



TEACHERS' RETIREMENT SYSTEM OF OKLAHOMA

Actuarial Valuation
as of June 30, 2007

Presented by J. Christian Conradi on October 24, 2007

GRS

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Actuarial Valuation

- ◆ Prepared as of June 30, 2007, using member data, financial data, benefit and contribution provisions, actuarial assumptions and methods
- ◆ Purposes:
 - ▶ Measure the actuarial liabilities
 - ▶ Determine adequacy of current statutory contributions
 - ▶ Provide other information for reporting
 - GASB #25
 - State Pension Commission
 - CAFR
 - ▶ Explain changes in actuarial condition of OTRS
 - ▶ Track changes over time



Actuarial Valuation – Key Changes and Issues

◆ SB 357

- ▶ Phased-in increase in Employer Contribution Rates by FY 2011
 - 9.50% for EESIP employers
 - 8.55% for Non-EESIP employers

◆ Larger than expected State contribution

- ▶ Despite changes in State's income tax provisions

◆ Large asset gain

- ▶ End of the bleeding from FY 2001- FY 2003 losses



Membership – Actives and Inactives

- ◆ The number of active members increased by 939, from 87,194 to 88,133
 - ▶ 1.1% increase, following a 3.5% increase last year
 - ▶ Over last ten years, active membership has increased an average of 1.0% per year
- ◆ Payroll for members active on June 30, 2007 increased from \$3,355 million to \$3,599 million, a 7.3% increase
 - ▶ Payroll has increased by 48% in the last ten years, an average increase of 4.0% per year
 - We assume a 3.5% average annual increase



Membership – Actives and Inactives

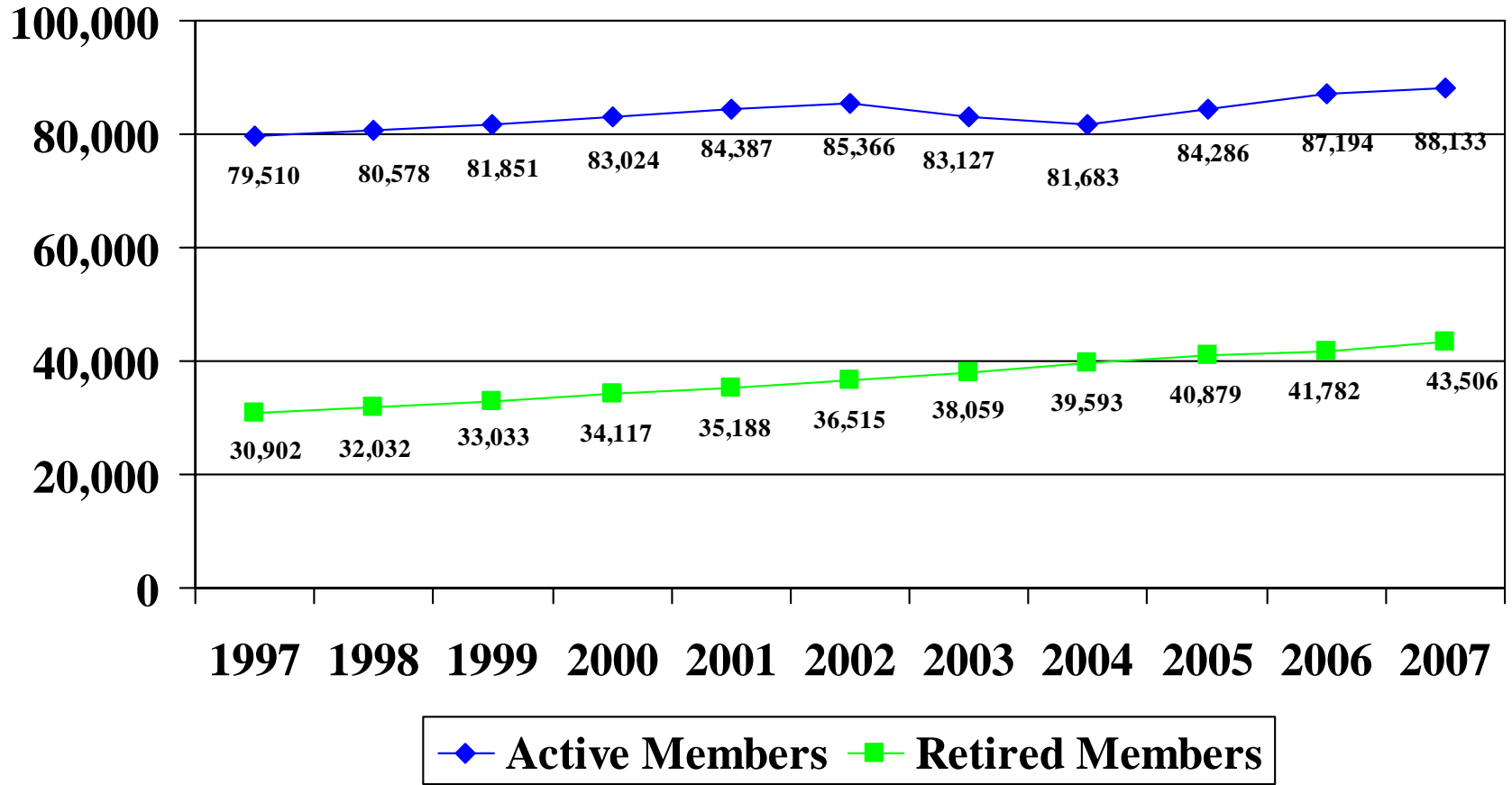
- ◆ Average pay for active members increased 6.1%, from \$38,476 to \$40,835
- ◆ Average age of active members increased to 45.8, from 45.7 and from 44.2 ten years ago
- ◆ Average years of service decreased to 11.5 from 11.6, and increased compared to 11.2 ten years ago
- ◆ There are also 6,637 inactive vested members, and 6,613 inactive nonvested members



