allocated Share
ALABAMA	Teachers' Retirement System of Alabama	7.20%
ARIZONA	Arizona State Retirement System	20.50%
ARIZONA	Public Safety Personnel Retirement System	10.30%
FLORIDA	Florida Retirement System	21.40%
GEORGIA	Teachers' Retirement System of Georgia	15.70%
IDAHO	Public Employees' Retirement System	24.90%
IOWA	Public Employees' Retirement System	19.20%
KANSAS	Kansas Public Employees' Retirement System	17.10%
MINNESOTA	Teachers Retirement Association	13.40%
NEVADA	Public Employees' Retirement System	12.70%
NEW MEXICO	Educational Employees' Retirement Board	1.70%
NEW YORK	Police and Fire Retirement System	18.40%
OHIO	Ohio Public Employees' Retirement System	21.70%
OHIO	State Teachers' Retirement System	0.50%
OREGON	Public Employees' Retirement System	18.70%
UTAH	Non Contributory System	19.20%
WASHINGTON	Teachers' Retirement System	4.50%
WASHINGTON	Teachers' Retirement System 2/3	0.40%

Several states among the top 10 in the ANPL/governmental revenues measure absorb the costs of employer contributions for teacher pensions. While underfunding has contributed to large net liabilities, total liabilities in Illinois, Connecticut, Kentucky, New Jersey, Hawaii, Maryland and Louisiana also include those for school districts and are not reported in school district financial statements. Other states that have taken on this responsibility, either through statute or in practice, include North Carolina, North Dakota, Vermont and West Virginia. Maryland is shedding its responsibility for paying pension normal costs for teachers by shifting those expenses to local governments over four years.

Pension Liabilities for 2012 and 2013

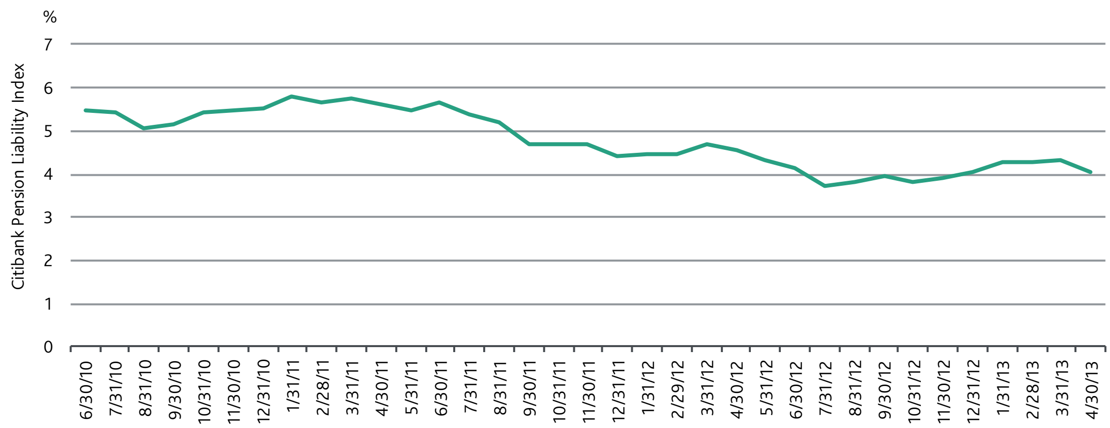
Fiscal 2012 state net pension liabilities, which we expect to publish later this year, were larger than in 2011. This reflects poor investment performance of pension assets and a downward slide in interest rates, partly offset by the effects of several years of budget reductions on state employee headcount and salaries. About three-quarters of the state pension plans in our database adhere to a July 1-June 30 fiscal year. During the 2012 fiscal year ending June 30, the cash and security holdings of the 100 largest public pension plans declined 2.2% from the previous year, according to the US Census. In addition, the Citibank Pension Liability Index[2] declined to 4.13% at June 30, 2012, compared to 5.36% the previous year, which by itself would increase adjusted total pension liabilities more than 15% (see Exhibit 5). Moderating the impact of these factors, state government employment and wages have declined since fiscal 2009, according to the US Bureau of Labor Statistics. In fiscal 2012, state

[2] The Index can be accessed at: http://www.soa.org/professional-interests/pension/resources/pen-resources-pension.aspx

employment fell 1.2% and total wages declined 0.1%. By comparison, most states factored positive wage growth into their prior actuarial liability valuations.[3]

EXHIBIT 5

After Fiscal 2011 Decline, Citibank Liability Index Has Stabilized



Source: Citibank; Society of Actuaries

Investment performance to date in fiscal 2013 suggests that asset growth may suppress absolute levels of net pension liabilities in 2013. For the year ending March 31, 2013, which includes a market swoon in the second quarter of 2012, median public plan investment returns were 9.8%, according to Callan Associates Inc estimates. At the same time, the Liability Index has stabilized and remains roughly equivalent to its June 30, 2012 level.

Over the longer term, several cross-currents will influence trends in the net pension liabilities of states. National economic growth and monetary policy will influence the trends in asset markets, interest rates and state revenues. Liability growth over a longer period will be slowed by pension benefit and funding reforms but may reflect the impacts of renewed public sector wage growth and hiring as state economies and tax revenue collections expand.

Many states have enacted pension reforms that rely on the creation of a new pension tier for new employees and will not have a noticeable impact on net pension liabilities for years. However, these reforms should reduce the rate at which new liabilities accrue and may reduce employer normal costs in the near term. Certain reforms will make a noticeable difference in state net pension liabilities in the near and medium terms, although some of these changes, such as Rhode Island's, have already been factored into calculated pension liabilities. The timing of reform impacts will depend on employee demographics and turnover, among other factors.

State shifts toward increasing contributions to their pension systems will also impact net pension liabilities slowly. Funding plans based on actuarially required contributions (ARC) are typically geared toward amortizing existing liabilities over a 25 or 30 year period. When a state commits to and sustains an actuarially sound funding plan it extinguishes the unfunded liability over the long term. By contrast, for states with statutory contributions less than the ARC or for those who have underpaid for other reasons, the dismal performance of the asset markets in the last decade revealed how quickly such approaches could reduce the funding status of a pension plan. Maryland shifted to a corridor funding

[3] Most government pensions use the entry age normal (EAN) method to determine accrued liabilities. The accruals include assumptions of projected wage increases, in contrast to the projected unit credit (PUC) method which does not. PUC is used by a minority of government pension plans but is the dominant cost method in the private sector.

method, which phases in changes in ARC, in 2002. In response to subsequent deterioration of the pension plan's funded status, the 2013 legislative session enacted a new plan to gradually return to full ARC payments over 10 years. Kentucky, with its history of chronically underfunding its pensions, recently enacted a statute requiring the state and other employers participating in one of the state's large cost-sharing plans to make full actuarial contributions. However, this change will not take effect until fiscal 2015, the first year of the state's next biennial budget period. Similarly, Hawaii's legislated increase in employer pension contributions will not take effect until 2016.

Uncertainty over future funding practices has been created by the impending shift in pension accounting resulting from the implementation of GASB Statements 67 and 68. GASB has altered the focus of pension accounting from a funding-oriented approach to a balance sheet approach. As a result, no authoritative body will be setting guidelines for pension funding that carry the weight of GASB's guidance. Although some professional organizations have attempted to create guidelines, lack of a clear standard may make it difficult for some states to stay on a funding path that sustains a goal of adequate pension financing.

Pension Tables and Comparative Measures

The following tables summarize our calculation of key pension metrics and rank the states accordingly. Pension burden-both on a state's balance sheet and in the context of budgetary flexibility-is one of many factors that we use to determine state credit quality. Therefore these metrics and rankings do not correlate directly to state ratings. The 50 state-medians exclude Puerto Rico, which is shown for comparison purposes only.

These ratios have been calculated based on our definition of adjusted net pension liabilities and governmental revenues.

Appendix

TABLE 1

Selected Characteristics of State Pension Plans

State	Rating	# of Pension Plans[4]	Valuation Date for Largest Plan	As Reported Discount Rate for Largest Plan	Aggregate UAAL ($000)	Moody's Adjusted Discount Rate for Largest Plan	State Share for Largest Plan
Alabama	Aa1	2	9/30/2010	8.00%	12,711,532	5.14%	7.2%
Alaska	Aaa	2	6/30/2010	8.00%	6,648,953	5.47%	72.3%
Arizona	Aa3	3	6/30/2010	8.00%	12,247,216	5.47%	20.5%
Arkansas	Aa1	2	6/30/2011	8.00%	2,382,000	5.67%	100.0%
California	A1	2	6/30/2010	7.75%	80,124,000	5.47%	25.8%
Colorado	Aa1*	1	12/31/2011	8.00%	8,816,498	4.40%	100.0%
Connecticut	Aa3	2	6/30/2010	8.50%	20,069,660	5.47%	100.0%
Delaware	Aaa	3	6/30/2011	7.50%	755,991	5.67%	100.0%
Florida	Aa1	1	7/1/2011	7.75%	18,956,422	5.67%	21.4%
Georgia	Aaa	2	6/30/2010	7.50%	12,311,780	5.47%	15.7%
Hawaii	Aa2	1	6/30/2011	8.00%	8,154,177	5.67%	72.6%
Idaho	Aa1*	1	7/1/2011	7.25%	1,276,181	5.67%	24.9%
Illinois	A3	3	6/30/2011	8.50%	81,333,819	5.67%	100.0%
Indiana	Aaa*	2	6/30/2010	7.00%	11,790,490	5.47%	100.0%
Iowa	Aaa*	1	6/30/2011	7.50%	5,681,771	5.67%	19.2%
Kansas	Aa1*	1	12/31/2010	8.00%	8,264,125	5.54%	17.1%
Kentucky	Aa2*	3	6/30/2011	7.50%	18,726,255	5.67%	100.0%
Louisiana	Aa2	3	6/30/2011	8.25%	18,172,934	5.67%	100.0%
Maine	Aa2	1	6/30/2011	7.25%	2,688,100	5.67%	100.0%
Maryland	Aaa	3	6/30/2011	7.75%	18,286,533	5.67%	100.0%
Massachusetts	Aa1	2	1/1/2011	8.25%	16,752,915	5.54%	100.0%
Michigan	Aa2	1	9/30/2010	8.00%	4,078,000	5.14%	100.0%
Minnesota	Aa1	2	7/1/2011	8.50%	7,201,080	5.67%	13.4%
Mississippi	Aa2	1	6/30/2011	8.00%	12,339,300	5.67%	37.1%
Missouri	Aaa	1	6/30/2011	8.50%	2,101,063	5.67%	100.0%
Montana	Aa1	5	6/30/2011	7.75%	3,779,523	5.67%	46.6%
Nebraska	NGO**	3	1/1/2011	7.75%	111,984	5.54%	100.0%
Nevada	Aa2	1	6/30/2011	8.00%	11,005,100	5.67%	12.7%
New Hampshire	Aa1	2	6/30/2011	7.75%	4,273,547	5.67%	38.6%
New Jersey	Aa3	3	6/30/2010	8.25%	24,936,265	5.47%	100.0%
New Mexico	Aaa	2	6/30/2011	7.75%	10,622,075	5.67%	50.1%
New York	Aa2	2	4/1/2010	7.50%	8,860,000	6.05%	45.8%
North Carolina	Aaa	1	12/31/2010	7.25%	2,773,868	5.54%	38.0%
North Dakota	Aa1*	2	7/1/2011	8.00%	1,616,600	5.67%	100.0%
Ohio	Aa1	2	7/1/2011	8.00%	59,686,709	5.67%	0.5%
Oklahoma	Aa2	4	6/30/2011	8.00%	10,321,131	5.67%	46.1%
Oregon	Aa1	1	12/31/2010	8.00%	13,325,100	5.54%	18.7%
Pennsylvania	Aa2	2	6/30/2010	8.00%	34,362,001	5.47%	62.0%
Rhode Island	Aa2	2	6/30/2010	7.50%	4,094,109	5.47%	40.0%
South Carolina	Aaa	2	7/1/2010	8.00%	14,611,455	5.47%	31.3%
South Dakota	NGO**	1	6/30/2011	7.75%	278,800	5.67%	36.4%
Tennessee	Aaa	1	7/1/2009	7.50%	1,632,873	6.20%	100.0%
Texas	Aaa	2	8/31/2011	8.00%	28,462,940	5.21%	82.6%
Utah	Aaa	3	1/1/2011	7.50%	5,676,084	5.54%	20.7%
Vermont	Aaa	2	6/30/2011	7.90%	1,191,646	5.67%	100.0%
Virginia	Aaa	1	6/30/2010	7.00%	4,838,599	5.47%	100.0%
Washington	Aa1	7	6/30/2010	8.00%	3,170,000	5.47%	48.1%
West Virginia	Aa1	2	7/1/2010	7.50%	6,111,993	5.47%	100.0%
Wisconsin	Aa2	1	12/31/2011	5.50%	99,300	4.40%	28.1%
Wyoming	NGO**	2	1/1/2012	8.00%	1,294,267	4.40%	37.1%
Puerto Rico	Baa3***	2	6/30/2011	6.40%	32,796,289	5.67%	100.0%

