



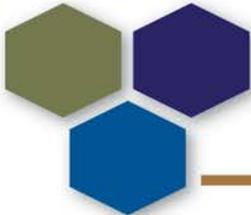
TEACHERS' RETIREMENT SYSTEM OF OKLAHOMA

Actuarial Valuation
as of June 30, 2013

Presented by Mark Randall & Ryan Falls
on October 23, 2013

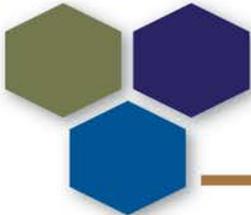
GRS

Gabriel Roeder Smith & Company
Consultants & Actuaries
www.gabrielroeder.com



Actuarial Valuation

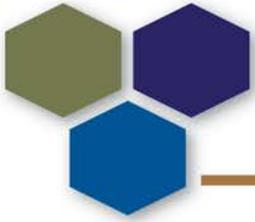
- ◆ Prepared as of June 30, 2013, using member data, financial data, benefit and contribution provisions, actuarial assumptions and methods
- ◆ Purposes:
 - ▶ Measure the System's actuarial liabilities
 - ▶ Determine adequacy of current statutory contributions
 - ▶ Provide other information for reporting
 - GASB #25
 - CAFR
 - ▶ Explain changes in the actuarial condition of OTRS
 - ▶ Track changes over time



