



**TEACHERS' RETIREMENT SYSTEM  
OF OKLAHOMA**

**ACTUARIAL VALUATION  
AS OF JUNE 30, 2005**



## Actuarial Valuation

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- Prepared as of June 30, 2005, 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

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- Additional actuarial losses on assets recognized
  - Recognize additional 20% of losses from FY 2003, FY 2002, and FY 2001
  - Total asset loss from FY 2001 has been recognized
  - Offset by 20% of gain from FY2004 and 20% gain from FY 2005
  - Market Value exceeds actuarial value by 4.1%
- Increase in active membership
- Valuation results dependent on scheduled increases in State's contribution rate (% of specified tax revenues)
- Changed GASB ARC contribution from 40-year, level dollar to 30-year, level percent of pay, as approved by Board in August
- Several assumption changes per 2005 experience study, including:
  - Reduced basic salary scale
  - Reduced retirement rates
  - Revised withdrawal tables
  - Modified mortality rates
  - Reduced disability incidence rates



## Membership – Actives and Inactives

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- The number of active members increased by 2,603, from 81,683 to 84,286
  - 3.2% increase, following a 1.7% decrease last year
  - Over last ten years, active membership has increased an average of 0.6% per year
- Payroll for members active on June 30, 2005 increased from \$3,031 million to \$3,175 million (4.8%)
  - Payroll has increased by 36% in the last ten years, an average increase of 3.1% per year
    - We assume a 3.5% average annual increase



## Membership – Actives and Inactives

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- Average pay for active members increased 1.5%, from \$37,104 to \$37,671
- Average age of active members remains at 45.6 compared to 43.6 ten years ago
- Average years of service is 11.6, compared to 11.8 last year and to 10.7 ten years ago
- There are also 6,008 inactive vested members, and 7,072 inactive nonvested members



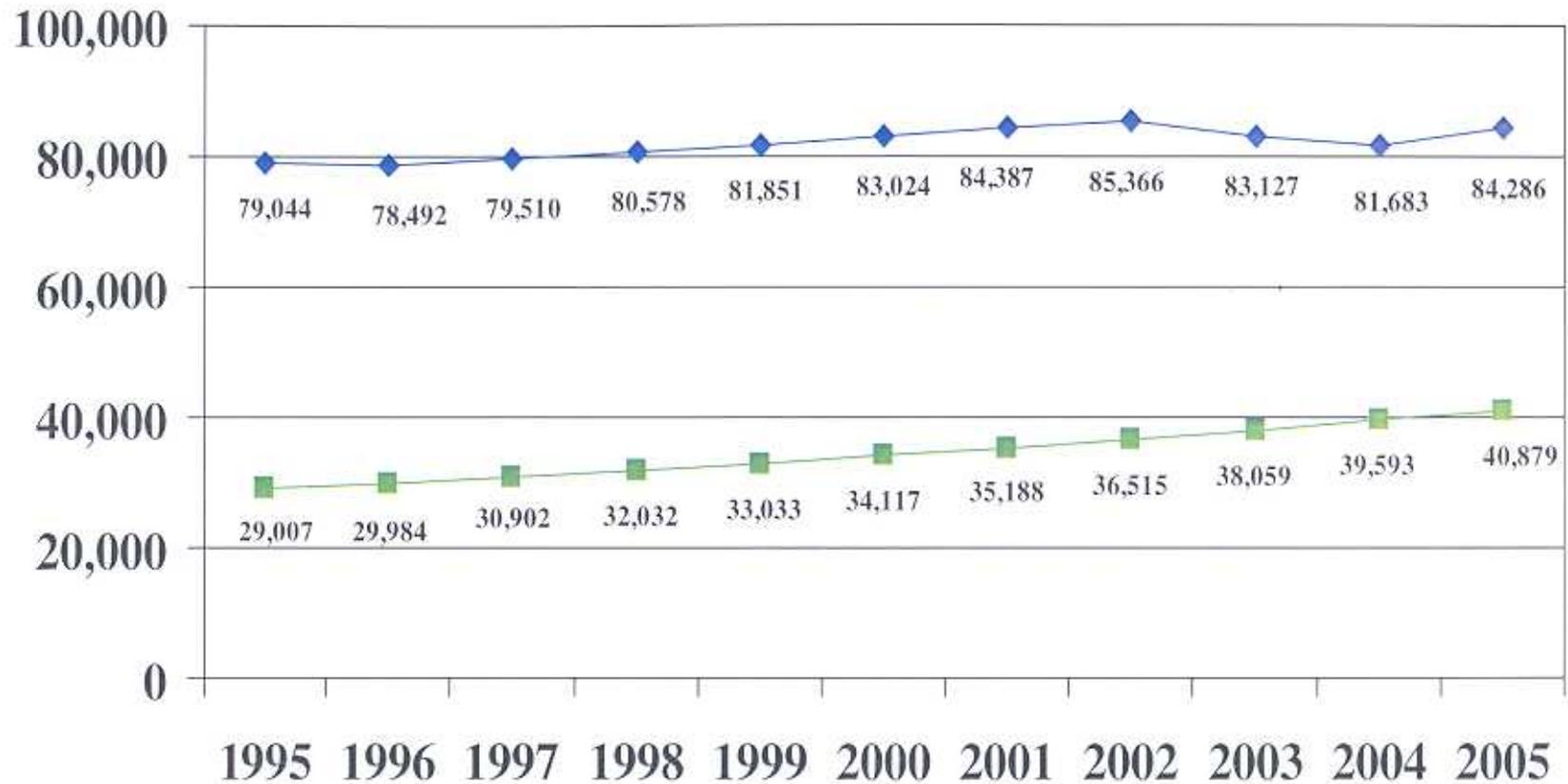
## Membership – Retirees & Beneficiaries