Membership – Retirees & Beneficiaries

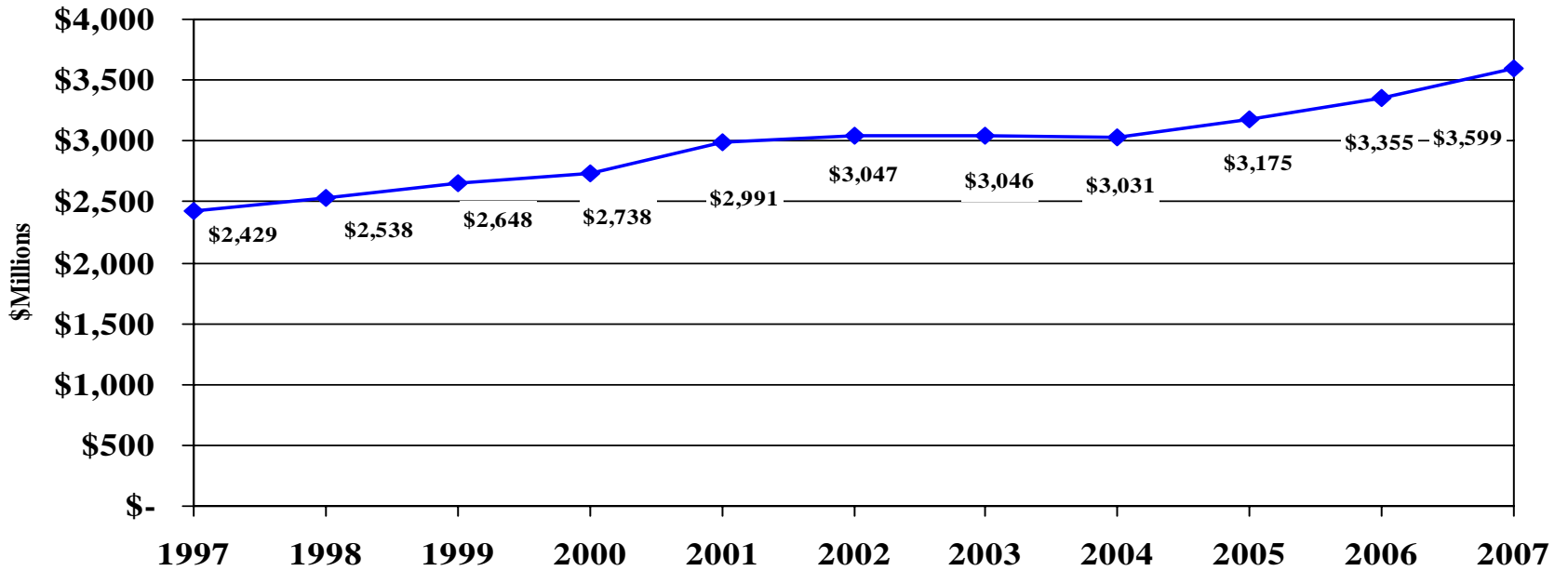
- ◆ The number of retirees increased by 1,724, from 41,782 to 43,506, a 4.1% increase
 - ▶ Number includes service retirees, disabled retirees, special retirees, and beneficiaries receiving benefits
 - ▶ Over the last ten years, the number of retirees has grown an average of 3.5% per year
- ◆ Average annual retiree benefit is \$16,994
- ◆ There are 2.0 active members for each retiree
 - ▶ Ratio is slowly decreasing, was 2.6 ten years ago
- ◆ Over last ten years, the number of actives has increased 10.8%, while the number of retirees has increased 40.8%

Active Members vs. Retired Members



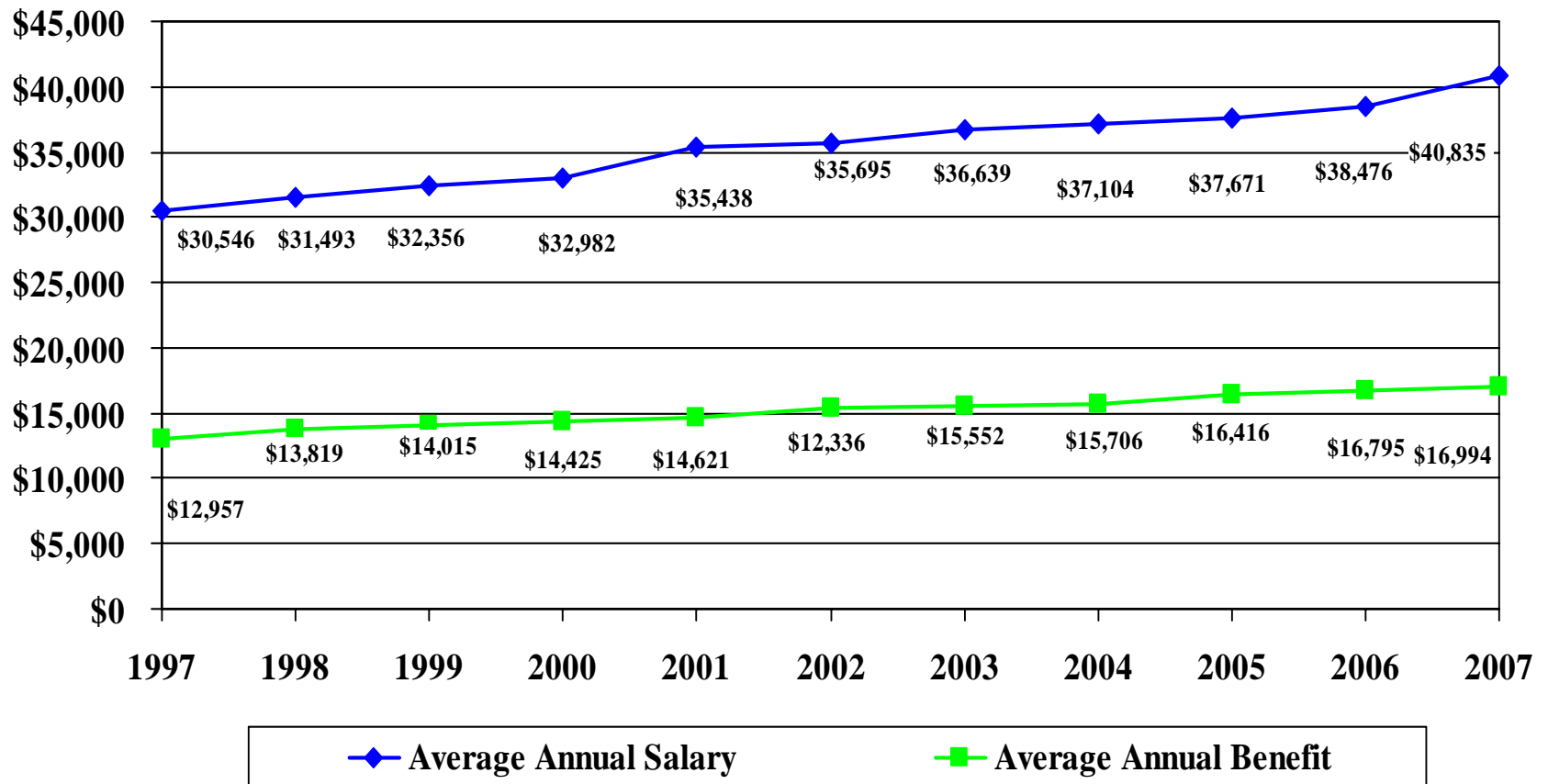
1.0% average increase for active members over last ten years
3.5% average increase for retired members over last ten years
2.0 active members per retiree