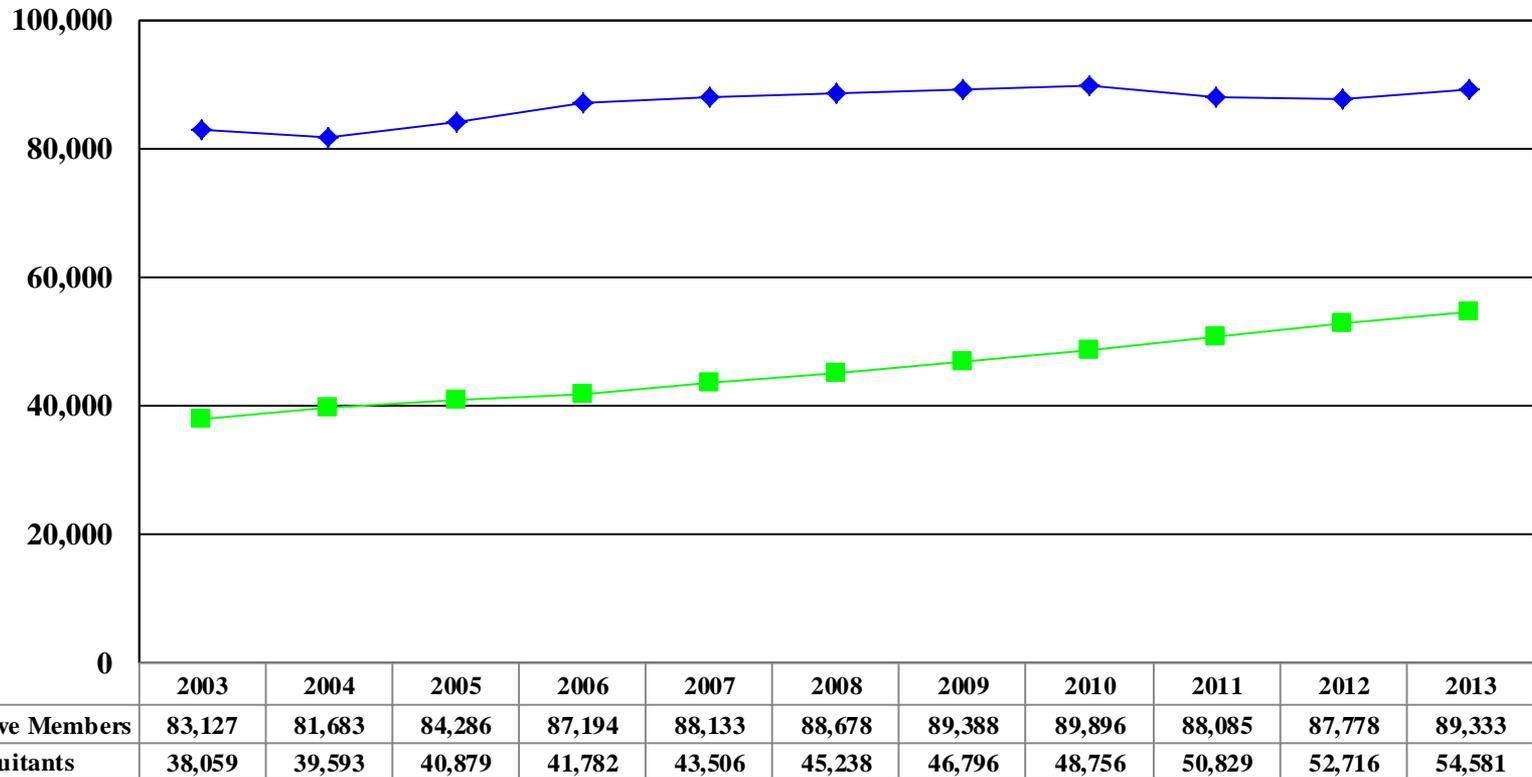
Executive Summary

	Valuation as of June 30,	
	2013	2012
1. Actuarial Accrued Liability*	\$ 18,973	\$ 18,588
2. Actuarial Value of Assets*	<u>10,861</u>	<u>10,190</u>
3. Unfunded Actuarial Accrued Liability*: 1 – 2	8,112	8,398
4. Annual Required Contribution	14.62%	15.06%
5. Funded Ratio: 2 / 1	57.2%	54.8%
6. Funding Period	17 years	22 years

*All dollar amounts are in millions.



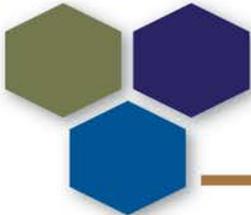
Membership



0.7% average increase for active members over last ten years

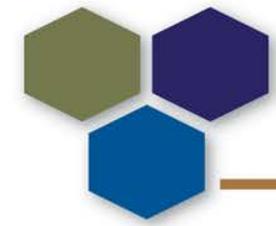
3.7% average increase for annuitants over last ten years

1.6 active members per annuitant



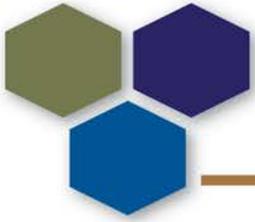
Membership

- ◆ Payroll for members active on June 30, 2013 increased from \$3,925 million to \$3,933 million, a 0.2% increase
 - ▶ Payroll has increased by 29.1% in the last ten years, an average increase of 2.6% per year
 - We assume a 3.5% average annual increase
- ◆ Average pay for active members decreased 1.5%, from \$44,713 to \$44,027
- ◆ Average age of active members is 46.1 years
 - ▶ Ten years ago: 45.3 years
- ◆ Average service of active members is 11.4 years
 - ▶ Ten years ago: 11.5 years