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- The number of retirees increased by 1,286, from 39,593 to 40,879, a 3.2% 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 \$16,416
- There are 2.1 active members for each retiree
  - Ratio is slowly decreasing, was 2.7 ten years ago
- Over last ten years, the number of actives has increased 7.0%, while the number of retirees has increased 41%



## Active Members vs. Retired Members

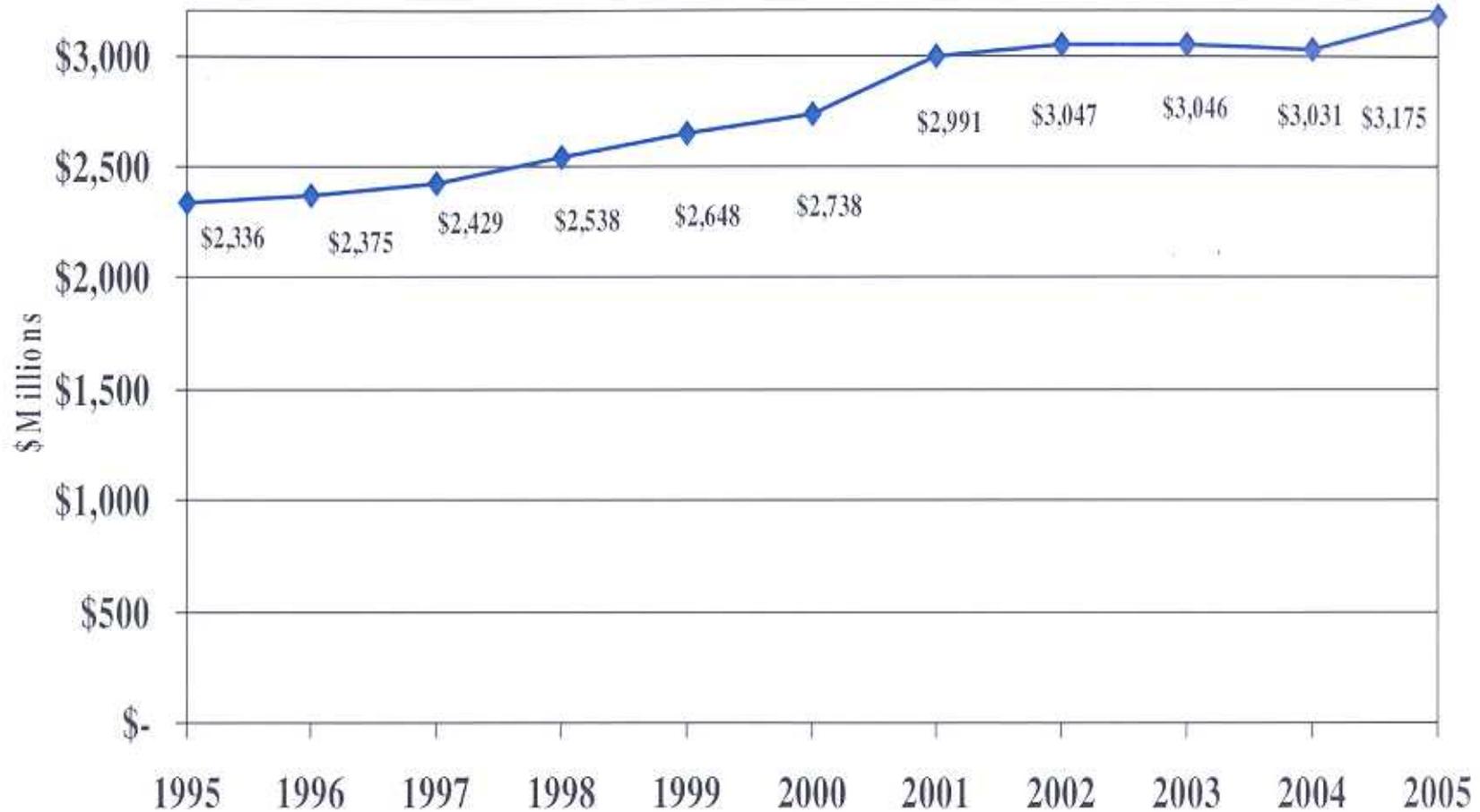


◆ Active Members ■ Retired Members

0.6% average increase for active members over last ten years  
3.5% average increase for retired members over last ten years  
2.1 active members per retiree