Payroll



4.0% average increase over last ten years

Average Salary and Average Benefit



2.9% average increase in average salary over last ten years
2.7% average increase in average benefits over last ten years



Assets

- ◆ Fair market value increased from \$7,859 million to \$9,293 million
 - ▶ Assets shown exclude 403(b) accounts
 - ▶ 68% in equities, 32% cash and fixed income
- ◆ Four sources of contributions
 - ▶ Member contributions (7.00% of pay = \$285 million)
 - Includes service purchases and redeposits and EESIP payments
 - ▶ Employer contributions = \$271 million
 - EESIP employers: 7.05% / 7.60%
 - Non-EESIP employers: 7.05%
 - Rates scheduled to increase in future
 - ▶ State contribution (4.50% of tax revenues = \$244 million)
 - Increases to 5.00% for FY 2008
 - ▶ Federal matching contributions (7.00%, \$21 million)



Assets

- ◆ Total contributions of \$821 million, compared to \$708 million in FY 2006
- ◆ The distributions (benefit payments, refunds and administrative expenses) totaled \$806 million
- ◆ Therefore, there is a positive external cash flow of \$15 million
 - ▶ 0.2% of market value at end of year
 - ▶ Not significant



Assets

- ◆ Return on market of approximately 18.0% in FY 2007
 - ▶ It was 9.4% in FY 2006
 - ▶ Average return for last ten years was 9.5%
 - 12.3% for last five years
 - 10.7% for last fifteen years
- ◆ All actuarial calculations are based on actuarial value of assets (AVA), not market value



Assets

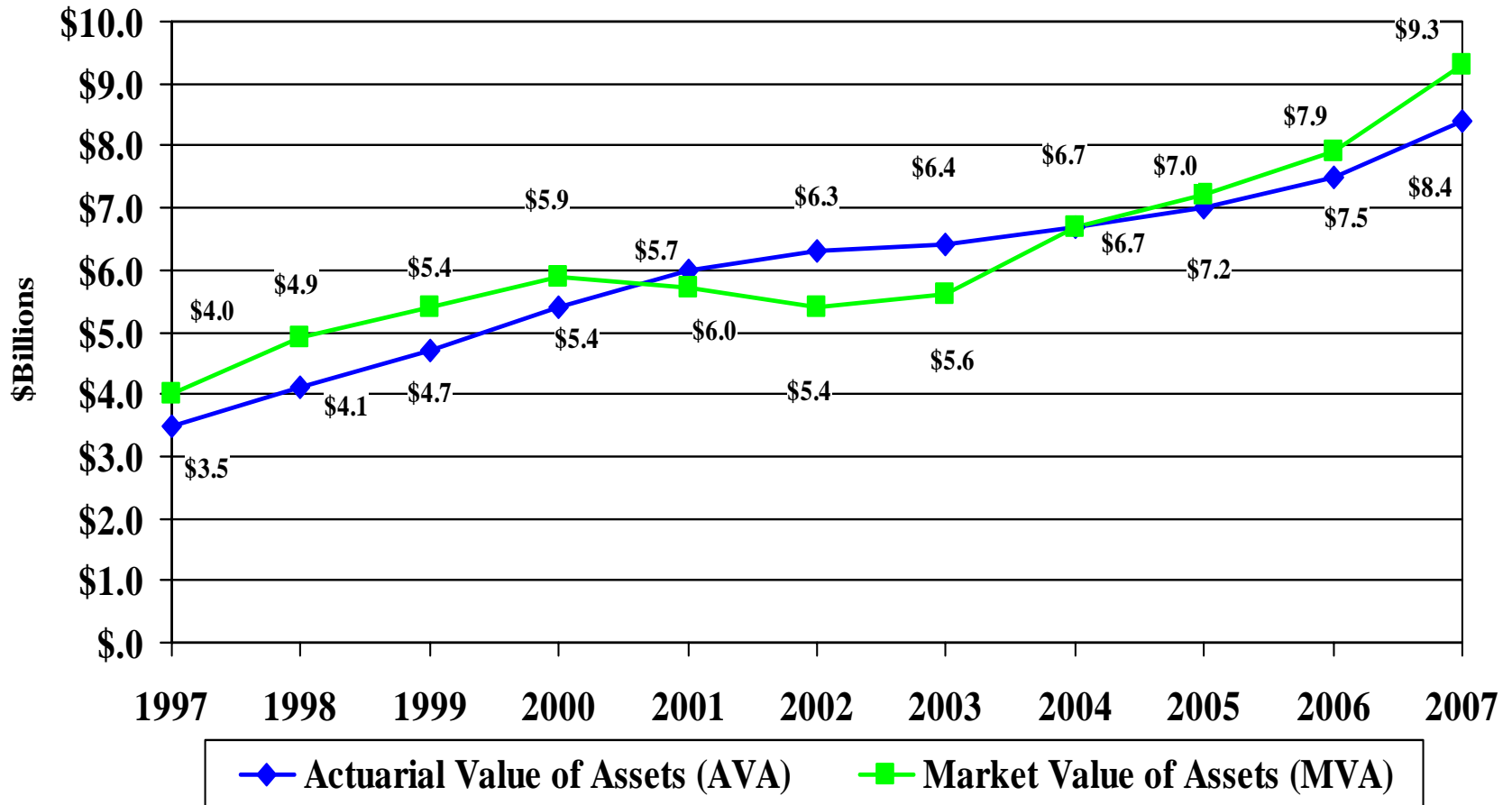
- ◆ AVA reflects 20% of the difference between last year's expected return on market and the actual return
 - ▶ 40% of FY 2006 difference, 60% of FY 2005 difference and 80% of FY 2004 difference
 - ▶ AVA now \$8,422 million, vs. \$7,470 million last year
- ◆ Actuarial return was 12.4% in FY 2007, compared to 8.2% in FY 2006
- ◆ 9.8% average return on actuarial value over last ten years