* Issuer Rating (No G.O. Debt)

** No General Obligation Debt

*** This figure is not included in any totals, means, or median calculations but is provided for comparison purposes only.

4 Excludes small plans as cited in the report

TABLE 2

Moody's Adjusted Net Pension Liability (ANPL) Rankings

ANPL Rank	State	ANPL
1	Illinois	132,968,296
2	California	120,805,465
3	Texas	91,694,842
4	Pennsylvania	63,532,940
5	New Jersey	63,219,012
6	Massachusetts	44,732,443
7	Connecticut	41,587,093
8	Louisiana	33,376,268
9	Maryland	28,660,114
10	Kentucky	28,619,279
11	New York	22,084,660
12	Colorado	20,338,160
13	Indiana	16,594,134
14	Georgia	14,096,309
15	Florida	12,912,181
16	Michigan	12,124,102
17	South Carolina	11,635,619
18	Washington	11,445,447
19	Virginia	11,115,455
20	Hawaii	10,919,157
21	Alaska	10,605,944
22	Oklahoma	10,391,069
23	Ohio	9,777,555
24	West Virginia	9,281,717
25	Mississippi	8,523,243
26	Minnesota	8,121,311
27	North Carolina	7,479,012
28	Alabama	7,257,979
29	Arizona	7,093,003
30	Missouri	6,505,333
31	Oregon	6,006,038
32	Maine	5,656,940
33	Tennessee	5,394,877
34	Rhode Island	5,273,598
35	New Mexico	5,035,912
36	Arkansas	4,938,387
37	Wisconsin	3,894,188
38	North Dakota	3,273,776
39	Montana	3,241,297
40	Utah	3,162,592
41	Nevada	3,017,365
42	Kansas	2,835,598
43	Delaware	2,819,988
44	New Hampshire	2,748,931
45	Vermont	2,436,052
46	Iowa	2,349,433
47	Wyoming	2,211,227
48	Idaho	979,161
49	South Dakota	728,831
50	Nebraska	527,503
	MEAN:	**18,880,577**
	MEDIAN:	**8,322,277**
	Puerto Rico*	36,251,660

ANPL as % of Revs Rank	State	ANPL as % of Revs
1	Illinois	241.1%
2	Connecticut	189.7%
3	Kentucky	140.9%
4	New Jersey	137.2%
5	Hawaii	132.5%
6	Louisiana	130.2%
7	Colorado	117.5%
8	Pennsylvania	105.0%
9	Massachusetts	100.4%
10	Maryland	99.5%
11	Texas	92.5%
12	Rhode Island	91.3%
13	West Virginia	86.2%
14	Maine	76.6%
15	Montana	62.5%
16	California	61.8%
17	Oklahoma	61.8%
18	Indiana	61.3%
19	North Dakota	61.2%
20	South Carolina	59.7%
21	New Hampshire	56.4%
22	Alaska	55.2%
23	Mississippi	53.0%
24	Vermont	49.2%
25	Delaware	48.2%
26	Georgia	42.0%
27	Wyoming	39.9%
28	Nevada	39.1%
29	New Mexico	37.8%
30	Alabama	36.9%
31	Virginia	35.5%
32	Oregon	33.9%
33	Arkansas	33.6%
34	Washington	32.7%
35	Utah	30.8%
36	Missouri	27.7%
37	Minnesota	27.3%
38	Arizona	26.7%
39	Michigan	25.4%
40	Kansas	23.1%
41	South Dakota	20.7%
42	Ohio	19.6%
43	Tennessee	19.2%
44	Florida	19.2%
45	North Carolina	18.3%
46	New York	16.6%
47	Iowa	16.1%
48	Idaho	14.8%
49	Wisconsin	14.4%
50	Nebraska	6.8%
	MEAN:	**60.6%**
	MEDIAN:	**45.1%**
	Puerto Rico*	234.4%

Note: Valuation dates range from 2009 to 2012

* This figure is not included in any totals, means, or median calculations but is provided for comparison purposes only.

TABLE 3

Moody's Adjusted Net Pension Liability Relative to Economic Indicators

Rank	State	ANPL as % of PI
1	Alaska	32.1%
2	Illinois	23.6%
3	Connecticut	20.1%
4	Kentucky	19.3%
5	Louisiana	18.9%
6	Hawaii	18.5%
7	West Virginia	15.0%
8	New Jersey	13.7%
9	Massachusetts	12.7%
10	Pennsylvania	11.8%
11	Rhode Island	11.4%
12	Maine	11.1%
13	North Dakota	10.1%
14	Maryland	9.7%
15	Vermont	9.4%
16	Colorado	9.0%
17	Montana	9.0%
18	Mississippi	8.9%
19	Texas	8.9%
20	Wyoming	8.1%
21	Delaware	7.5%
22	South Carolina	7.4%
23	California	7.3%
24	Oklahoma	7.3%
25	Indiana	7.1%
26	New Mexico	7.1%
27	Arkansas	5.0%
28	New Hampshire	4.5%
29	Alabama	4.3%
30	Oregon	4.1%
31	Georgia	4.0%
32	Washington	3.8%
33	Minnesota	3.4%
34	Michigan	3.4%
35	Utah	3.4%
36	Arizona	3.1%
37	Nevada	3.0%
38	Virginia	3.0%
39	Missouri	2.9%
40	Kansas	2.4%
41	Tennessee	2.3%
42	Ohio	2.2%
43	New York	2.2%
44	North Carolina	2.1%
45	South Dakota	2.0%
46	Idaho	1.9%
47	Iowa	1.9%
48	Wisconsin	1.7%
49	Florida	1.7%
50	Nebraska	0.7%
	MEAN:	**7.9%**
	MEDIAN:	**7.1%**
	Puerto Rico*	58.9%

Rank	State	ANPL as % of State GDP
1	Alaska	20.6%
2	Illinois	19.8%
3	Connecticut	18.1%
4	Kentucky	17.4%
5	Hawaii	16.3%
6	West Virginia	13.9%
7	Louisiana	13.5%
8	New Jersey	13.0%
9	Massachusetts	11.4%
10	Pennsylvania	11.0%
11	Maine	11.0%
12	Rhode Island	10.5%
13	Maryland	9.5%
14	Vermont	9.4%
15	Mississippi	8.7%
16	Montana	8.5%
17	North Dakota	8.1%
18	Colorado	7.7%
19	South Carolina	7.0%
20	Texas	7.0%
21	Oklahoma	6.7%
22	New Mexico	6.3%
23	California	6.2%
24	Indiana	6.0%
25	Wyoming	5.9%
26	Arkansas	4.7%
27	New Hampshire	4.3%
28	Delaware	4.3%
29	Alabama	4.2%
30	Georgia	3.4%
31	Washington	3.2%
32	Michigan	3.1%
33	Oregon	3.1%
34	Minnesota	2.9%
35	Arizona	2.7%
36	Missouri	2.6%
37	Virginia	2.6%
38	Utah	2.5%
39	Nevada	2.3%
40	Kansas	2.2%
41	Tennessee	2.0%
42	Ohio	2.0%
43	New York	1.9%
44	South Dakota	1.8%
45	Florida	1.7%
46	North Carolina	1.7%
47	Idaho	1.7%
48	Iowa	1.6%
49	Wisconsin	1.5%
50	Nebraska	0.6%
	MEAN:	**6.8%**
	MEDIAN:	**5.3%**

Rank	State	ANPL Per Capita
1	Alaska	14,652
2	Connecticut	11,595
3	Illinois	10,340
4	Hawaii	7,923
5	Louisiana	7,296
6	New Jersey	7,156
7	Massachusetts	6,770
8	Kentucky	6,554
9	Rhode Island	5,019
10	West Virginia	5,004
11	Pennsylvania	4,985
12	Maryland	4,908
13	North Dakota	4,781
14	Maine	4,258
15	Colorado	3,975
16	Wyoming	3,897
17	Vermont	3,888
18	Texas	3,577
19	Montana	3,249
20	California	3,206
21	Delaware	3,105
22	Mississippi	2,863
23	Oklahoma	2,746
24	Indiana	2,547
25	South Carolina	2,490
26	New Mexico	2,423
27	New Hampshire	2,086
28	Arkansas	1,681
29	Washington	1,677
30	Oregon	1,553
31	Minnesota	1,519
32	Alabama	1,511
33	Georgia	1,437
34	Virginia	1,372
35	Michigan	1,228
36	New York	1,132
37	Utah	1,124
38	Nevada	1,109
39	Arizona	1,097
40	Missouri	1,083
41	Kansas	988
42	South Dakota	885
43	Ohio	847
44	Tennessee	843
45	North Carolina	775
46	Iowa	767
47	Wisconsin	682
48	Florida	677
49	Idaho	618
50	Nebraska	286
	MEAN:	**3,324**
	MEDIAN:	**2,456**
	Puerto Rico*	9,814

Note: Valuation dates range from 2009 to 2012

* This figure is not included in any totals, means, or median calculations but is provided for comparison purposes only.