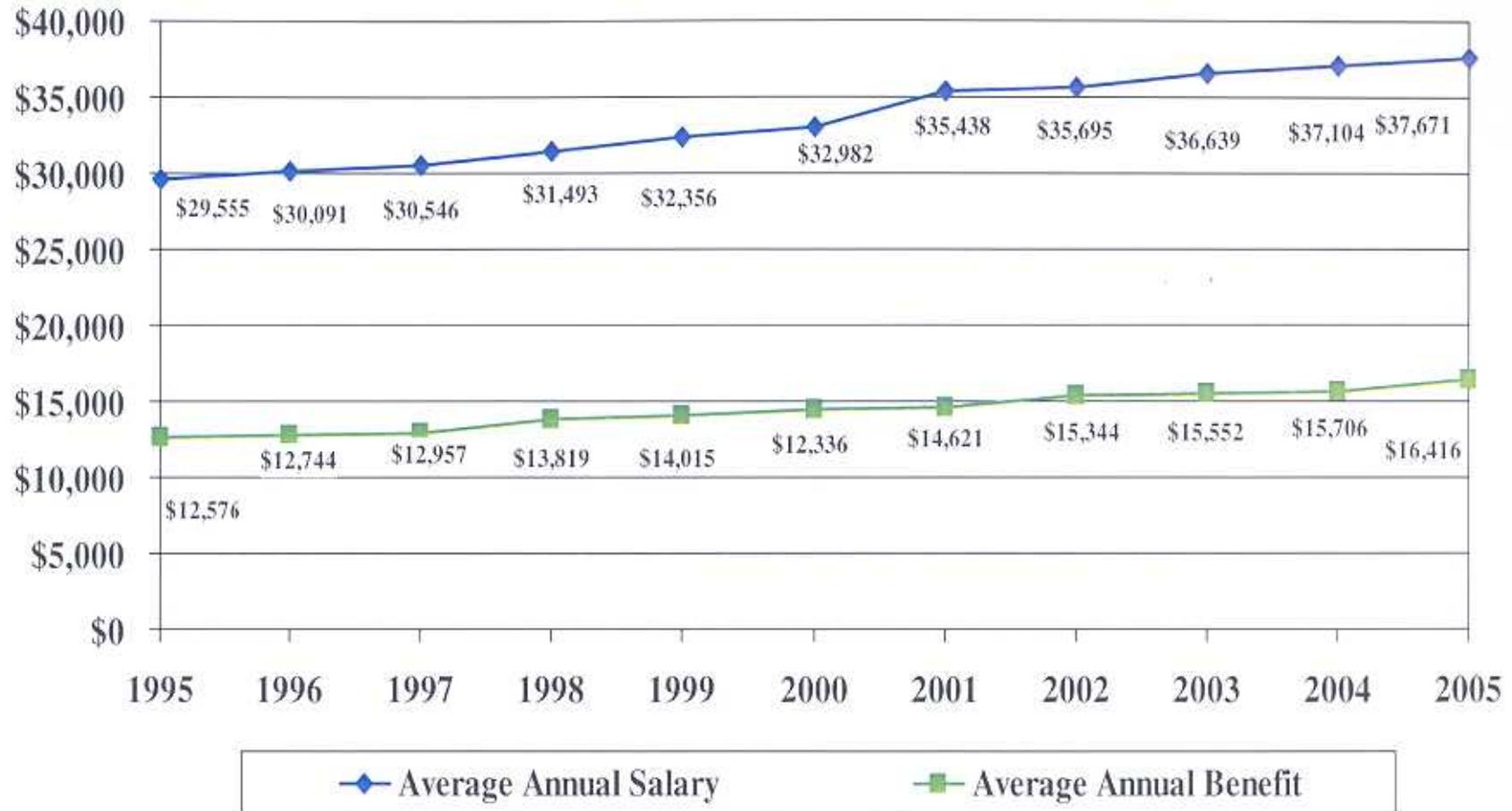
# Payroll



3.1% average increase over last ten years



## Average Salary and Average Benefit



2.5% average increase in average salary over last ten years  
2.7% average increase in average benefits over last ten years



## Assets

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- Fair market value increased from \$6,666 million to \$7,238 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 = \$235 million)
    - Includes service purchases and redeposits
  - Employer contributions (7.05% of pay = \$228 million)
  - State contribution (3.75% of tax revenues = \$164 million)
    - State's contribution rate increases to 4.00% for FY 2006
  - Federal matching contributions (\$14 million)
- Total contributions of \$641 million, compared to \$608 million in FY 2004



## Assets

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- The distributions (benefit payments, refunds and administrative expenses) totaled \$733 million
- Therefore, there is a negative external cash flow of \$92 million
  - -1.3% of market value at end of year
  - Not significant
- Return on market of approximately 10.0% in FY 2005
  - It was 20.2% in FY 2004
  - Average return for last ten years was 10.3%
    - 5.1% for last five years
    - 10.4% for last fifteen years