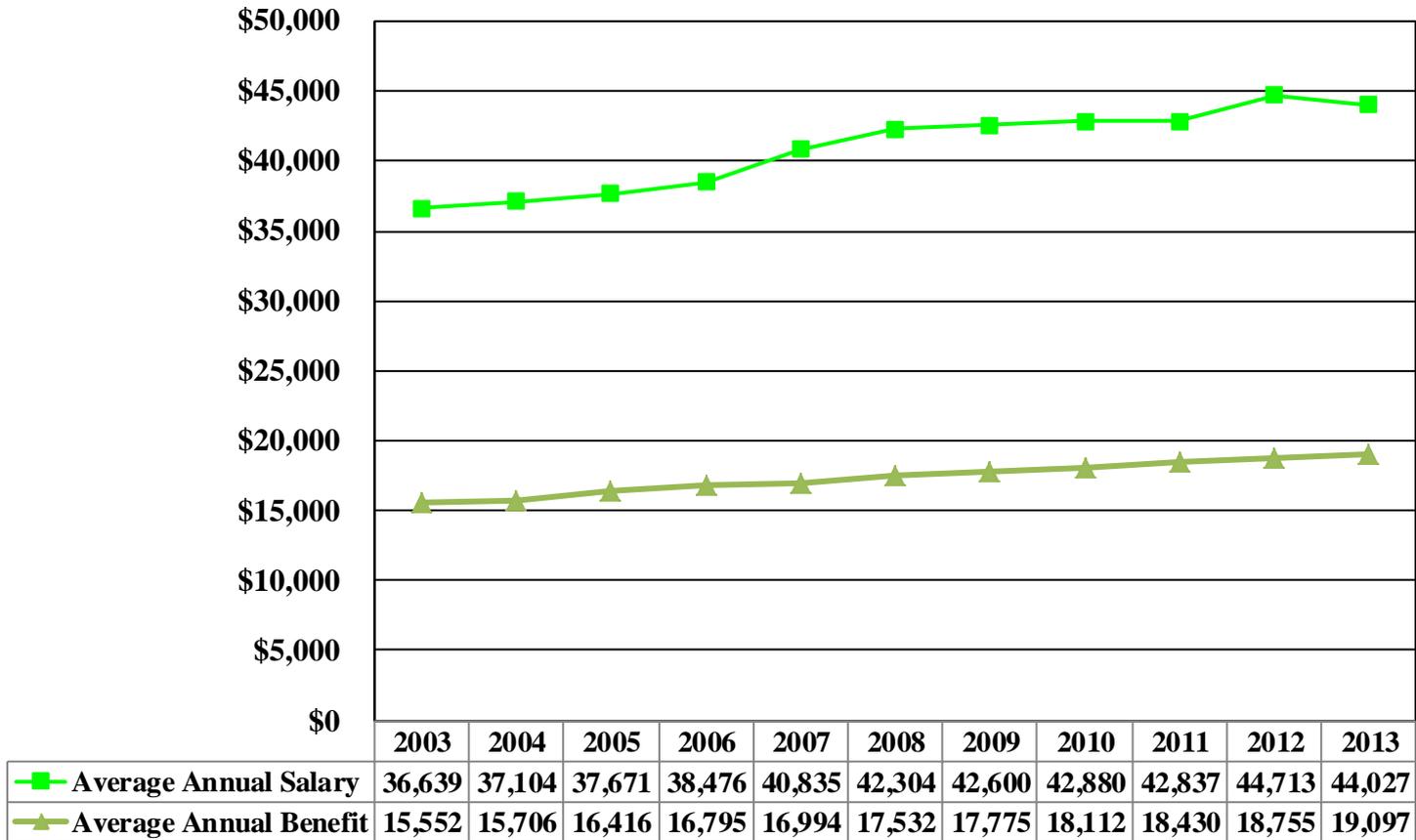


Membership

- ◆ Average annual annuitant benefit is \$19,097
- ◆ There are 1.6 active members for each annuitant
- ◆ Ratio is slowly decreasing, was 2.2 ten years ago
- ◆ Over last ten years, the number of actives has increased 7%, while the number of annuitants has increased 43%

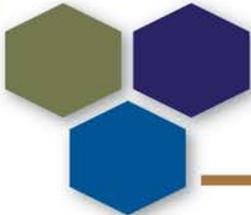


Average Salary and Average Benefit



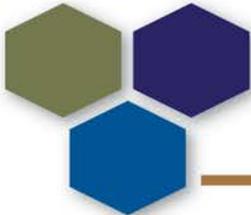
1.9% average increase in average salary over last ten years

2.1% average increase in average benefits over last ten years



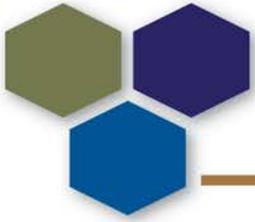
Assets

- ◆ Fair market value increased from \$10,195 million to \$11,810 million as of June 30, 2013
 - ▶ Assets shown exclude 403(b) accounts
- ◆ Return on market of approximately 17.3% in FY 2013, compared to 1.3% in FY 2012
 - ▶ Average return for last ten years was 8.4%
 - 7.2% for last five years
 - 6.8% for last 15 years
 - 8.7% for last 20 years