TABLE 4

Allocation of Pension Plan Liabilities by State[5]

Alabama	
Teachers' Retirement System of Alabama	7.2%
Employees' Retirement System of Alabama	46.4%
Alaska	
Public Employees' Retirement System	72.3%
Teachers' Retirement System	78.8%
Arizona	
Public Safety Personnel Retirement System	10.3%
Corrections Officer Retirement Plan	56.7%
Arizona State Retirement System	20.5%
Arkansas	
Arkansas Public Employees Retirement System	100.0%
Arkansas Highway and Transportation Retirement Plan	100.0%
California	
California Public Employees' Retirement System	100.0%
California State Teachers' Retirement System	25.8%
Colorado	
State Division Trust Fund	100.0%
Connecticut	
Teachers' Retirement System (TRS)	100.0%
State Employees' Retirement System (SERS)	100.0%
Delaware	
State Employees'	100.0%
Closed State Police	100.0%
New State Police	100.0%
Florida	
Florida Retirement System	21.4%
Georgia	
Teachers' Retirement System of Georgia	15.7%
Employees' Retirement System of Georgia	85.2%
Hawaii	
Employees' Retirement System	72.6%
Idaho	
Public Employee Retirement System	24.9%
Illinois	
Teachers' Retirement System	100.0%
State Universities' Retirement System	100.0%
State Employees' Retirement System of Illinois	100.0%
Indiana	
Pre-1996 Teachers Retirement	100.0%
Public Employees' Retirement Fund	100.0%

Iowa	
Public Employees' Retirement System	19.2%
Kansas	
Kansas Public Employees Retirement System	17.1%
Kentucky	
Kentucky Teachers' Retirement System	100.0%
Kentucky Employees Retirement System	100.0%
Kentucky Employees Retirement System (Hazardous)	100.0%
Louisiana	
Teachers' Retirement System of Louisiana	100.0%
Louisiana State Employees' Retirement System	100.0%
Louisiana School Employees' Retirement System	100.0%
Maine	
Maine Public Employees Retirement System	100.0%
Maryland	
Teachers' Retirement	100.0%
Employees Retirement and Pension Plan - State	100.0%
State Police Retirement System	100.0%
Massachusetts	
Teachers' Retirement System	100.0%
State Employees' Retirement System	100.0%
Michigan	
State Employees' Retirement System	100.0%
Minnesota	
Teachers Retirement Association	13.4%
Minnesota State Retirement System	72.3%
Mississippi	
Public Employees' Retirement System	37.1%
Missouri	
Missouri State Employees' Plan (MSEP)	100.0%
Montana	
Teachers Retirement System	43.3%
Public Employees Retirement System	46.6%
Municipal Police Officers Retirement System	100.0%
Firefighters Unified Retirement System	100.0%
Sheriffs Retirement System	0.0%
Nebraska	
State Cash Balance	100.0%
State Patrol Retirement System	100.0%
Judges' Retirement System	100.0%

5 Allocation of pension plan liabilities may change as states review and clarify this issue for GASB 68 purposes.

TABLE 4

Allocation of Pension Plan Liabilities by State[5]

Nevada	
Public Employees' Retirement System	12.7%
New Hampshire	
New Hampshire Retirement System	38.6%
New Hampshire Judicial Retirement System	100.0%
New Jersey	
Public Employees' Retirement System - State	100.0%
Police and Firemen's Retirement System - State	100.0%
Teachers' Pension and Annuity Fund	100.0%
New Mexico	
Public Employees Retirement Fund	50.1%
Educational Employees' Retirement Board	1.7%
New York	
State and Local Employees' Retirement System	45.8%
Police and Fire Retirement System	18.4%
North Carolina	
Teachers' and State Employees'	38.0%
North Dakota	
Teachers' Fund for Retirement	100.0%
Public Employees' Retirement System	100.0%
Ohio	
State Teachers Retirement System	0.5%
Ohio Public Employees' Retirement System	21.7%
Oklahoma	
Oklahoma Police Pension and Retirement System	43.6%
Oklahoma Public Employees Retirement System	80.7%
Teachers' Retirement System of Oklahoma	46.1%
Oklahoma Firefighters Pension and Retirement System	83.0%
Oregon	
Public Employees' Retirement System	18.7%
Pennsylvania	
State Employees' Retirement System	67.0%
Public School Employees' Retirement System	62.0%
Rhode Island	
Teachers' (component of ERS)	40.0%
State Employees' (component of ERS)	100.0%
South Carolina	
South Carolina Retirement System	31.3%
Police Officers' Retirement System	33.0%
South Dakota	
South Dakota Retirement System	36.4%
Tennessee	
Consolidated State	100.0%
Texas	
Teacher Retirement System	82.6%
Employees Retirement System	100.0%
Utah	
Non Contributory System	20.7%
Public Safety System	35.2%
Contributory System	29.2%
Vermont	
State Teachers' Retirement System	100.0%
Vermont State Retirement System	100.0%
Virginia	
Virginia Retirement System	100.0%
Washington	
Public Employees' Retirement System 2/3	48.1%
Public Employees' Retirement System	49.7%
Teachers' Retirement System	4.5%
Teachers' Retirement System 2/3	0.4%
Law Enforcement Officers' and Fire Fighters' 2	63.0%
Law Enforcement Officers' and Fire Fighters'	0.0%
School Employees' Retirement System 2/3	0.0%
West Virginia	
Teachers' Retirement System	100.0%
Public Employees' Retirement System	68.2%
Wisconsin	
Wisconsin Retirement System	28.1%
Wyoming	
Public Employees Pension Plan	37.1%
Wyoming Law Enforcement	43.8%
Puerto Rico	
Employees' Retirement System	100.0%
Teachers' Retirement System	100.0%

Moody's Related Research

Special Comment:

» Adjustments to US State and Local Government Reported Pension Data, April 2013 (151398)

Rating Methodology:

» US States Rating Methodology, April 2013 (129816)

Median Report:

» 2013 State Debt Medians Report, May 2013 (153920)

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.

» contacts continued from page 1

Analyst Contacts:

NEW YORK	+1.212.553.1653
Robert A. Kurtter	+1.212.553.4453

Managing Director - Public Finance
robert.kurtter@moodys.com

Report Number: 155103

Authors
Marcia Van Wagner
John Lombardi

Production Associate
Amanda Kissoon

MOODY'S INVESTORS SERVICE

State Pension Update

Credit Risk of Pensions Continues

Special Report

Funded Ratios Declining, But at a Slower Pace

Updates States' Pension Metrics: This report updates metrics previously published by Fitch Ratings. These include Fitch-adjusted funded ratio metrics for major statewide plans, and a measurement combining states' net tax-supported debt and the adjusted unfunded pension obligation attributable to states.

Reforms Underway: Pensions remain a growing pressure for numerous states' budgets. The vast majority of states with pension pressures are pursuing reforms to improve the sustainability of their plans and Fitch believes that most states are well positioned to address the pressures they face from unfunded pension liabilities and rising contributions. In only a few cases are reforms having an immediate, beneficial impact on funded ratios.

Funded Ratios Continue to Fall: The reported funded ratios for most major statewide plans continue to decline, although the rate of the decline is slowing. Numerous factors contribute to the ongoing erosion including pensions' continued absorption of market losses from the 2008–2009 recession and the impact of state reform actions.

Market Value Ratios Lower: Funded ratios on a market value basis remain below those on an actuarial value basis for the vast majority of plans based on the most recent data (2012 for most plans), suggesting continued pressure on actuarial funded ratios. Plans with a June 30 valuation date are likely to benefit materially from the stronger market performance in fiscal 2013.

Investment Return Assumptions Lower: More than one-half of major statewide plans have lowered their investment return assumption (IRA) since the downturn, a positive step in Fitch's view. Fitch believes that IRAs at 8% or higher are unrealistic. Fitch adjusts the reported plan IRA to 7% to improve comparability across plans.

ARC Funding Practices Mixed: Numerous governments continue to fully fund an actuarially-calculated annual required contribution (ARC) while other governments do not. Reasons for ARC underfunding vary broadly including the timing of decision-making on budgeted appropriations compared to ARC calculations, or state actions for budget relief.

Pensions Higher than Debt: Fitch calculates a metric combining each state's net tax-supported debt and its total adjusted unfunded pension liability, including a share of cost-sharing plan liabilities, measured against personal income. The pension component of this metric is higher than debt and the range of the pension component is much wider, reflecting the disparate funding condition in states' pensions, whether states cover local teachers or other nonstate employees, and other factors.

GASB Changes Affect Disclosure: Fitch believes that the new Government Accounting Standards Board (GASB) standards, covering pension systems themselves (effective June 2013) and governments with pensions (effective June 2014) represent a net improvement in disclosure. Given the extensive changes to reported pension data being implemented with the new standards, Fitch expects to review its approach following the new standards' implementation.

Related Research

Local Government Pension Analysis (April 2013)

Improving Comparability of State Liabilities (March 2012)

Enhancing the Analysis of U.S. State and Local Government Pension Obligations (February 2011)

Analysts

Douglas Offerman
+1 212 908-0889
douglas.offerman@fitchratings.com

Laura Porter
+1 212 908-0575
laura.porter@fitchratings.com

Richard Raphael
+1 212 908-0506
richard.raphael@fitchratings.com

Updating Prior Reports

The primary purpose of this report is to update data published by Fitch in its previous reports on the defined benefit pension systems of states. Those reports described how Fitch analyzes states' unfunded pension liabilities in the context of assigning credit ratings, including adjustments made by Fitch to supplement reported data and improve the comparability of plan liabilities.

In its analysis, Fitch reviews reported pension data disclosed by plans themselves and the sponsoring state. These include asset and liability levels, funded ratios, actual contributions compared to the actuarially determined ARC, and the actuarial and economic assumptions underlying the reported figures.