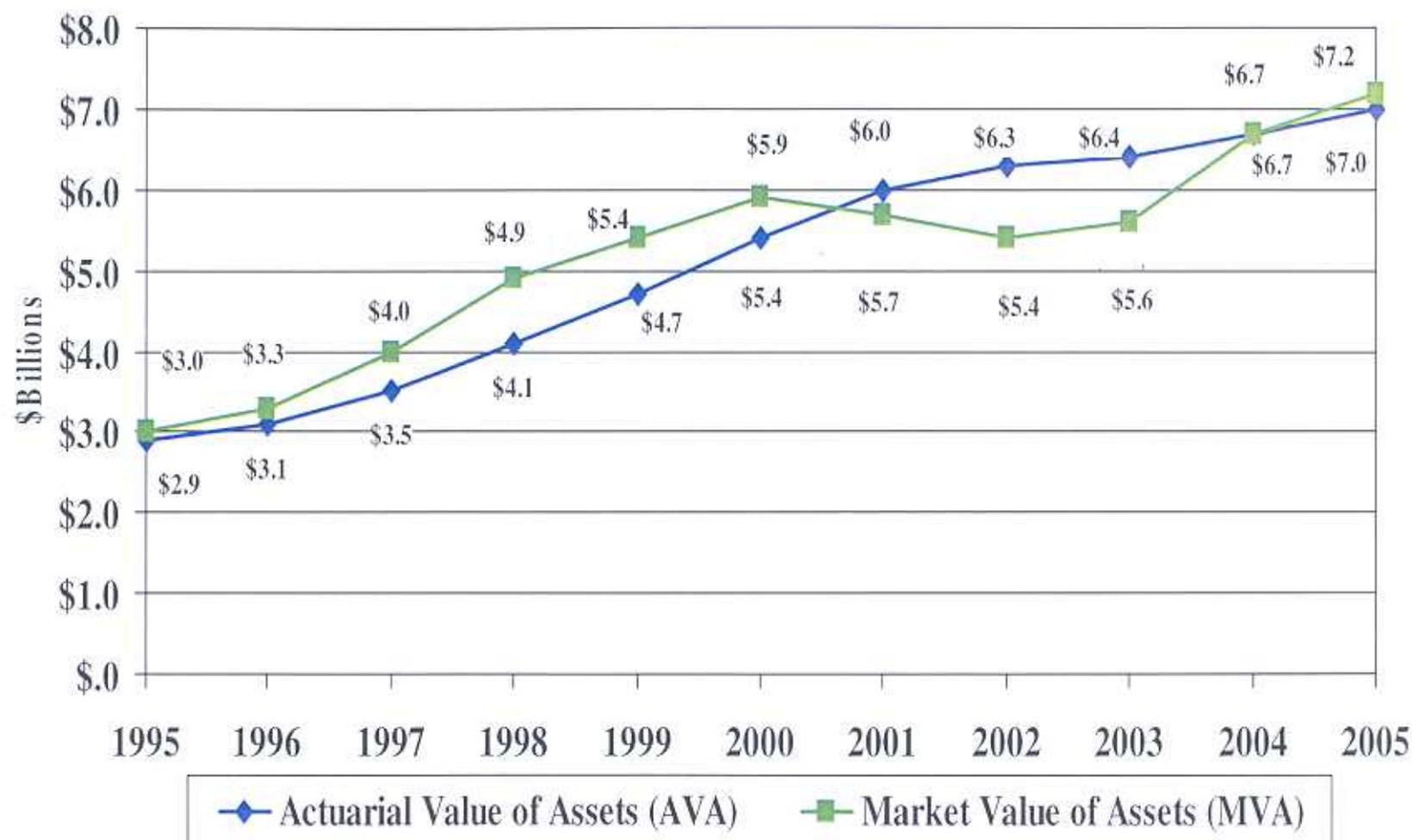
## Assets

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- All actuarial calculations are based on actuarial value of assets (AVA), not market value
- AVA reflects 20% of the difference between last year's expected return on market and the actual return
  - 40% of FY 2004 difference, 60% of FY 2003 difference and 80% of FY 2002 difference
  - AVA now \$6,953 million, vs. \$6,661 million last year
- Actuarial return was 5.7% in FY 2005, compared to 4.6% in FY 2004
  - 10.3% average return on actuarial value over last ten years
- AVA is 96.1% of fair market value (was 99.9% last year)
- \$285 million in deferred gains, not yet recognized