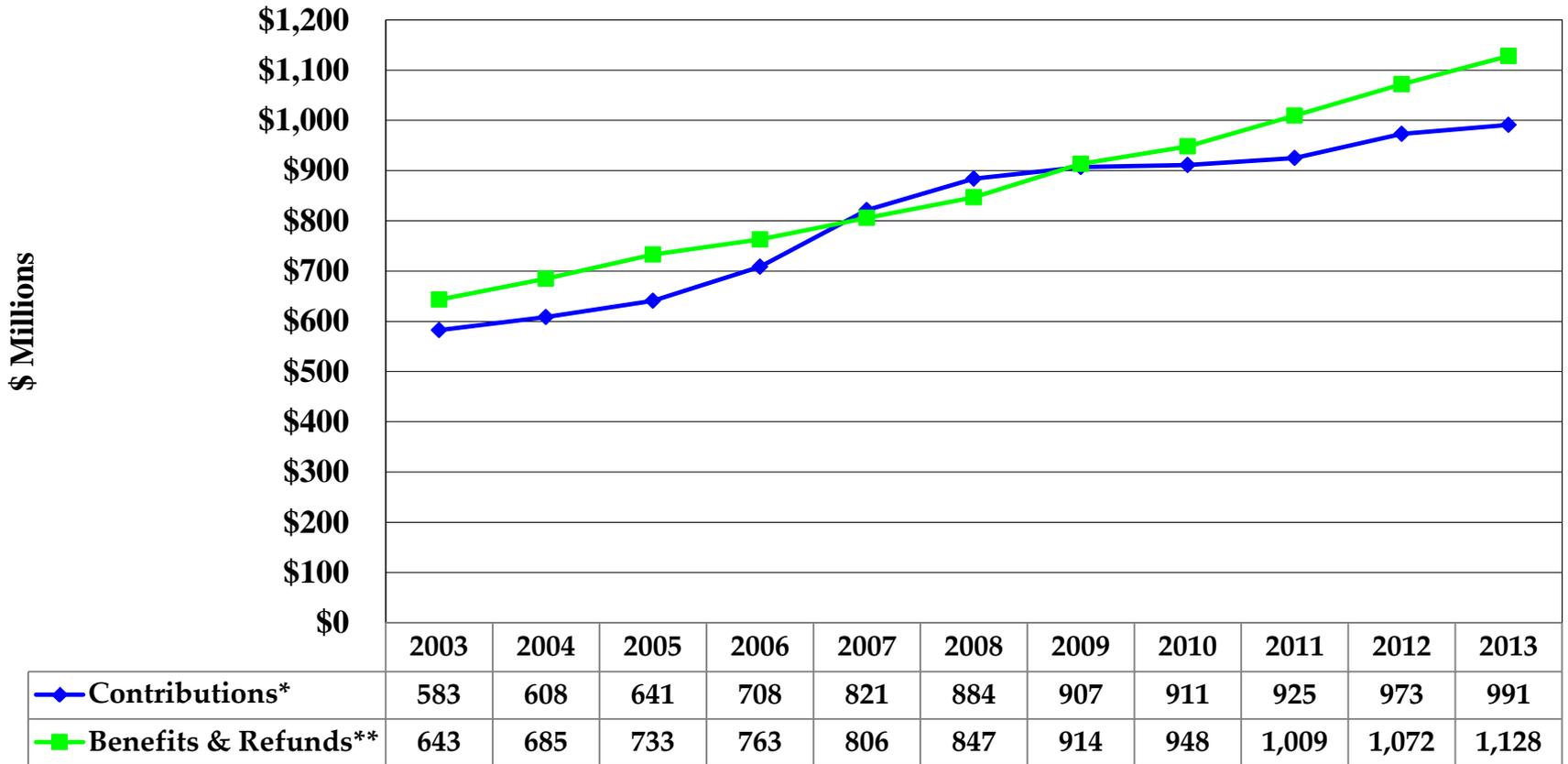


Assets

- ◆ Four sources of contributions as of June 30, 2013:
 - ▶ Member contributions (7.00% of pay = \$290 million)
 - Includes service purchases, redeposits and EESIP payments
 - ▶ Employer contributions = \$400 million
 - EESIP employers: 9.50%
 - Non-EESIP employers: 8.55%
 - Grant matching : 8.00%
 - ▶ State contribution (5.00% of tax revenues = \$301 million)
 - \$ 282 million in prior fiscal year
- ◆ The distributions (benefit payments, refunds and administrative expenses) totaled \$1,128 million

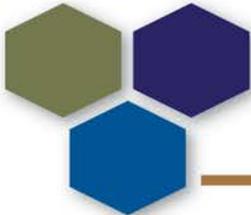


Contributions vs. Benefits & Refunds by Fiscal Year



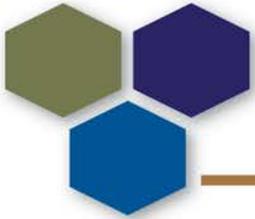
* Includes member, State, employer and grant matching contributions

** Includes administrative expenses



Assets

- ◆ Actuarial calculations primarily based on actuarial value of assets (AVA), not market value
- ◆ AVA reflects the difference between the prior year's expected return on market and the actual return over a five year period
- ◆ Actuarial return was 7.9% in FY 2013
- ◆ \$949 million in deferred gains, not yet recognized
 - ▶ Will be recognized over next four years