To improve comparability across states, Fitch adjusts the actuarial liabilities of pensions to reflect a 7% IRA, a level somewhat lower than the 8% or higher levels historically assumed by many plans. For cost-sharing multiple employer plans, which constitute the vast majority of state-sponsored plans, Fitch allocates a share of the system-wide liability to the state to reflect the portion of the plan's total obligation that is reported as the responsibility of the state. When not directly reported by the state, this allocation is estimated by Fitch based on the available pension data. Using these estimates, Fitch combines the adjusted unfunded pension obligations attributable to the state for all of its plans with the state's net tax-supported debt metric to provide a more comparable measure of the state's long-term liabilities.

In addition to reported plan data and Fitch-adjusted metrics incorporated in its review of pensions, Fitch also reviews the states' approach to managing pension liabilities. Since the severe market losses of 2008–2009, the vast majority of states have adopted reforms affecting benefits, assumptions, and contribution practices. In most cases, the salutary effect of reforms in improving plans' sustainability is not immediate and may be decades away. Nonetheless, Fitch views a proactive approach to managing pension challenges as a credit positive.

The GASB has announced new standards governing the accounting of pension systems (effective in fiscal years beginning after June 15, 2013) and governments providing defined benefit pensions (effective in fiscal years beginning after June 15, 2014). The new standards will materially change the data reported by plans including funded ratios, investment return assumptions, amortization of liabilities, and contributions. Fitch believes that, for the most part, the new statements will materially improve the availability, consistency, and comparability of plan data. Fitch has a few concerns about the standards, notably in the loss of a requirement to consistently report the ARC. Fitch expects to revisit its approach to analyzing pensions once the new standard is implemented.

Combined Metric for State Debt and Pensions

Median Level at 7% of Personal Income

As noted before, Fitch calculates a metric combining each state's net tax-supported debt and a share of the unfunded pension liability of statewide pension plans (adjusted by Fitch to reflect a 7% IRA) as a comparative measure of each state's long term liabilities (see Appendix A). Together these liabilities are measured against a states' personal income, which represents the resource base that will ultimately cover the obligations. The median level for states' combined net tax-supported debt plus unfunded pension liabilities measures 7.0% of 2012 personal income, with a low of 1.8% (for Tennessee) and a high of 24.8% (for Illinois) for states rated by Fitch. (See chart on page 3.)

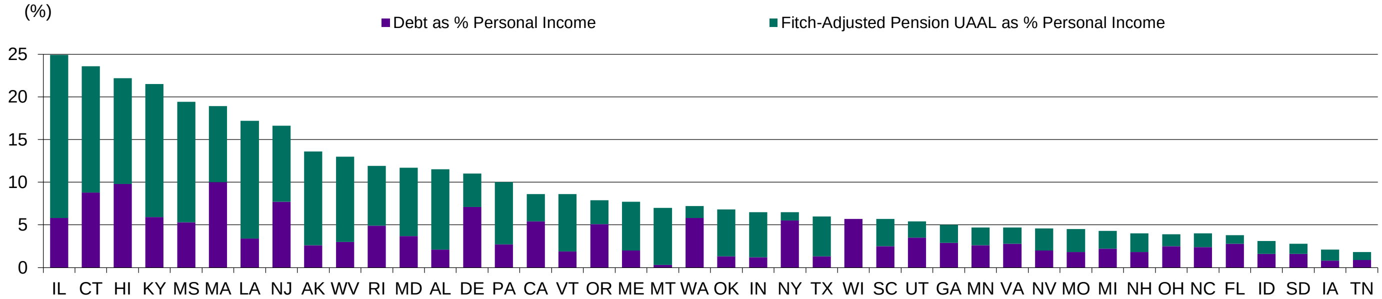
Related Criteria

Tax-Supported Rating Criteria (August 2012)

U.S. State Government Tax-Supported Rating Criteria (August 2012)

The wide range in the combined figure is primarily due to the wide variation in states' pension obligations. Much of the variation is tied to the plans' funded ratio condition. In addition, numerous states assume the pension obligations of (and directly pay the employer contributions for) groups of workers outside of direct state employment, most commonly including teachers employed by local school districts. The median unfunded pension burden is 3.6% of personal income, with the lowest unfunded pension obligation alone at 0.0% (for Wisconsin) and the highest obligation at 19.1% (for Illinois).

Net Tax-Supported Debt and Adjusted Pensions as a % of Personal Income



Source: Fitch.

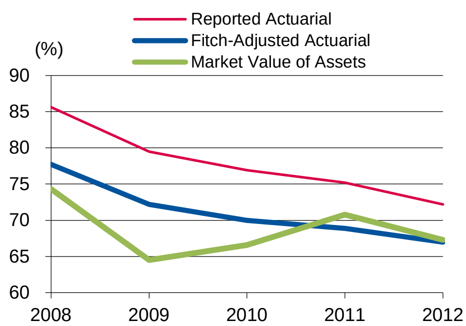
The median burden of net tax-supported debt alone is 2.7% of 2012 personal income, with a low of 0.9% (for Iowa) and a high of 10.0% (for Massachusetts). As with pensions, some states assume responsibility for the debt issuance needs of local entities, notably schools, contributing to the variations in net tax-supported debt.

Pension Systems' Funded Ratios Continue Declining

Pace of Decline Slows

The reported funded ratios for most major statewide pension plans continues to decline, although at a slower pace (see Appendix B), based on the most recently available data (2012 for most plans. Numerous factors are contributing to this decline including past market losses that are continuing to be smoothed into reported funded ratios, the impact of assumption changes (specifically lowering the IRA), and in some cases, the underfunding of annual contributions by states.

Comparative Funded Ratio Trends



Source: Fitch.

Because most pension systems use an asset smoothing mechanism (most commonly five years) to recognize changes in investment values relative to their assumed return, most are still absorbing the deep, recessionary losses of the 2008–2009 recession. Moreover, with uneven investment performance since then, plans' reported funded ratios have continued to decline. Investment performance in 2012 was relatively flat for most plans and well below the IRA assumed in their valuations, adding to downward pressure on actuarial funded ratios. For plans with a June 30 valuation date (the vast majority of plans), 2013 market values are expected to be well over the plans' IRA, providing a material offset to past losses.

Plans' funded ratios using market value of assets in most cases are below reported actuarial funded ratios, suggesting that the overhang of past underperformance yet to be incorporated into reported actuarial funded ratios remains considerable as of the plans' most recent valuation date (see Appendix C). This is particularly true for a handful of plans with anomalously long asset smoothing practices (such as CalPERS — although it also has announced significant actuarial changes since then). Plans with longer smoothing will face additional downward pressure for a longer period in the future. Other statewide plans with no smoothing (such as the statewide plans of Oregon and Idaho) have seen greater funded ratio volatility but have long since absorbed recessionary losses.

Reforms Affecting Some Funded Ratios

More than one-half of the 77 major statewide plans reviewed by Fitch have lowered their IRAs since the downturn (see Appendix D), which has the effect of increasing their liability for future benefits and reducing their reported funded ratios. Despite the negative impact on reported funded ratios, Fitch views a lower IRA as reflecting a more prudent approach to estimating the long-term asset performance of a plan and as evidence of a proactive management stance.

Plans' Investment Return Assumptions by Year

(% by Category)

	2008	2009	2010	2011	2012
8.25 ≥	32.5	29.9	26.0	19.5	11.8
8.00–8.24	33.8	37.7	36.4	32.5	23.7
7.75–7.95	15.6	15.6	18.2	18.2	26.3
7.50–7.74	14.3	14.3	15.6	20.8	30.3
7.00–7.49	3.9	2.6	3.9	7.8	5.3
< 7.00	—	—	—	1.3	2.6

Source: Fitch.

Other reforms have a beneficial effect on funded ratios trends. In a handful of cases, plan sponsors have reduced or eliminated a system's cost-of-living allowance (COLA), which lowers the liability for future benefits and immediately raises the funded ratios, often materially. (For example, the state of Oklahoma eliminated automatic COLAs in 2011.) Benefits for existing workers and retirees are typically considered contractual obligations or are protected by strong statutory or constitutional language, making these reforms difficult and subject to almost certain legal challenge. The vast majority of states have pursued reforms lowering benefits for future hires, which are much easier to enact, although the beneficial impact of such reforms will only manifest itself in pension metrics over decades as the plan's membership profile evolves.

ARC Funding Practices Largely Unchanged

The actuarially calculated ARC and whether governments' actual contribution matched it is an important measure of a state's commitment to extinguishing its unfunded liabilities in a reasonable timeframe. The contribution practices of states vary widely, with some consistently funding a full, actuarially calculated amount due either to longstanding practice or legal requirement. Other states appropriate a specific contribution based on a fixed percentage of payroll, regardless of the actuarially calculated needs of the plan.

In general, the ARC funding for major state plans has declined in recent years, although most states that have

Plans' ARC Funding by Year

(% by Category)

	2008	2009	2010	2011	2012
100 >	52.6	50.0	40.8	38.7	41.3
90–99.9	13.2	6.6	11.8	6.7	12.0
80–89.9	7.9	13.2	14.5	20.0	13.3
70–79.9	5.3	9.2	6.6	10.7	8.0
60–69.9	6.6	7.9	11.8	6.7	8.0
50–59.9	5.3	5.3	3.9	5.3	6.7
< 50	9.2	7.9	10.5	12.0	10.7

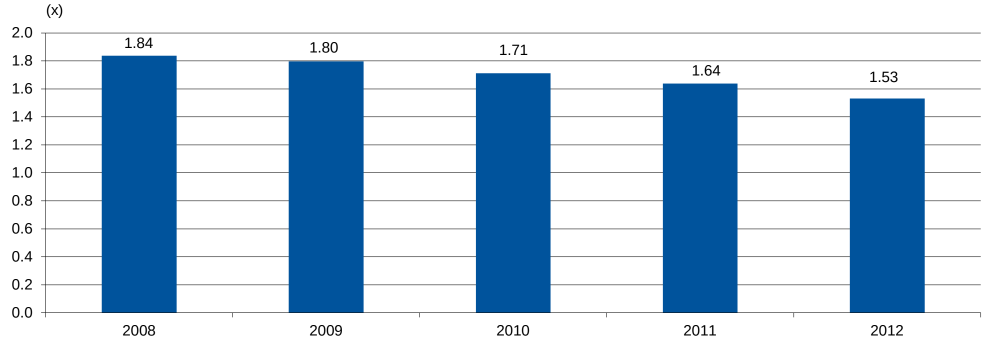
ARC – Annual required contribution.

historically fully funded their annual contributions continue to do so (see Appendix E). For some states, actual contribution levels may differ from the ARC due to the timing of actuarial valuations compared to budget decisions. Some states' past actions to provide multiyear contribution savings, often for budget relief, have accelerated the erosion of their funded ratios (examples include plans in Pennsylvania and New Jersey) and will lead to steep statutory contribution increases as the state reverses past contribution cuts. The plan's funded ratio continues to erode as the sponsoring state statutorily contributes an inadequate amount, often while deferring corrective measures (such as Illinois' plans).