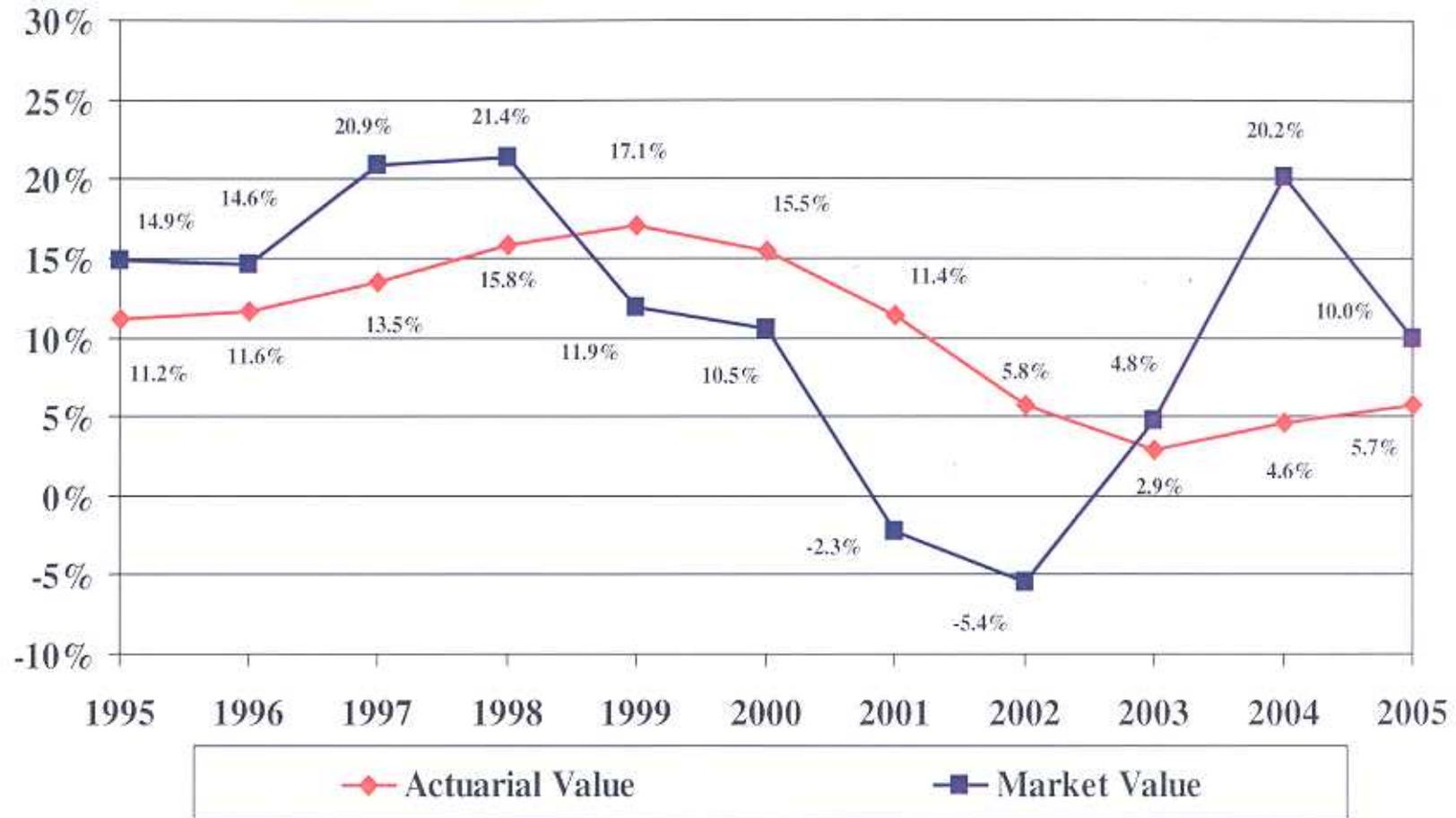
## Actuarial and Market Values of Assets



AVA is 96.1% of MVA  
 Deferred gains of \$285 million



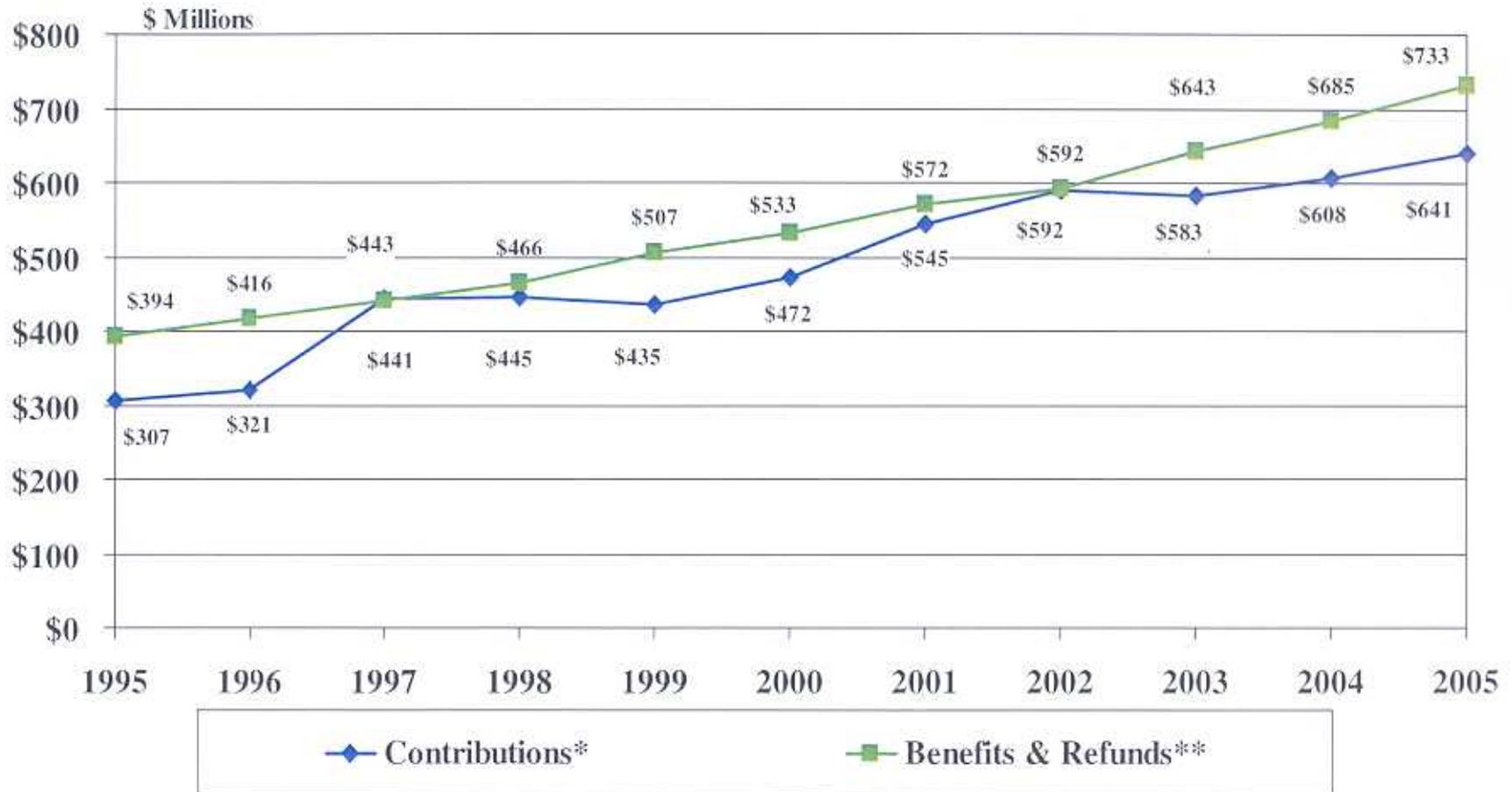
## Estimated Yield Based on Actuarial and Market Values of Assets