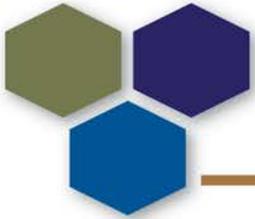
Actuarial and Market Values of Assets



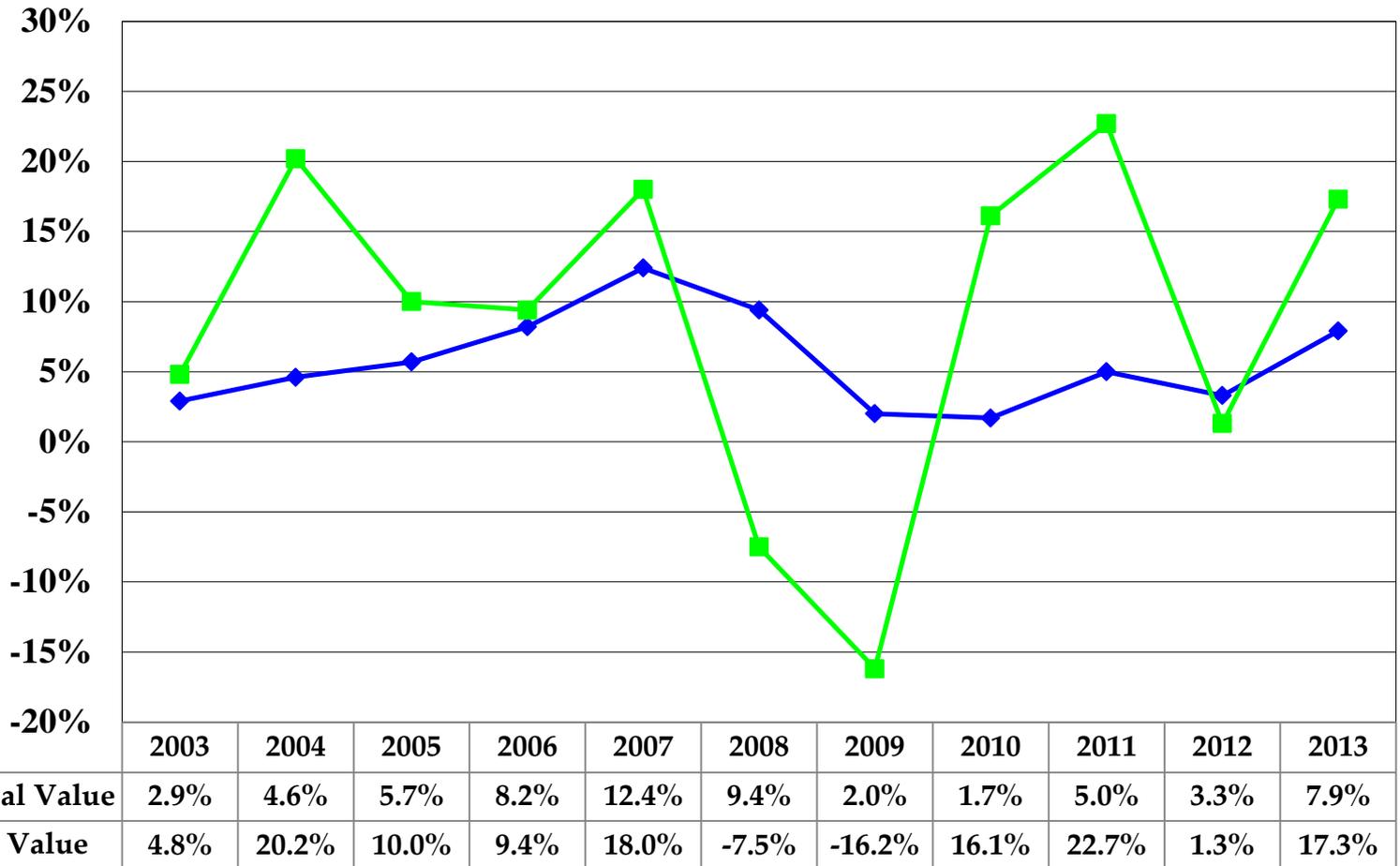
—◆— Actuarial Value (AVA)	6.4	6.7	7.0	7.5	8.4	9.3	9.4	9.6	10.0	10.2	10.9
—■— Market Value (MVA)	5.6	6.7	7.2	7.9	9.3	8.6	7.2	8.4	10.2	10.2	11.8

AVA is 92% of MVA

Deferred asset gain of \$949 million

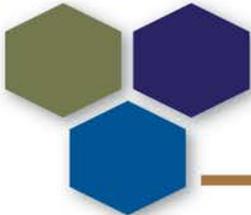


Estimated Yield Based on Actuarial and Market Values of Assets



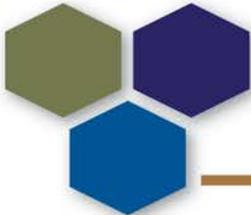
8.4% average compound return on market value over the last ten years

6.0% average compound return on actuarial value over the last ten years



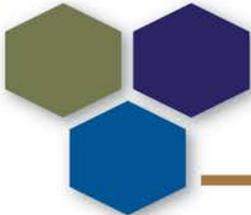
Actuarial Results

- ◆ Unfunded actuarial accrued liability (UAAL) decreased from \$8,398 million to \$8,112 million
 - ▶ The decrease in the UAAL is principally due to a liability gain resulting from valuation salaries increasing slower than assumed. This decreased the UAAL by over \$300 million
 - ▶ Other experience gains resulted from demographic changes different than expected
 - ▶ Partially offset by asset loss as the return on an actuarial basis was 7.9% compared to an assumed rate of 8.0%