A plan's actuarial assumption for amortizing its unfunded liability is an important factor in assessing state contribution practices. All else being equal, a rolling or lengthy fixed amortization period suggests a weaker commitment to reducing the plan's unfunded liability over time, compared to a declining fixed amortization period. This lengthy amortization period can result in plan funded ratios losing ground despite full ARC funding. Nevertheless, plans remain compliant with existing GASB accounting standards with rolling amortization up to 30 years.

Demographic Pressures, a Longer Term Challenge: The pressure posed by defined benefit pension obligations on state governments is likely to persist in part due to the demographic trends of most plans. By definition, a plan's future pension benefits are intended to be covered over time by its investment returns and the contributions of employees (for most plans) and employers. Given that employee contributions are fixed, the plan sponsor or participating government must shoulder the burden, through employer contributions, of ensuring sufficient resources to cover benefits.

Median Ratio of Actives to Retirees



Source: Fitch.

The growth of actuarially calculated ARCs stemming from investment underperformance is being aggravated by plan demographics. With the aging of the workforce, rising retirements (raising benefit draws) and flat to declining government employment (reducing employee contributions) means that government employers must bear more of the burden of correcting plan funded ratios through their annual contributions. The ratio of plans' active employees to retirees and beneficiaries has continued to decline, with many open plans moving toward having as many retirees as active employees (see Appendix F). Some governments have responded by expanding or implementing employee contributions (including for plans in California, Florida, and Virginia) to offset rising employer contributions.

Appendix A: Estimates of States' Net Tax-Supported Debt and Unfunded Pension Obligations as a Percentage of Personal Income[a]

($ Mil.)

State	Total Net Tax-Supported Debt[b]	Debt as % Personal Income	Rank (Low to High)	Reported Pension UAAL Allocation[c]	Fitch-Adjusted Pension UAAL Allocation[d]	Fitch-Adjusted Pension UAAL as % Personal Income[d]	Rank (Low to High)	Debt and Pension Allocation as % Personal Income	Rank (Low to High)
Alabama	3,575.9	2.1	14	12,200.2	16,227.6	9.4	34	11.5	30
Alaska	893.5	2.6	19	2,926.0	3,752.7	11.0	36	13.6	34
California [e]	91,916.2	5.4	32	46,600.9	56,473.2	3.3	21	8.7	27
Connecticut	18,630.9	8.8	40	24,546.0	31,215.5	14.8	40	23.6	41
Delaware	2,732.6	7.1	38	1,013.9	1,490.1	3.9	22	11.0	29
Florida	21,592.7	2.8	22	3,956.3	6,353.5	0.8	2	3.6	5
Georgia	10,563.7	2.9	24	6,080.9	7,544.9	2.1	13	5.0	14
Hawaii	5,842.6	9.5	41	6,330.7	7,610.5	12.4	37	21.9	40
Idaho	836.1	1.6	7	593.4	806.1	1.5	9	3.0	4
Illinois	33,318.5	5.8	35	94,581.7	109,951.0	19.1	42	24.8	42
Indiana[f]	2,924.3	1.2	4	13,322.2	13,322.2	5.5	24	6.7	20
Iowa	1,080.5	0.8	1	1,354.4	1,721.6	1.3	6	2.2	2
Kentucky	8,989.7	5.9	37	21,355.5	23,891.8	15.6	41	21.4	39
Louisiana	6,195.3	3.4	26	19,305.8	25,068.9	13.8	38	17.2	36
Maine	1,068.2	2.0	13	2,666.1	2,985.3	5.7	26	7.7	24
Maryland	11,252.4	3.7	28	19,868.6	24,336.7	8.0	31	11.6	31
Massachusetts	36,503.6	10.0	42	23,181.2	32,330.7	8.9	33	18.9	37
Michigan	8,022.0	2.2	15	5,988.0	7,832.9	2.1	14	4.3	9
Minnesota	6,555.8	2.6	20	3,090.1	5,339.1	2.1	15	4.8	13
Mississippi	5,243.8	5.3	31	11,005.6	13,885.4	14.1	39	19.4	38
Missouri	4,339.9	1.8	10	4,671.7	6,313.6	2.7	18	4.5	10
Montana	326.2	0.9	2	2,045.4	2,505.9	6.7	27	7.5	23
Nevada	2,047.1	2.0	12	1,933.6	2,665.5	2.6	17	4.6	11
New Hampshire	1,138.6	1.8	9	1,143.6	1,361.0	2.2	16	4.0	8
New Jersey	36,389.9	7.7	39	34,373.9	42,236.6	8.9	32	16.5	35
New York	55,619.0	5.5	33	6,201.2	9,733.8	1.0	4	6.4	19
North Carolina	8,573.1	2.4	16	3,875.9	5,605.1	1.6	10	3.9	6
Ohio	11,391.0	2.5	17	4,540.0	6,418.1	1.4	8	3.9	7
Oklahoma	1,922.7	1.3	5	6,621.5	8,235.9	5.5	25	6.8	21
Oregon	7,750.3	5.1	30	2,451.8	4,174.4	2.8	19	7.9	25
Pennsylvania	15,134.7	2.7	21	35,455.5	40,716.8	7.3	30	10.0	28
Rhode Island	2,335.8	4.9	29	2,915.6	3,296.3	7.0	29	11.9	32
South Carolina	4,126.0	2.5	18	4,385.8	5,132.5	3.2	20	5.7	16
South Dakota	581.8	1.6	8	248.9	423.6	1.2	5	2.8	3
Tennessee	2,189.7	0.9	3	1,554.6	2,285.3	0.9	3	1.8	1
Texas	14,434.5	1.4	6	31,636.5	50,926.9	4.7	23	6.0	18
Utah	3,434.1	3.5	27	1,511.5	1,855.3	1.9	11	5.4	15
Vermont	504.0	1.9	11	1,347.3	1,809.3	6.7	28	8.6	26
Virginia	10,781.8	2.8	23	7,325.7	7,325.7	1.9	12	4.7	12
Washington	18,114.5	5.8	36	3,060.3	4,268.9	1.4	7	7.1	22
West Virginia	1,890.8	3.0	25	5,579.3	6,367.2	10.0	35	12.9	33
Wisconsin	13,283.2	5.7	34	-	-	0.0	1	5.7	17
Median		**2.7**				**3.6**		**7.0**	
Low		**0.8**				**0.0**		**1.8**	
High		**10.0**				**19.1**		**24.8**	

[a]U.S. Bureau of Economic Analysis 2012 personal income by state as of March 27, 2013. [b]Net tax-supported debt based on most recent state bond disclosure documents. [c]Combined pension data by state is estimated by Fitch for all reported state pension plans whose liability is attributable to the state based on state-provided figures, and/or most recent state bond disclosure documents, state annual reports, pension system annual financial reports, and actuarial valuations. [d]Fitch-adjusted figures assume an 11% increase in actuarial liabilities for every 1% variance between 7% and the plan's investment return assumption. [e]Actuarial liability of California State Teachers Retirement System allocated to state is estimated by Fitch based on the share of state statutory contributions to all statutory contributions. [f]Includes the Indiana State Teachers Retirement System pre-1996 plan obligation, which was not intended to be pre-funded and is considered a pay-as-you-go plan.

Appendix B: Reported Plan Information

(As of Actuarial Valuation Dates[a])