10.3% average compound return on actuarial value over the last ten years  
 10.3% average compound return on market value over the last ten years



## Contributions vs. Benefits & Refunds by Fiscal Year



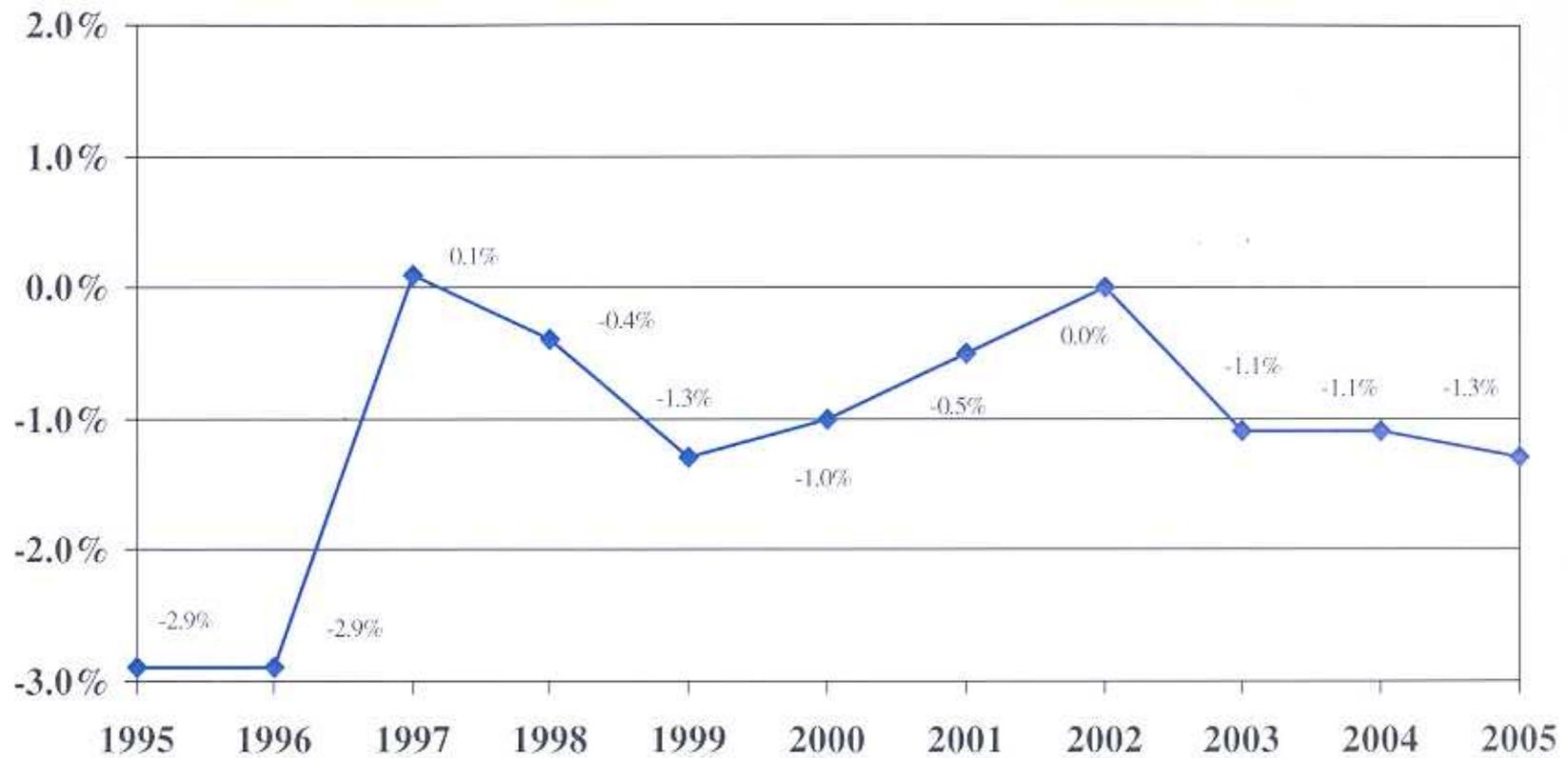
\* Includes member, state, employer and federal contributions