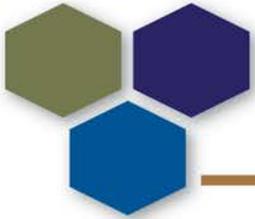
Actuarial Results

- ◆ Annual required contribution (GASB #25 ARC)
 - ▶ ARC = normal cost plus 30-year funding of UAAL, using level percent of pay
 - ▶ \$603 million this year vs. \$620 million last year
 - ▶ As a percentage of payroll, 14.62% this year vs. 15.06% last year
 - ▶ Does not include the 7% mandatory member portion

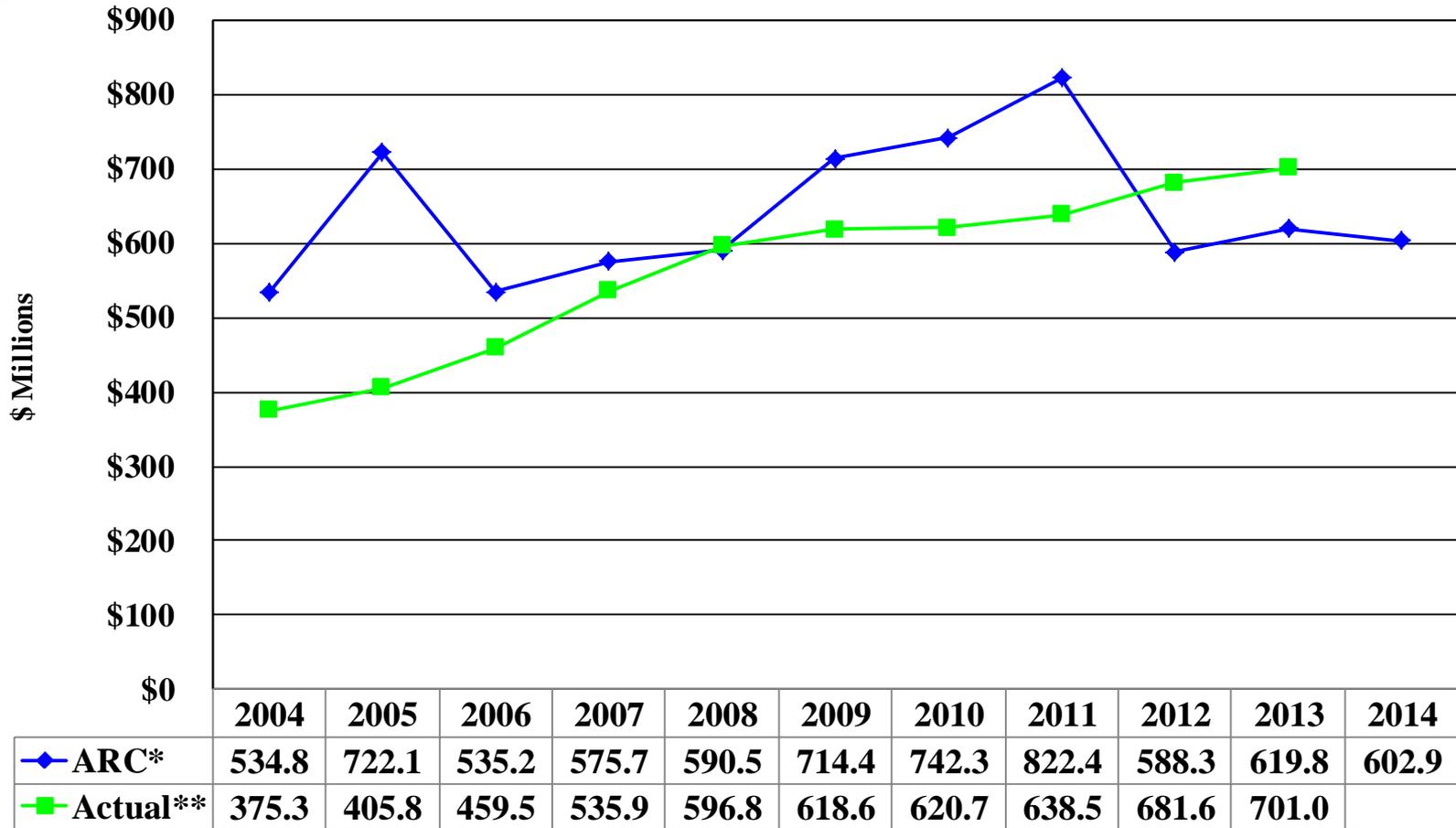


Change in UAAL and ARC for the Year

	UAAL (in millions)	30 Year ARC
1. Prior Valuation	\$ 8,397.6	15.06%
2. Impact of changes, gains and losses		
1 a. Expected increase based on expected contributions	55.9	-0.33%
b. Liability (gain)/loss	(352.9)	-0.12%
c. Impact of contributions (more)/less than expected	5.1	0.00%
1 d. Asset (gain)/loss	6.4	0.01%
1 e. Ad hoc COLA granted different than assumed	0.0	0.00%
1 f. Impact of changes in actuarial assumptions and methods	0.0	0.00%
1 g. Legislative changes	<u>0.0</u>	<u>0.00%</u>
h. Total	(285.5)	-0.44%
3. Current Valuation	\$ 8,112.1	14.62%