Plan Name	Plan Type	Actuarial Valuation Date	2008 Funded Ratio (%)	2009 Funded Ratio (%)	2010 Funded Ratio (%)	2011 Funded Ratio (%)	2012 Funded Ratio (%)	UAAL – Latest Valuation ($ Mil.)
Alabama Employees Retirement System	AME	9/30	75.7	72.2	68.2	65.8	N.A.	4,910.6
Alabama Teachers Retirement System	CSME	9/30	77.6	74.7	71.1	67.5	N.A.	9,346.2
Alaska Public Employees' Retirement System	CSME	6/30	78.8	63.0	62.4	61.9	N.A.	4,156.9
Alaska Teachers' Retirement System	CSME	6/30	70.2	57.0	54.3	54.0	N.A.	2,850.2
California Public Employee Retirement Fund	AME	6/30	86.9	83.3	83.4	82.6	N.A.	57,178.0
California State Teachers' Retirement Fund	CSME	6/30	87.3	78.2	71.5	69.3	67.0	70,957.0
Connecticut State Employees Retirement System	SE	6/30	51.9	N.A.	44.4	47.9	42.3	13,273.8
Connecticut Teachers Retirement System	SE	6/30	70.0	N.A.	61.4	N.A.	55.2	11,127.4
Delaware State Employees	SE	6/30	103.1	98.8	96.0	94.0	91.5	679.4
Florida Retirement System	CSME	7/1	105.3	87.1	86.6	86.9	86.4	20,157.8
Georgia Employees' Retirement System	CSME	6/30	89.4	85.7	80.1	76.0	73.1	4,517.3
Georgia Teachers Retirement System	CSME	6/30	91.9	89.9	85.7	84.0	82.3	12,086.3
Hawaii Employees' Retirement Plan	CSME	6/30	68.8	64.6	61.4	59.4	59.2	8,440.9
Idaho Public Employee Retirement Fund	CSME	7/1	93.3	74.1	78.9	90.2	84.7	2,043.5
Illinois State Employees Retirement System	SE	6/30	46.1	43.5	37.4	35.5	34.7	21,613.9
Illinois State Universities Retirement System	CSME	6/30	58.5	54.3	46.4	44.3	42.1	19,220.3
Illinois Teachers' Retirement System	CSME	6/30	56.0	52.1	48.4	46.5	42.1	52,079.5
Indiana Public Employees Retirement Fund	AME	6/30	97.5	93.1	85.2	80.5	76.6	3,696.0
Indiana State Teachers' Retirement System	CSME	6/30	48.2	41.9	44.3	43.8	42.7	11,945.8
Iowa Public Employees' Retirement System	CSME	6/30	89.1	81.2	81.4	79.9	79.9	5,916.1
Kentucky Employees Retirement System-Non Hazardous	CSME	6/30	52.5	45.0	38.3	33.3	27.3	8,259.7
Kentucky Teachers' Retirement System	CSME	6/30	68.2	63.6	61.0	57.4	54.5	12,282.5
Louisiana State Employees Retirement System	SE	6/30	67.6	60.8	57.7	57.6	55.9	7,131.5
Teachers Retirement System of Louisiana	CSME	6/30	70.2	59.1	54.4	55.1	55.4	10,955.7
Maine Public Employees Retirement System	AME	6/30	79.7	72.6	70.4	80.2	79.1	2,935.2
Maryland Employees Retirement & Pension System	CSME	6/30	77.2	63.9	62.8	62.8	62.5	7,615.4
Maryland Teachers Retirement & Pension System	CSME	6/30	79.6	66.1	65.4	66.3	65.8	11,728.7
Massachusetts State Employees Retirement System	SE	1/1	89.4	71.6	76.5	81.0	73.8	7,277.1
Massachusetts Teachers Retirement System	SE	1/1	73.9	58.2	63.0	66.3	60.7	14,341.6
Michigan Public School Employees' Retirement System	CSME	9/30	83.6	78.9	71.1	64.7	N.A.	22,389.0
Michigan State Employees' Retirement System	SE	9/30	82.8	78.0	72.6	65.5	N.A.	5,385.0
Minnesota General Employees Retirement Fund	CSME	6/30	73.6	70.0	76.4	75.2	73.5	4,937.2
Minnesota State Employees Retirement Fund	CSME	7/1	90.2	85.9	87.3	86.3	82.7	1,920.9
Minnesota Teachers Retirement Fund	CSME	7/1	82.0	77.4	78.5	77.3	73.0	6,219.4
Mississippi Public Employees' Retirement System	CSME	6/30	72.9	67.3	64.2	62.2	58.0	14,500.1
Missouri Dept. of Transportation & Hwy. Patrol Emp. Ret. Sys.	SE	6/30	59.1	47.3	42.2	43.3	46.3	1,775.2
Missouri State Employees' Plan	SE	6/30	85.9	83.0	80.4	79.2	73.2	2,896.5
Montana Public Employees Retirement System	CSME	6/30	90.2	83.5	74.2	70.2	67.4	1,844.4
Montana Teachers Retirement System	CSME	7/1	79.9	66.2	65.4	61.5	59.2	1,962.7
Nevada Public Employees' Retirement System	CSME	6/30	76.2	72.5	70.5	70.2	71.0	11,205.9
New Hampshire Retirement System	CSME	6/30	67.8	58.3	58.5	57.4	56.1	4,543.7
New Jersey Police & Fireman's Retirement System – State & Local	CSME	6/30	74.3	70.8	77.1	74.5	74.3	8,157.5
New Jersey Public Employees' Retirement System – State & Local	CSME	6/30	73.1	64.9	69.5	67.3	63.6	16,506.1
New Jersey Teachers' Pension & Annuity Fund	CSME	7/1	70.8	63.8	67.1	62.8	59.3	21,423.2
New York State & Local Employees' Retirement System	CSME	4/1	107.3	101.0	93.9	90.2	N.A.	13,692.0
New York State & Local Police & Fire Retirement System	CSME	4/1	108.0	103.8	96.7	91.9	N.A.	1,964.0
North Carolina Teachers' & State Employees' Retirement System	CSME	12/31	99.3	95.9	95.4	94.0	N.A.	3,721.7
Ohio Public Employees Retirement System	CSME	12/31	75.3	75.3	79.1	77.4	N.A.	19,051.0
Ohio State Teachers Retirement System	CSME	6/30	79.1	60.0	59.1	58.8	56.0	46,812.3
Oklahoma Public Employees Retirement System	CSME	6/30	73.0	66.8	66.0	80.7	80.2	1,652.4
Oklahoma Teachers' Retirement System	CSME	6/30	50.5	49.8	47.9	56.7	54.8	8,397.5
Oregon Public Employees Retirement System	CSME	12/31	80.2	85.8	86.9	82.0	N.A.	11,030.2

[a]The funded ratios shown are based on the reported actuarial valuation date of each plan rather than the financial statement date. CSME – Cost-sharing multi-employer. AME – Agent multiple employer. SE – Single employer. N.A. – Not available.

Appendix B: Reported Plan Information (continued)

(As of Actuarial Valuation Dates[a])

Plan Name	Plan Type	Actuarial Valuation Date	2008 Funded Ratio (%)	2009 Funded Ratio (%)	2010 Funded Ratio (%)	2011 Funded Ratio (%)	2012 Funded Ratio (%)	UAAL – Latest Valuation ($ Mil.)
Pennsylvania Public School Employees' Retirement System	CSME	6/30	86.0	79.2	75.1	69.1	66.3	29,533.0
Pennsylvania State Employees Retirement System	CSME	12/31	89.0	84.4	75.2	65.3	58.8	17,752.9
Rhode Island Employees Retirement System-State Employees	CSME	6/30	62.3	59.0	59.8	57.4	56.3	1,876.1
Rhode Island Employees Retirement System-Teachers	CSME	6/30	61.0	58.1	61.8	59.7	58.8	2,626.8
South Carolina Police Officers Retirement System	CSME	7/1	77.9	76.3	74.5	72.8	N.A.	1,394.3
South Carolina Retirement System	CSME	7/1	69.3	67.8	65.5	67.4	N.A.	12,406.8
South Dakota Retirement System	CSME	6/30	97.2	91.8	96.3	96.4	92.6	625.0
Tennessee State Emp., Teachers & Higher Ed. Emp. Pension Plan	CSME	7/1	N.A.	90.6	N.A.	92.1	N.A.	2,589.4
Texas Employees Retirement System	SE	8/31	92.6	89.8	85.4	84.5	82.6	5,104.6
Texas Teacher Retirement System	SE	8/31	90.5	83.1	82.9	82.7	81.9	26,101.0
Utah Noncontributory Retirement System	CSME	1/1	86.5	85.7	82.7	79.0	76.1	5,353.3
Utah Public Safety Retirement System	CSME	1/1	81.6	80.6	77.1	75.4	73.0	845.3
Vermont State Retirement System	SE	6/30	94.1	78.9	81.2	79.6	77.7	401.8
Vermont State Teachers' Retirement System	CSME	6/30	80.9	65.4	66.5	63.8	61.6	945.5
Virginia Law Officers' Retirement System	SE	6/30	68.1	64.7	58.6	55.0	N.A.	757.0
Virginia Retirement System	CSME	6/30	84.0	80.2	72.4	69.9	N.A.	22,626.0
Washington Law Enf. Officers & Fire Fighters Ret. Sys. – Plan 1	CSME	6/30	128.4	125.4	126.9	134.6	N.A.	(1,430.3)
Washington Law Enf. Officers & Fire Fighters Ret. Sys. – Plan 2	CSME	6/30	133.5	127.9	119.0	118.7	N.A.	(1,044.0)
Washington Public Employees Retirement System – Plan 1	CSME	6/30	70.9	69.9	74.1	70.7	N.A.	3,684.0
Washington Public Employees Retirement System – Plan 2/3	CSME	6/30	119.0	116.0	113.0	112.0	N.A.	(2,182.0)
Washington Teachers Retirement System – Plan 1	CSME	6/30	76.8	75.3	84.4	81.1	N.A.	1,773.0
Washington Teachers Retirement System – Plan 2/3	CSME	6/30	125.0	118.0	116.0	113.0	N.A.	(842.0)
West Virginia Public Employees' Retirement System	CSME	6/30	84.2	79.7	74.6	78.4	77.6	1,283.4
West Virginia Teachers' Retirement System	CSME	6/30	50.0	41.3	46.5	53.7	53.0	4,568.2
Wisconsin Retirement System	CSME	12/31	99.7	99.8	99.8	99.9	N.A.	99.3

[a]The funded ratios shown are based on the reported actuarial valuation date of each plan rather than the financial statement date. CSME – Cost-sharing multi-employer. AME – Agent multiple employer. SE – Single employer. N.A. – Not applicable.

Appendix C: Comparative Funded Ratios

(As of Most Recent Actuarial Valuation Date)

Plan Name	Actuarial Valuation Date	Reported Actuarial Funded Ratio (%)	Market Value of Assets Funded Ratio (%)[a]	Actuarial Funded Ratio with 7% Liability Adjustment (%)
Alabama Employees Retirement System	9/30/11	65.8	63.1	59.3
Alabama Teachers Retirement System	9/30/11	67.5	55.3	60.8
Alaska Public Employees' Retirement System	6/30/11	61.9	55.0	55.8
Alaska Teachers' Retirement System	6/30/11	54.0	47.5	48.6
California Public Employee Retirement Fund	6/30/11	82.6	71.2	78.3
California State Teachers' Retirement Fund	6/30/12	67.1	70.0	63.6
Connecticut State Employees Retirement System	6/30/12	42.3	36.8	38.1
Connecticut Teachers Retirement System	6/30/12	55.2	54.2	47.4
Delaware State Employees	6/30/12	91.5	80.8	86.7
Florida Retirement System	7/01/12	86.4	85.7	79.8
Georgia Employees' Retirement System	6/30/12	73.1	69.3	69.3
Georgia Teachers Retirement System	6/30/12	82.3	76.6	78.0
Hawaii Employees' Retirement Plan	6/30/12	59.2	54.9	54.7
Idaho Public Employee Retirement Fund	7/01/12	84.7	85.6	80.3
Illinois State Employees Retirement System	6/30/12	34.7	32.3	32.0
Illinois State Universities Retirement System	6/30/12	42.1	40.1	38.9
Illinois Teachers' Retirement System	6/30/12	42.1	40.9	38.0
Indiana Public Employees Retirement Fund	6/30/12	76.6	76.8	78.7
Indiana State Teachers' Retirement System	6/30/12	42.7	43.2	43.9
Iowa Public Employees' Retirement System	6/30/12	79.9	78.7	75.7
Kentucky Employees Retirement System-Non Hazardous	6/30/12	27.3	25.0	25.2
Kentucky Teachers' Retirement System	6/30/12	54.5	54.5	51.6
Louisiana State Employees Retirement System	6/30/12	55.9	57.6	49.1
Teachers Retirement System of Louisiana	6/30/12	55.4	56.7	48.7
Maine Public Employees Retirement System	6/30/12	79.1	74.2	76.9
Maryland Employees Retirement & Pension System	6/30/12	62.5	59.7	57.7
Maryland Teachers Retirement & Pension System	6/30/12	65.8	63.0	60.7
Massachusetts State Employees Retirement System	1/01/12	73.8	69.3	64.9
Massachusetts Teachers Retirement System	1/01/12	60.7	56.9	53.4
Michigan Public School Employees' Retirement System	9/30/11	64.7	60.3	58.3
Michigan State Employees' Retirement System	9/30/11	65.5	59.9	59.0
Minnesota General Employees Retirement Fund	6/30/12	73.5	72.9	63.1
Minnesota State Employees Retirement Fund	7/01/12	82.7	74.0	71.0
Minnesota Teachers Retirement Fund	7/01/12	73.0	71.0	63.6
Mississippi Public Employees' Retirement System	6/30/12	58.0	55.5	52.2
Missouri Dept. of Transportation & Hwy. Patrol Emp. Ret. Sys.	6/30/12	46.3	46.4	40.7
Missouri State Employees' Plan	6/30/12	73.2	61.8	65.9
Montana Public Employees Retirement System	6/30/12	67.4	68.5	62.3
Montana Teachers Retirement System	7/01/12	59.2	59.7	54.7
Nevada Public Employees' Retirement System	6/30/12	71.0	65.7	63.9
New Hampshire Retirement System	6/30/12	56.1	54.8	51.9
New Jersey Police & Fireman's Retirement System – State & Local	6/30/12	74.3	61.7	67.6
New Jersey Public Employees' Retirement System – State & Local	6/30/12	63.6	52.6	57.9
New Jersey Teachers' Pension & Annuity Fund	7/01/12	59.3	47.9	54.0
New York State & Local Employees' Retirement System	04/01/11	90.2	91.3	85.5
New York State & Local Police & Fire Retirement System	04/01/11	91.9	94.0	87.1
North Carolina Teachers' & State Employees' Retirement System	12/31/11	94.0	89.0	91.5
Ohio Public Employees Retirement System	12/31/11	77.4	76.3	69.7
Ohio State Teachers Retirement System	7/01/12	56.0	54.6	51.7
Oklahoma Public Employees Retirement System	7/01/12	80.2	63.3	76.0
Oklahoma Teachers' Retirement System	6/30/12	54.8	53.4	49.4
Oregon Public Employees Retirement System	12/31/11	82.0	86.0	73.9