Assets

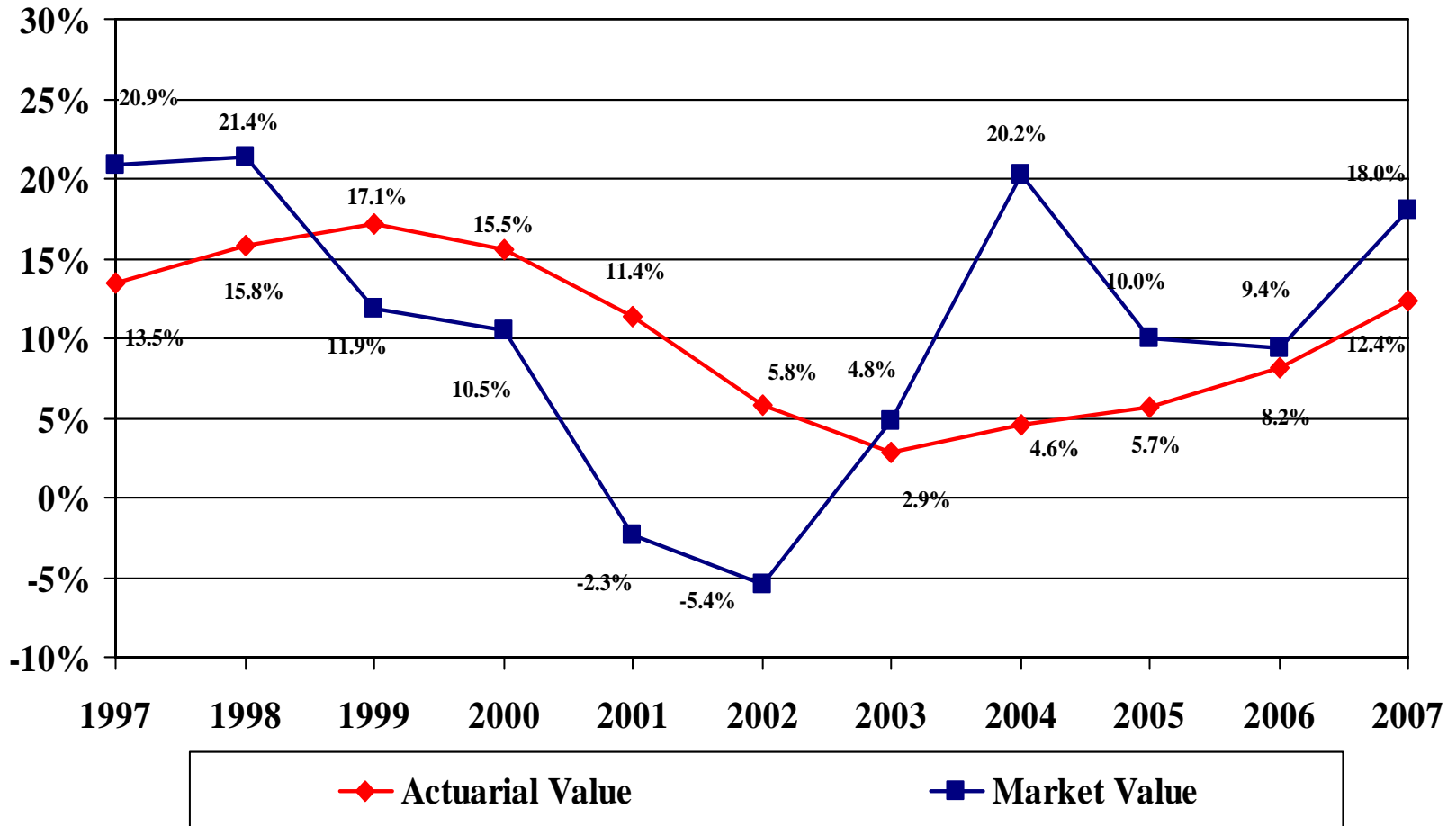
- ◆ AVA is 90.6% of fair market value (was 95.1% last year)
- ◆ \$871 million in deferred gains, not yet recognized

Actuarial and Market Values of Assets



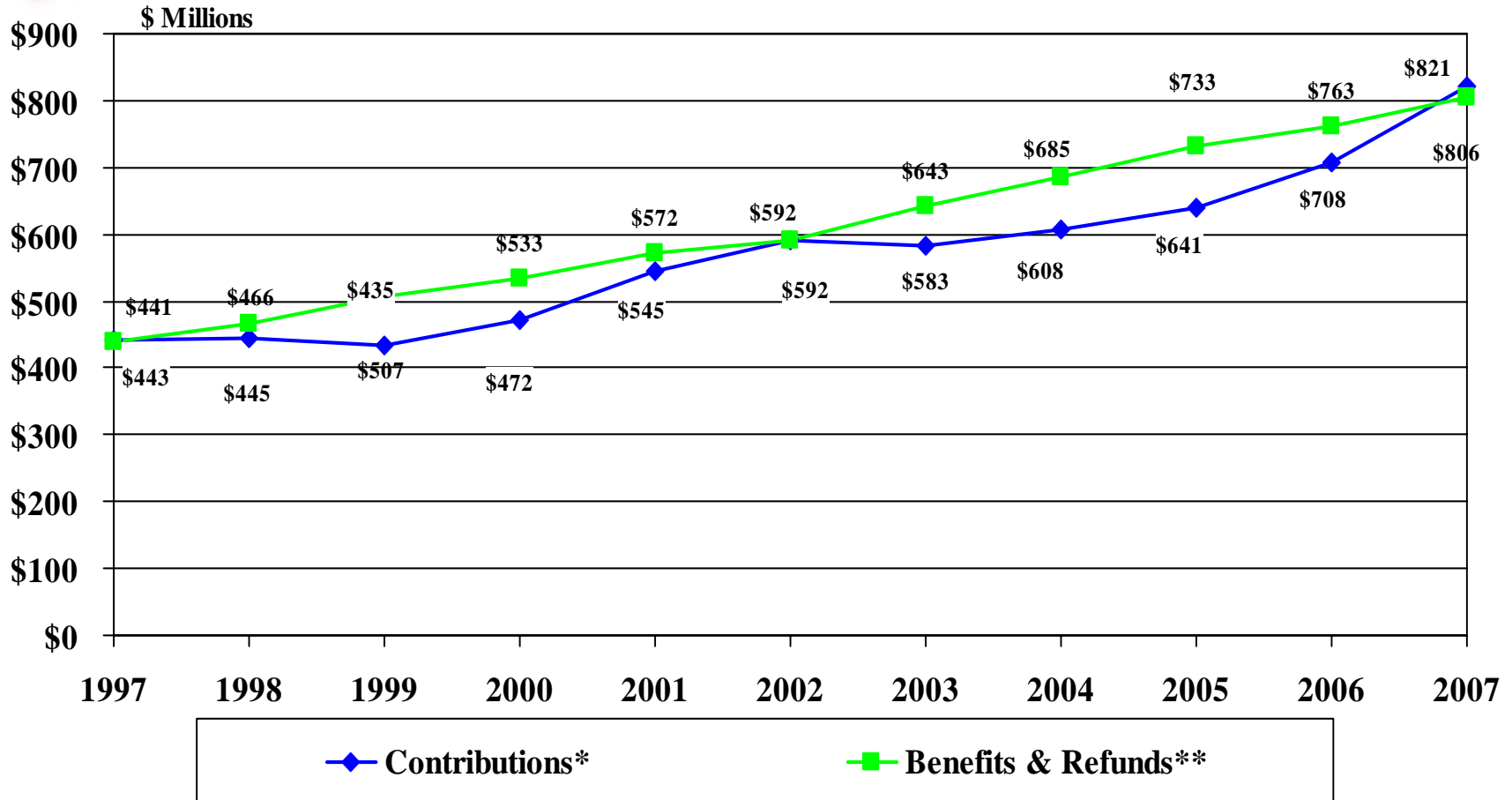
AVA is 90.6% of MVA
 Deferred gains of \$871 million