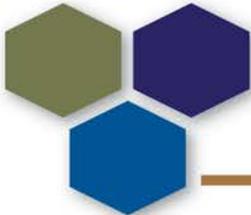


Annual Required Contribution (ARC) vs. Actual Contributions



* Normal cost, plus 30-year level percent of pay amortization of UAAL since FY 2006
 Normal cost, plus 40-year level dollar amortization of UAAL before that

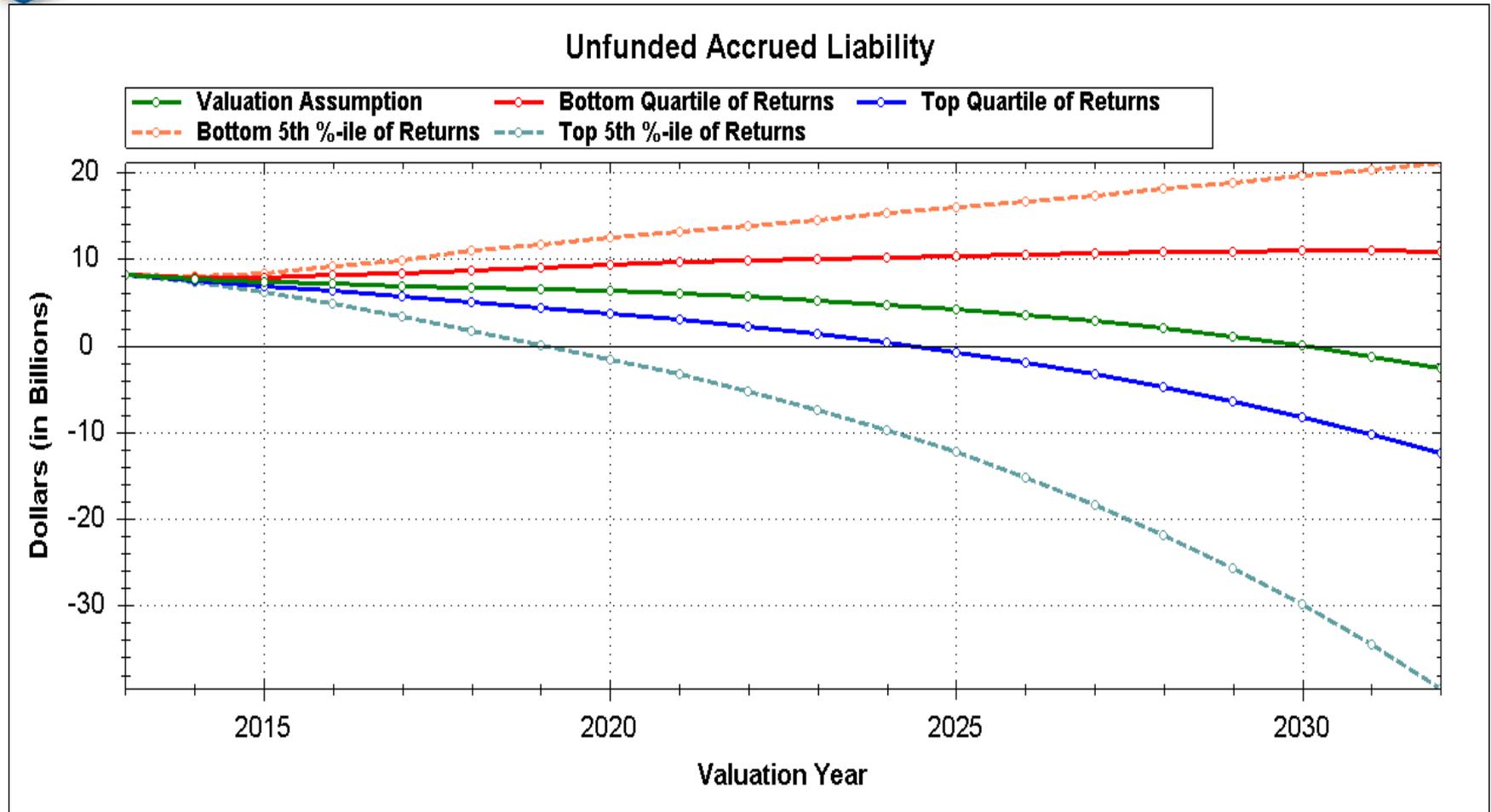
** Employer, state and grant matching contributions