[a]Market value excludes securities lending collateral.

Appendix C: Comparative Funded Ratios (continued)

(As of Most Recent Actuarial Valuation Date)

Plan Name	Actuarial Valuation Date	Reported Actuarial Funded Ratio (%)	Market Value of Assets Funded Ratio (%)[a]	Actuarial Funded Ratio with 7% Liability Adjustment (%)
Pennsylvania Public School Employees' Retirement System	6/30/12	66.3	55.1	62.9
Pennsylvania State Employees Retirement System	12/31/12	58.8	55.7	55.7
Rhode Island Employees Retirement System-State Emp. & Teachers	6/30/11	58.8	56.2	54.8
South Carolina Police Officers Retirement System	7/01/11	72.8	59.0	69.0
South Carolina Retirement System	7/01/11	67.4	53.4	63.8
South Dakota Retirement System	6/30/12	92.6	93.1	87.8
Tennessee State Emp., Teachers & Higher Ed. Emp. Pension Plan	7/01/11	92.1	85.6	87.3
Texas Employees Retirement System	8/31/12	82.6	71.9	74.4
Texas Teacher Retirement System	8/31/12	81.9	76.2	73.8
Utah Noncontributory Retirement System	1/01/13	76.1	81.4	72.1
Utah Public Safety Retirement System	1/01/13	73.0	78.1	69.2
Vermont State Retirement System	6/30/12	77.7	76.0	69.3
Vermont State Teachers' Retirement System	6/30/12	61.6	60.2	56.1
Virginia Law Officers' Retirement System	6/30/11	55.0	53.5	55.0
Virginia Retirement System	6/30/11	69.9	67.1	69.9
Washington Law Enf. Officers & Fire Fighters Ret. Sys. – Plan 1	6/30/11	134.6	118.8	122.5
Washington Law Enf. Officers & Fire Fighters Ret. Sys. – Plan 2	6/30/11	118.7	119.0	112.6
Washington Public Employees Retirement System – Plan 1	6/30/11	70.7	58.8	64.3
Washington Public Employees Retirement System – Plan 2/3	6/30/11	112.0	95.6	88.3
Washington Teachers Retirement System – Plan 1	6/30/11	81.1	67.2	73.8
Washington Teachers Retirement System – Plan 2/3	6/30/11	113.0	98.3	90.3
West Virginia Public Employees' Retirement System	6/30/12	77.6	75.9	73.6
West Virginia Teachers' Retirement System	6/30/12	53.0	56.2	50.2
Wisconsin Retirement System	12/31/11	99.9	N.A.	97.7

[a]Market value excludes securities lending collateral. N.A. – Not applicable.

Appendix D: Investment Return Assumption Changes

(Fiscal Years)

Plan Name	2008 IRA (%)	2012 IRA (%)
Alabama Employees Retirement System	8.00	8.00
Alabama Teachers Retirement System	8.00	8.00
Alaska Public Employees' Retirement System	8.25	8.00
Alaska Teachers' Retirement System	8.25	8.00
California Public Employee Retirement Fund	7.75	7.50
California State Teachers' Retirement Fund	8.00	7.50
Connecticut State Employees Retirement System	8.25	8.00
Connecticut Teachers Retirement System	8.50	8.50
Delaware State Employees	8.00	7.50
Florida Retirement System	7.75	7.75
Georgia Employees' Retirement System	7.50	7.50
Georgia Teachers Retirement System	7.50	7.50
Hawaii Employees' Retirement Plan	8.00	7.75
Idaho Public Employee Retirement Fund	7.75	7.50
Illinois State Employees Retirement System	8.50	7.75
Illinois State Universities Retirement System	8.50	7.75
Illinois Teachers' Retirement System	8.50	8.00
Indiana Public Employees Retirement Fund	7.25	6.75
Indiana State Teachers' Retirement System	7.50	6.75
Iowa Public Employees' Retirement System	7.50	7.50
Kentucky Employees Retirement System-Non Hazardous	7.75	7.75
Kentucky Teachers' Retirement System	7.50	7.50
Louisiana State Employees Retirement System	8.25	8.25
Teachers Retirement System of Louisian[a]	8.25	8.25
Maine Public Employees Retirement System	7.75	7.25
Maryland Employees Retirement & Pension System	7.75	7.75
Maryland Teachers Retirement & Pension System	7.75	7.75
Massachusetts State Employees Retirement System	8.25	8.25
Massachusetts Teachers Retirement System	8.25	8.25
Michigan Public School Employees' Retirement System	8.00	8.00
Michigan State Employees' Retirement System	8.00	8.00
Minnesota General Employees Retirement Fund	8.50	8.50
Minnesota State Employees Retirement Fund[a]	8.50	8.50
Minnesota Teachers Retirement Fund[a]	8.50	8.35
Mississippi Public Employees' Retirement System	8.00	8.00
Missouri Dept. of Transportation & Hwy. Patrol Emp. Ret. Sys.	8.25	8.25
Missouri State Employees' Plan	8.50	8.00
Montana Public Employees Retirement System	8.00	7.75
Montana Teachers Retirement System	7.75	7.75
Nevada Public Employees' Retirement System	8.00	8.00
New Hampshire Retirement System	8.50	7.75
New Jersey Police & Fireman's Retirement System – State & Local	8.25	7.90
New Jersey Public Employees' Retirement System – State & Local	8.25	7.90
New Jersey Teachers' Pension & Annuity Fund	8.25	7.90
New York State & Local Employees' Retirement System	8.00	7.50
New York State & Local Police & Fire Retirement System	8.00	7.50
North Carolina Teachers' & State Employees' Retirement System	7.25	7.25
Ohio Public Employees Retirement System[b]	8.00	8.00
Ohio State Teachers Retirement System	8.00	7.75
Oklahoma Public Employees Retirement System	7.50	7.50
Oklahoma Teachers' Retirement System	8.00	8.00
Oregon Public Employees Retirement System	8.00	8.00
Pennsylvania Public School Employees' Retirement System	8.25	7.50
Pennsylvania State Employees Retirement System	8.50	7.50

[a]System uses multiple rates; in cases without a reported single blended rate, highest rate shown. [b]Most recent data as of 2011.

Appendix D: Investment Return Assumption Changes (continued)

(Fiscal Years)

Plan Name	2008 IRA (%)	2012 IRA (%)
Rhode Island Employees Retirement System-State Employees	8.25	7.50
Rhode Island Employees Retirement System-Teachers	8.25	7.50
South Carolina Police Officers Retirement System	7.25	7.50
South Carolina Retirement System	7.25	7.50
South Dakota Retirement System	7.75	7.50
Tennessee State Emp., Teachers & Higher Ed. Emp. Pension Plan	7.50	7.50
Texas Employees Retirement System	8.00	8.00
Texas Teacher Retirement System	8.00	8.00
Utah Noncontributory Retirement System	7.75	7.50
Utah Public Safety Retirement System	7.75	7.50
Vermont State Retirement System	8.25	8.10
Vermont State Teachers' Retirement System	8.25	7.90
Virginia Law Officers' Retirement System	7.50	7.00
Virginia Retirement System	7.50	7.00
Washington Law Enf. Officers & Fire Fighters Ret. Sys. – Plan 1	8.00	7.90
Washington Law Enf. Officers & Fire Fighters Ret. Sys. – Plan 2	8.00	7.50
Washington Public Employees Retirement System – Plan 1	8.00	7.90
Washington Public Employees Retirement System – Plan 2/3	8.00	7.90
Washington Teachers Retirement System – Plan 1	8.00	7.90
Washington Teachers Retirement System – Plan 2/3	8.00	7.90
West Virginia Public Employees' Retirement System	7.50	7.50
West Virginia Teachers' Retirement System	7.50	7.50
Wisconsin Retirement System[a b]	7.80	5.50

[a]System uses multiple rates; in cases without a reported single blended rate, highest rate shown. [b]Most recent data as of 2011