Estimated Yield Based on Actuarial and Market Values of Assets



9.5% average compound return on market value over the last ten years
 9.8% average compound return on actuarial value over the last ten years

Contributions vs. Benefits & Refunds by Fiscal Year

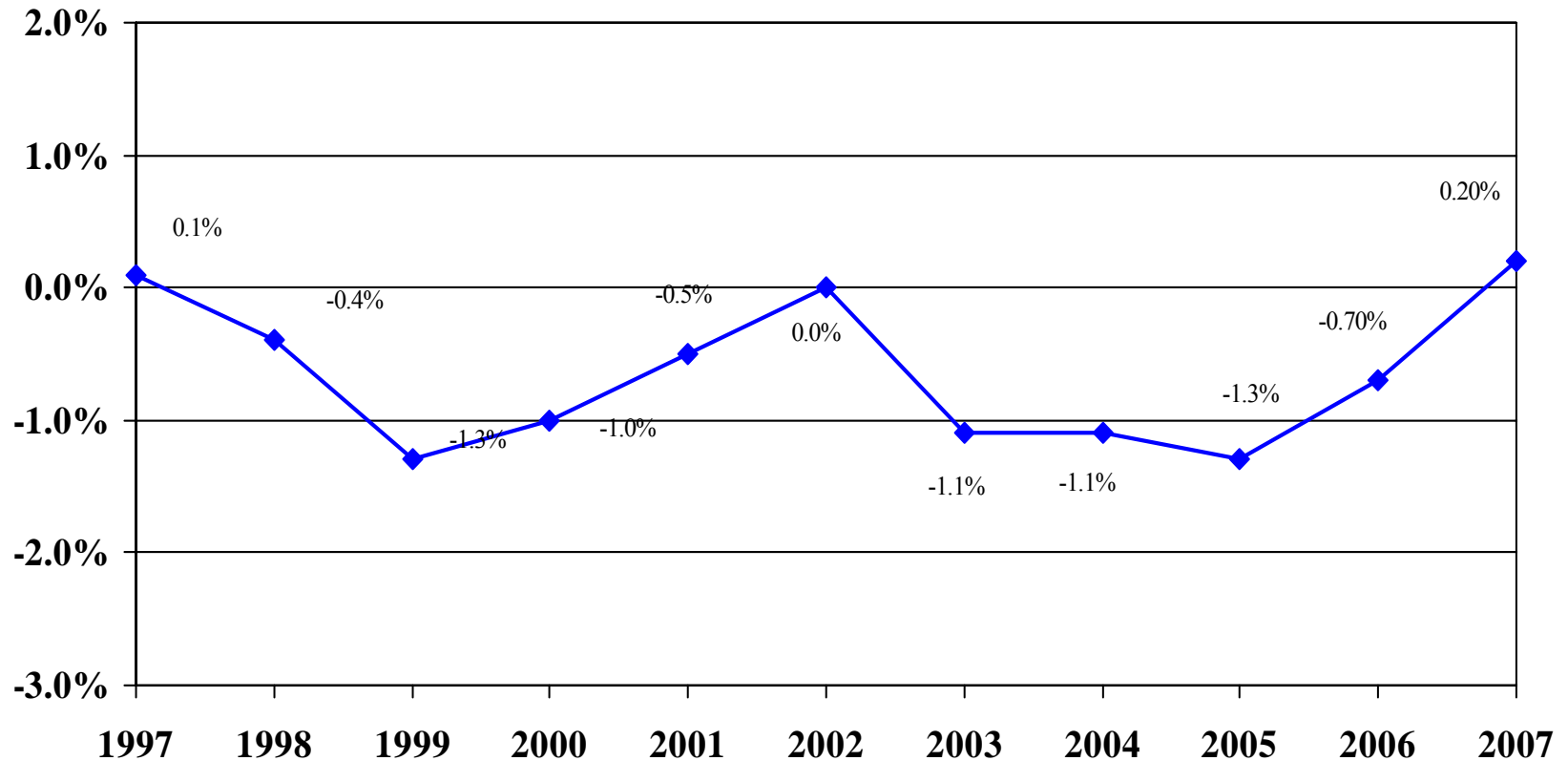


* Includes member, state, employer and federal contributions

** Includes administrative expenses



External Cash Flow As Percentage of Market Value





Benefit and Contribution Structure Changes

- ◆ New legislation - SB 357:

- ▶ Increase Employer Contribution Rates:

Period:	Employer Contribution Rates	
	EESIP Employers	Non-EESIP Employers
7/1/2006 – 12/31/2006	7.05%	7.05%
1/1/2007 – 6/30/2007	7.60%	7.05%
7/1/2007 – 12/31/2007	7.85%	7.05%
1/1/2008 – 6/30/2008	8.35%	7.55%
7/1/2008 – 12/31/2008	8.50%	7.55%
1/1/2009 – 6/30/2009	9.00%	8.05%
7/1/2009 – 12/31/2009	9.00%	8.05%
1/1/2010 – 6/30/2010	9.50%	8.55%
FY 2011 and later	9.50%	8.55%



Changes in Actuarial Assumptions and Methods

- ◆ No changes in actuarial assumptions or methods
- ◆ Assumptions were set by Board based on experience study following June 30, 2004 actuarial valuation
 - ▶ Modified for assumption of 1.00% future ad hoc COLAs
 - ▶ Retirement rates modified for anticipated EESIP effect
- ◆ Next experience study scheduled to follow the June 30, 2009 actuarial valuation



Actuarial Results

- ◆ Unfunded actuarial accrued liability (UAAL) decreased from \$7,673 million to \$7,603 million
- ◆ Decrease occurred primarily because of asset gain and larger-than-expected contributions



Actuarial Results

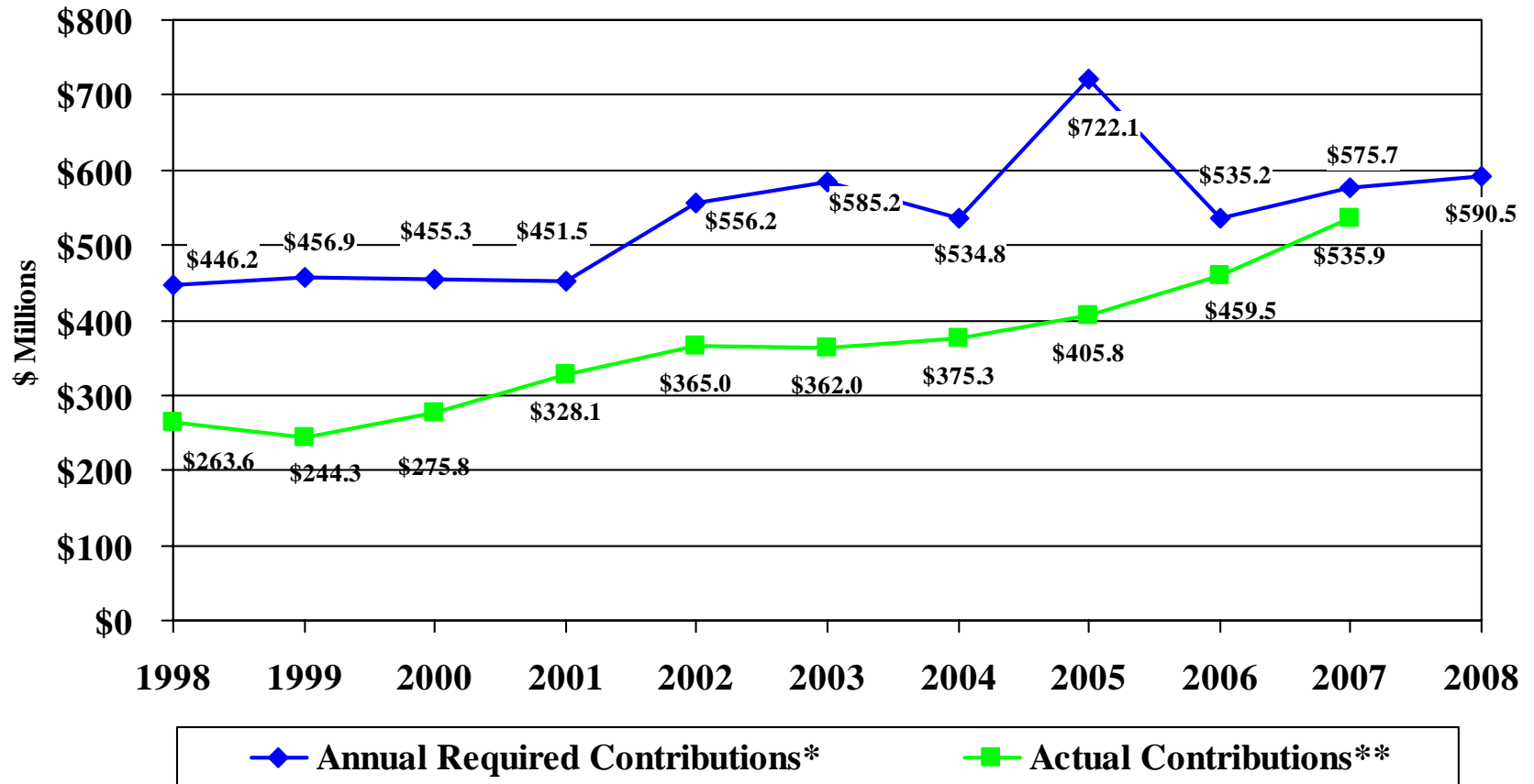
- ◆ Funding period reduced from 37.4 years to 21.6 years
 - ▶ Primarily due to increased statutory contributions from SB 357, asset gain, and larger-than-expected contributions
- ◆ UAAL projected to be fully amortized by end of FY 2029
 - ▶ Assuming no benefit changes or other gains/losses
 - ▶ Assuming 8.00% market return each year, net of investment and administrative expenses
 - ▶ Assuming no change in number of active members



Actuarial Results

- ◆ Annual required contribution (GASB #25 ARC = normal cost plus 30-year funding of UAAL, using level percent of pay) of \$590 million vs. \$576 million last year
 - ▶ 15.68% vs. 16.60%
- ◆ Actuarial gains/(losses)
 - ▶ Assets: \$332.7 million gain
 - ▶ Liabilities: \$123.3 million loss
 - Due to higher than expected pay increases