Actuarial Results

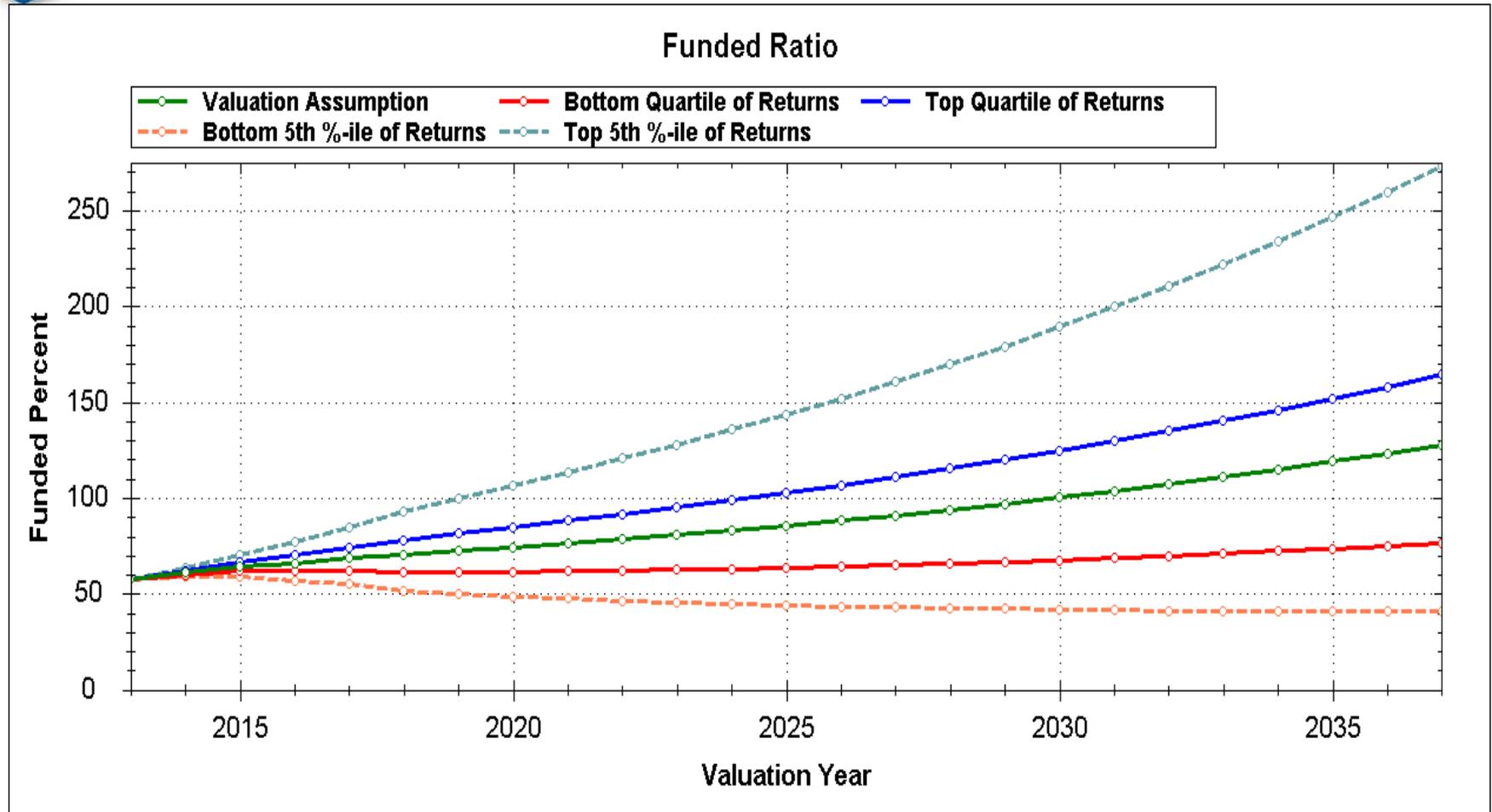
- ◆ Funding period and UAAL projections based on the following assumptions:
 - ▶ Future market earnings, net of expenses, will equal 8.00% per year
 - ▶ Phases in deferred asset gains/losses
 - ▶ No benefit changes or other demographic gains/losses
 - ▶ No change in number of active members
 - ▶ Active members who leave employment will be replaced by new entrants each year
 - ▶ Starting pay for each cohort of replacement hires increases 4.0% each year
 - ▶ Employer and State contributions will remain a constant percentage of payroll (17.0% of payroll based on current fiscal year)

Projection of UAAL



Assumes an 8.00% mean return and a standard deviation of 10.50% on asset returns.

Projected Funded Ratios



Assumes an 8.00% mean return and a standard deviation of 10.50% on asset returns.