Appendix E: Percentage of ARC Funded and Remaining Amortization

Plan Name	2008 % ARC Funded	2012 % ARC Funded	2012 Remaining Amortization Period in Years[a]
Alabama Employees Retirement System	100.0	100.0	30
Alabama Teachers Retirement System	100.0	100.0	30
Alaska Public Employees' Retirement System	77.3	92.7	18
Alaska Teachers' Retirement System	106.0	84.6	18
California Public Employee Retirement Fund	100.0	100.0	25
California State Teachers' Retirement Fund	65.7	45.8	30
Connecticut State Employees Retirement System	99.2	100.0	19
Connecticut Teachers Retirement System	485.7	100.0	22
Delaware State Employees	100.0	100.0	20
Florida Retirement System	107.0	60.0	30
Georgia Employees' Retirement System	100.0	100.0	30
Georgia Teachers Retirement System	100.0	100.0	30
Hawaii Employees' Retirement Plan	95.7	83.7	30
Idaho Public Employee Retirement Fund	108.7	84.5	25
Illinois State Employees Retirement System	59.6	86.2	30
Illinois State Universities Retirement System	48.8	68.3	30
Illinois Teachers' Retirement System	60.0	74.6	30
Indiana Public Employees Retirement Fund	104.3	78.1	30
Indiana State Teachers' Retirement System	101.0	90.9	30
Iowa Public Employees' Retirement System	87.2	98.2	30
Kentucky Employees Retirement System-Non Hazardous	39.5	48.7	25
Kentucky Teachers' Retirement System	83.0	73.5	30
Louisiana State Employees Retirement System	115.4	89.3	30
Teachers Retirement System of Louisiana	116.2	100.0	30
Maine Public Employees Retirement System	100.0	100.1	16
Maryland Employees Retirement & Pension System	75.8	65.9	25
Maryland Teachers Retirement & Pension System	93.6	71.2	25
Massachusetts State Employees Retirement System	124.6	83.7	29
Massachusetts Teachers Retirement System	107.9	90.2	29
Michigan Public School Employees' Retirement System	110.5	83.4	25
Michigan State Employees' Retirement System	115.5	71.1	25
Minnesota General Employees Retirement Fund	81.0	99.1	19
Minnesota State Employees Retirement Fund	58.2	80.7	28
Minnesota Teachers Retirement Fund	82.6	66.4	25
Mississippi Public Employees' Retirement System	97.0	100.0	30
Missouri Dept. of Transportation & Hwy. Patrol Emp. Ret. Sys.	100.0	100.0	20
Missouri State Employees' Plan	100.0	100.0	30
Montana Public Employees Retirement System[c]	106.0	53.7	N.A.
Montana Teachers Retirement System[c]	87.4	81.9	N.A.
Nevada Public Employees' Retirement System	93.0	96.0	20
New Hampshire Retirement System	75.0	100.0	24
New Jersey Police & Fireman's Retirement System – State & Local	81.3	66.8	30
New Jersey Public Employees' Retirement System – State & Local	56.5	51.9	30
New Jersey Teachers' Pension & Annuity Fund	44.8	14.0	30
New York State & Local Employees' Retirement System	100.0	100.0	N.A.
New York State & Local Police & Fire Retirement System	100.0	100.0	N.A.
North Carolina Teachers' & State Employees' Retirement System	99.0	100.0	12
Ohio Public Employees Retirement System[b]	100.0	100.0	30
Ohio State Teachers Retirement System	100.0	41.0	30
Oklahoma Public Employees Retirement System	60.5	109.4	15
Oklahoma Teachers' Retirement System	101.1	115.9	30
Oregon Public Employees Retirement System[b]	74.0	83.0	30
Pennsylvania Public School Employees' Retirement System	40.7	38.1	30
Pennsylvania State Employees Retirement System[a]	39.9	42.8	30

[a]For plans with a range of amortization, longest amortization period shown. [b]ARC funding corresponds to pension fiscal year, not state fiscal year. [c]Excludes reforms subsequent to valuation date [d]Most recent data as of fiscal 2010.

Appendix E: Percentage of ARC Funded and Remaining Amortization (continued)

Plan Name	2008 % ARC Funded	2012 % ARC Funded	2012 Remaining Amortization Period in Years[a]
Rhode Island Employees Retirement System-State Employees	100.0	100.0	24
Rhode Island Employees Retirement System-Teachers	100.0	100.0	24
South Carolina Police Officers Retirement System	100.0	100.0	30
South Carolina Retirement System	100.0	100.0	25
South Dakota Retirement System	100.0	100.0	29
Tennessee State Emp., Teachers & Higher Ed. Emp. Pension Plan	100.0	100.0	9
Texas Employees Retirement System	90.3	49.2	30
Texas Teacher Retirement System	102.0	74.0	30
Utah Noncontributory Retirement System	100.0	100.0	22
Utah Public Safety Retirement System	100.0	100.0	22
Vermont State Retirement System	92.5	140.2	26
Vermont State Teachers' Retirement System	100.5	109.6	26
Virginia Law Officers' Retirement System	91.2	44.3	30
Virginia Retirement System	92.6	59.6	30
Washington Law Enf. Officers & Fire Fighters Ret. Sys. – Plan 1	N.A.	N.A.	13
Washington Law Enf. Officers & Fire Fighters Ret. Sys. – Plan 2	120.0	83.0	N.A.
Washington Public Employees Retirement System – Plan 1	49.0	51.0	10
Washington Public Employees Retirement System – Plan 2/3	87.7	95.0	N.A.
Washington Teachers Retirement System – Plan 1	38.0	44.0	10
Washington Teachers Retirement System – Plan 2/3	52.4	92.0	N.A.
West Virginia Public Employees' Retirement System	102.1	105.3	23
West Virginia Teachers' Retirement System	110.1	105.3	22
Wisconsin Retirement System[d]	105.0	108.0	19

[a]For plans with a range of amortization, longest amortization period shown. [b]ARC funding corresponds to pension fiscal year, not state fiscal year. [c]Excludes reforms subsequent to valuation date [d]Most recent data as of fiscal 2010. N.A. – Not applicable.

Appendix F: Ratio of Active Members to Retirees and Beneficiaries

Plan Name	2008	2012[a]
Alabama Employees Retirement System	2.42	2.04
Alabama Teachers Retirement System	2.03	1.69
Alaska Public Employees' Retirement System [b]	1.36	0.89
Alaska Teachers' Retirement System [b]	0.94	0.66
California Public Employee Retirement Fund	2.05	1.65
California State Teachers' Retirement Fund	2.11	1.61
Connecticut State Employees Retirement System	1.40	1.09
Connecticut Teachers Retirement System	1.80	1.54
Delaware State Employees	1.72	1.55
Florida Retirement System	2.49	1.87
Georgia Employees' Retirement System	2.13	1.52
Georgia Teachers Retirement System	2.86	2.20
Hawaii Employees' Retirement Plan	1.84	1.61
Idaho Public Employee Retirement Fund	2.16	1.76
Illinois State Employees Retirement System	1.09	1.00
Illinois State Universities Retirement System	1.61	1.30
Illinois Teachers' Retirement System	1.81	1.54
Indiana Public Employees Retirement Fund	2.30	1.99
Indiana State Teachers' Retirement System	1.84	1.41
Iowa Public Employees' Retirement System	1.92	1.61
Kentucky Employees Retirement System – Non Hazardous	1.36	1.16
Kentucky Teachers' Retirement System	1.85	1.65
Louisiana State Employees Retirement System	1.64	1.23
Teachers Retirement System of Louisiana[b]	1.43	1.20
Maine Public Employees Retirement System	1.50	1.31
Maryland Employees Retirement & Pension System	1.62	1.32
Maryland Teachers Retirement & Pension System	1.96	1.63
Massachusetts State Employees Retirement System	1.70	1.58
Massachusetts Teachers Retirement System	1.79	1.51
Michigan Public School Employees' Retirement System[b]	1.67	1.14
Michigan State Employees' Retirement System[b]	0.59	0.32
Minnesota General Employees Retirement Fund	2.25	1.84
Minnesota State Employees Retirement Fund	1.85	1.51
Minnesota Teachers Retirement Fund	1.63	1.38
Mississippi Public Employees' Retirement System	2.25	1.87
Missouri Dept. of Transportation & Hwy. Patrol Emp. Ret. Sys.	1.20	1.10
Missouri State Employees' Plan	1.80	1.38
Montana Public Employees Retirement System	1.70	1.52
Montana Teachers Retirement System	1.55	1.37
Nevada Public Employees' Retirement System	2.78	1.99
New Hampshire Retirement System	2.23	1.96
New Jersey Police & Fireman's Retirement System – State & Local	1.42	1.10
New Jersey Public Employees' Retirement System – State & Local	2.47	1.84
New Jersey Teachers' Pension & Annuity Fund	1.90	1.68
New York State & Local Employees' Retirement System	1.61	1.36
New York State & Local Police & Fire Retirement System	1.13	0.98
North Carolina Teachers' & State Employees' Retirement System	2.32	1.85
Ohio Public Employees Retirement System	2.25	1.83
Ohio State Teachers Retirement System	1.37	1.21
Oklahoma Public Employees Retirement System	1.73	1.41
Oklahoma Teachers' Retirement System	1.96	1.67
Oregon Public Employees Retirement System	1.56	1.42
Pennsylvania Public School Employees' Retirement System	1.57	1.43
Pennsylvania State Employees Retirement System	1.03	0.91

[a]Based on fiscal 2012 financial statement or actuarial valuation data, with exception of Wisconsin Retirement System. Calculation excludes terminated members not yet receiving benefits. [b]Plans closed.

Appendix F: Ratio of Active Members to Retirees and Beneficiaries (continued)

Plan Name	2008	2012[a]
Rhode Island Employees Retirement System State Emp. & Teachers	1.39	1.14
South Carolina Police Officers Retirement System	2.40	1.77
South Carolina Retirement System	1.86	1.52
South Dakota Retirement System	1.95	1.71
Tennessee State Employees, Teachers & Higher Education Employees Pension Plan	1.93	1.63
Texas Employees Retirement System	1.85	1.51
Texas Teacher Retirement System	3.36	2.86
Utah Noncontributory Retirement System	2.95	2.03
Utah Public Safety Retirement System	2.10	1.70
Vermont State Retirement System	1.85	1.41
Vermont State Teachers' Retirement System	1.92	1.39
Virginia Law Officers' Retirement System	5.69	3.28
Virginia Retirement System	2.50	2.09
Washington Law Enf. Officers & Fire Fighters Ret. Sys. – Plan 1[b]	0.06	0.03
Washington Law Enf. Officers & Fire Fighters Ret. Sys. – Plan 2	17.42	8.34
Washington Public Employees Retirement System – Plan 1[b]	0.24	0.15
Washington Public Employees Retirement System – Plan 2/3	8.76	5.54
Washington Teachers Retirement System – Plan 1[b]	0.18	0.10
Washington Teachers Retirement System – Plan 2/3	21.65	11.17
West Virginia Public Employees' Retirement System	1.75	1.59
West Virginia Teachers' Retirement System	0.70	1.16
Wisconsin Retirement System[c]	1.84	1.54

[a]Based on fiscal 2012 financial statement or actuarial valuation data, with exception of Wisconsin Retirement System. Calculation excludes terminated members not yet receiving benefits. [b]Plans closed. [c]Most recent data as of 2010.