Annual Required Contribution (ARC) vs. Actual Contributions

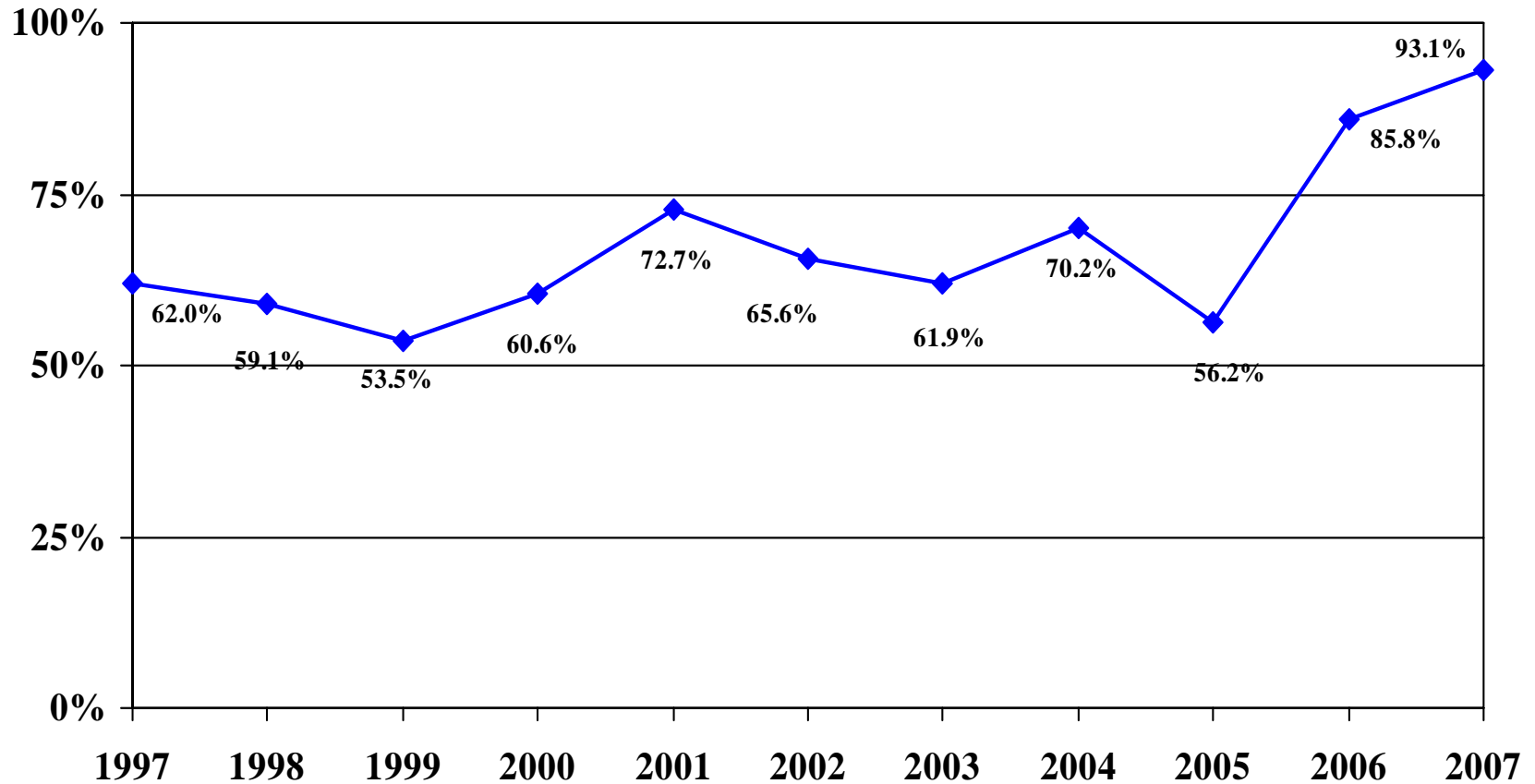


* Normal cost, plus 30-year level percent of pay amortization of UAAL since FY 2006
 Normal cost, plus 40-year level dollar amortization of UAAL before that

** Employer, state and federal matching contributions

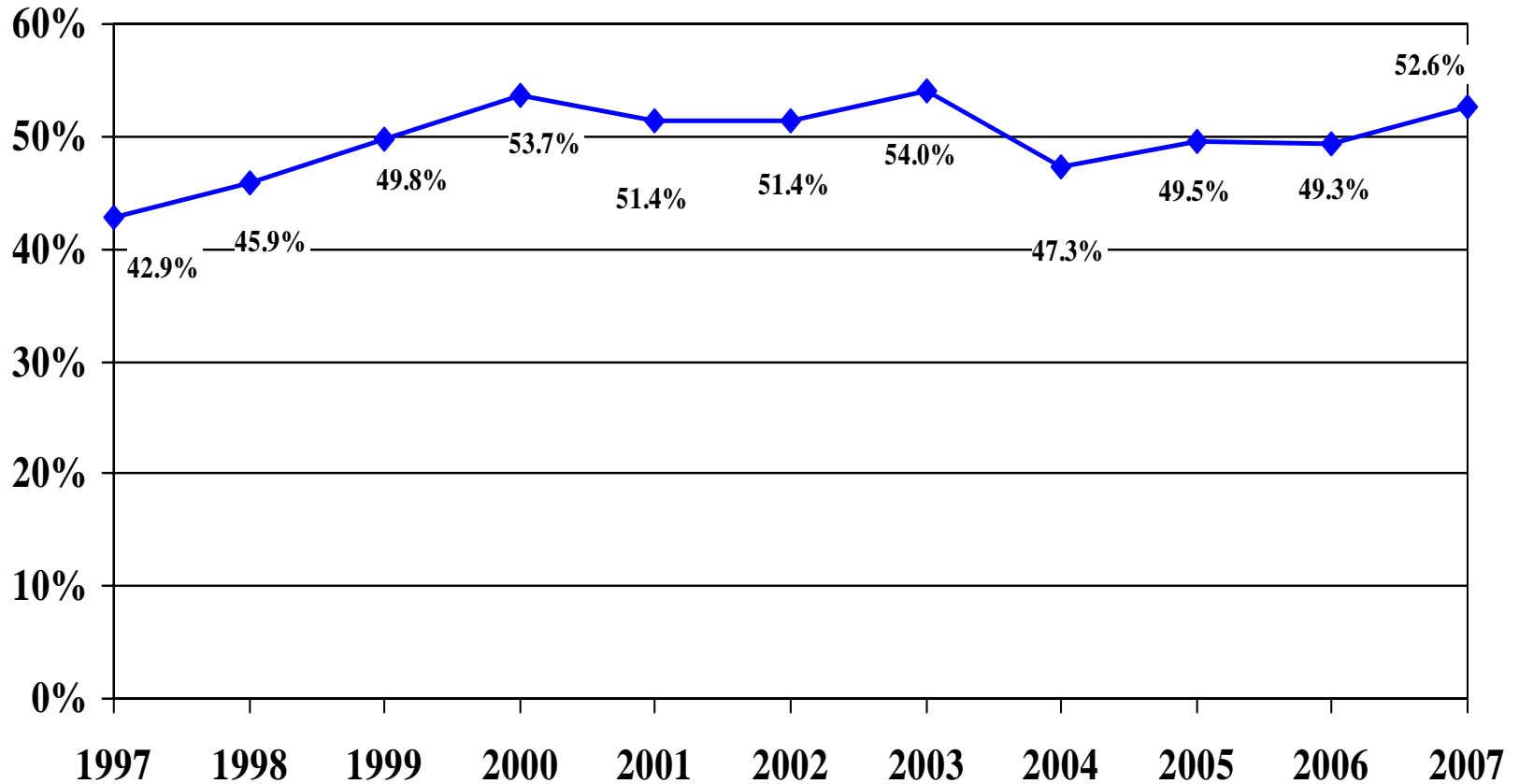


Actual Contributions as Percentage Of Annual Required Contribution



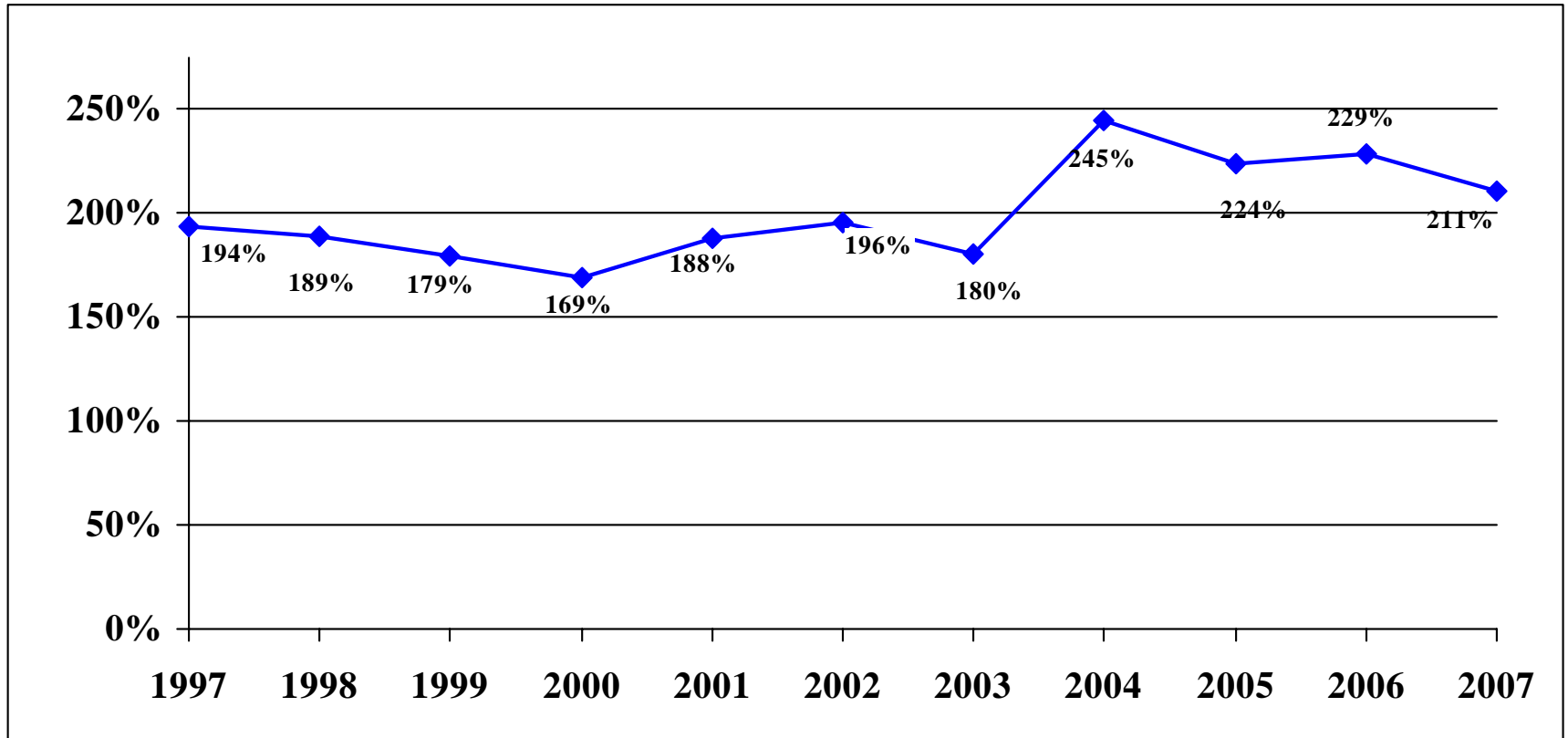


GASB #25 Funded Ratio





UAAL as a Percentage of Covered Payroll





Change in UAAL for The Year (In \$ Millions)

	FY 2007	FY 2006
1. UAAL, beginning of year	\$7,672.9	\$7,099.7
2. Expected increase (decrease)	222.5	240.6
3. Liability loss / (gain)	123.3	(119.0)
4. Asset loss / (gain)	(332.7)	(13.3)
5. Actual vs. expected contributions	(83.4)	(50.5)
6. 2% ad hoc COLA	0.0	67.2
7. EESIP (Net)	0.0	448.3
8. UAAL, end of year	<u>\$7,602.5</u>	<u>\$7,672.9</u>



Reporting for State Pension Commission

◆ Specified assumptions

- ▶ Investment return rate: 7.50% vs. 8.00% in regular valuation
- ▶ Future retiree increases: 2% vs. 1% in regular valuation
- ▶ Mortality: RP-2000 with projections, vs. OTRS tables
- ▶ Funding: 30-year amortization (level dollar vs. level %)



Reporting for State Pension Commission

◆ Actuarial results:

- ▶ Actuarial accrued liability: \$18.5 billion vs. \$16.0 billion in regular valuation
- ▶ Actuarial assets: \$8.4 billion (no difference)
- ▶ UAAL: \$10.1 billion vs. \$7.6 billion in regular valuation
- ▶ Funded ratio: 45.5% vs. 52.6% in regular valuation



Reporting for State Pension Commission

◆ Calculated contribution (in millions)

Total	\$1,307	34.69%
Less members	\$264	7.00%
Less employers	\$299	7.93%
Less federal	\$25	0.66%
Net (State)	<u>\$719</u>	<u>19.09%</u>

◆ Was net \$751 million last year, or 21.64%