\*\* Includes administrative expenses



## External Cash Flow As Percentage of Market Value

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## Benefit and Contribution Structure Changes

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- There were no material legislative changes to the system during the 2005 session.



## Changes in Actuarial Assumptions and Methods

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- Board approved revised actuarial assumptions in August, 2005 that were based on the 2005 experience study.
- Summary of changes:
  - Reduced basic salary scale
  - Reduced retirement rates
  - Revised withdrawal tables
  - Modified mortality rates
  - Reduced disability incidence
- Other key assumptions:
  - Investment return rate: 8.00% per year
  - Future payroll and tax revenue growth: 3.50% per year
- Board also approved revision to GASB ARC methodology:
  - From 40-year, level dollar to 30-year, level percent



## Actuarial Results

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- Unfunded actuarial accrued liability (UAAL) decreased from \$7,419 million to \$7,100 million
- Decrease occurred primarily because of experience study/revision of assumptions.
- Funded ratio—actuarial assets divided by actuarial accrued liability—improved from 47.3% to 49.5%
- Funding period reduced from infinity to 42.6 years
- UAAL expected to increase until FY 2029 and to become fully amortized by FY 2048
  - Peaks at \$10.7 billion in FY 2029
  - Assuming no benefit changes or other gains/losses



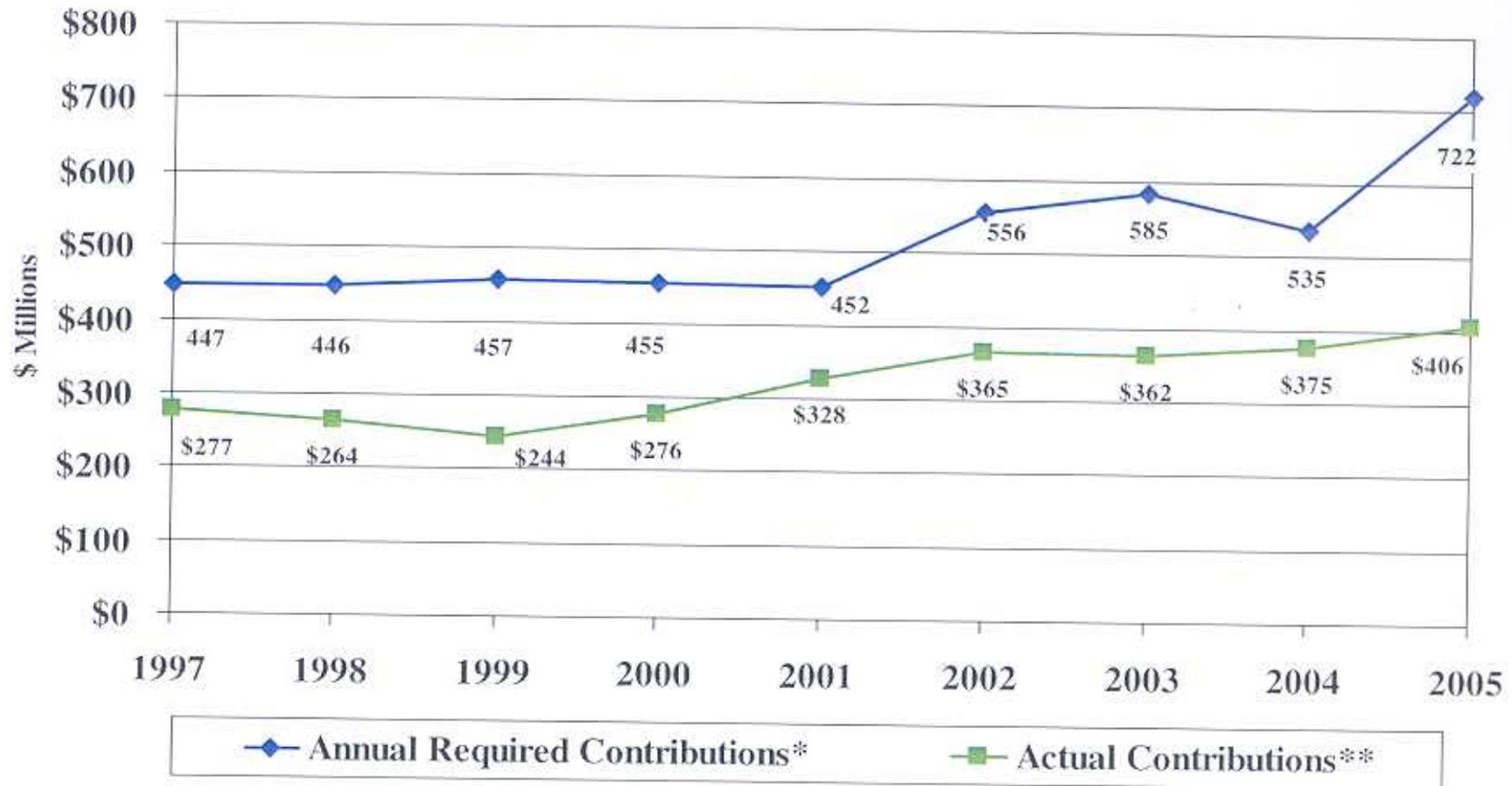
## Actuarial Results

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- Annual required contribution (GASB #25 ARC = normal cost plus 30-year funding of UAAL, using level percent of pay) of \$535 million vs. \$722 million last year
  - 16.32% vs. 23.21%
  - Reflects change in how ARC determined
- Actuarial gains/(losses)
  - Assets: \$149.7 million loss
  - Liabilities: \$28.0 million gain
  - Assumption Change (Experience Study): \$721.3 million decrease in UAAL



# Annual Required Contribution (ARC) vs. Actual Contributions

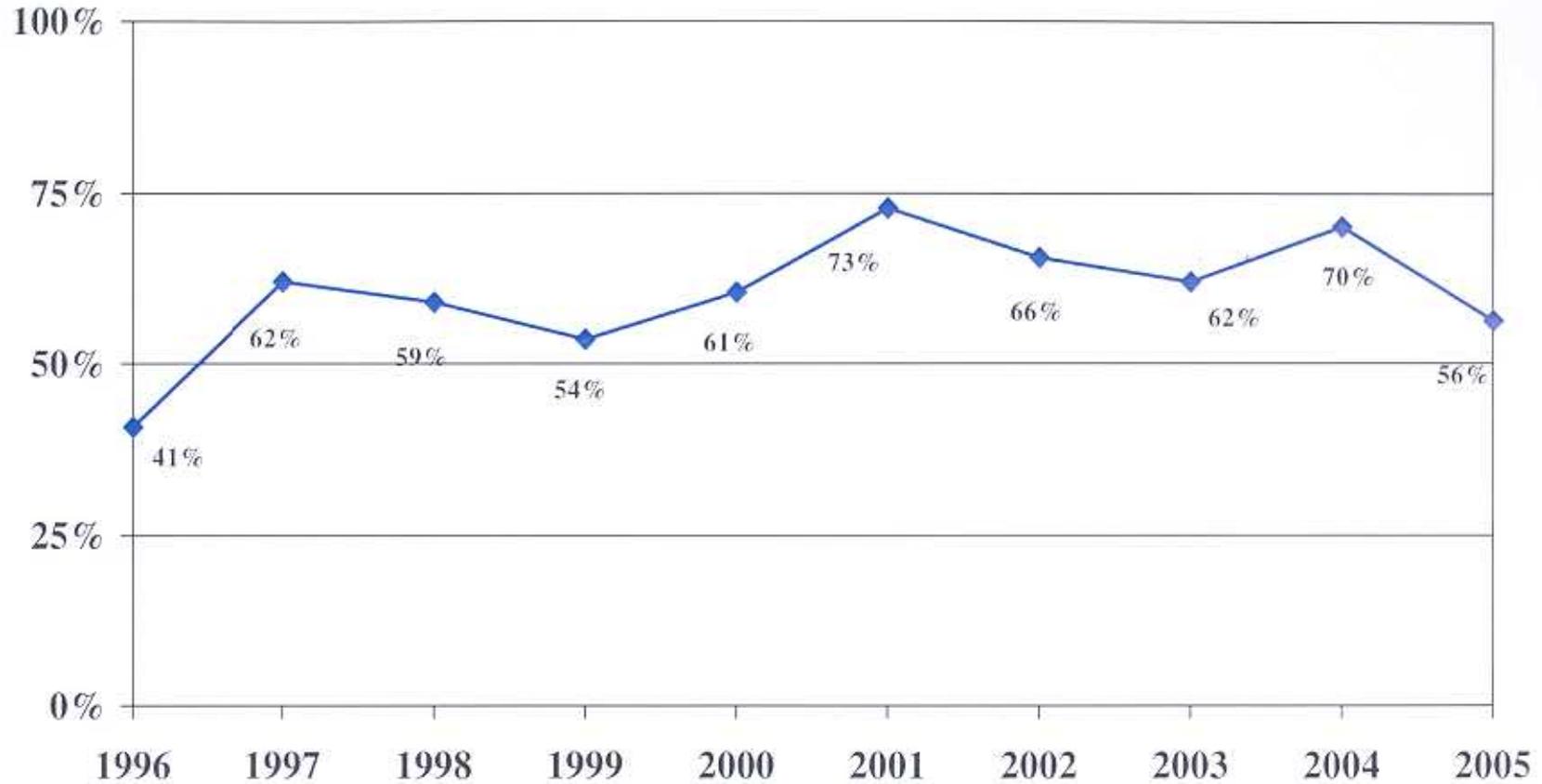


\* Normal cost plus 40-year level payment of UAAL

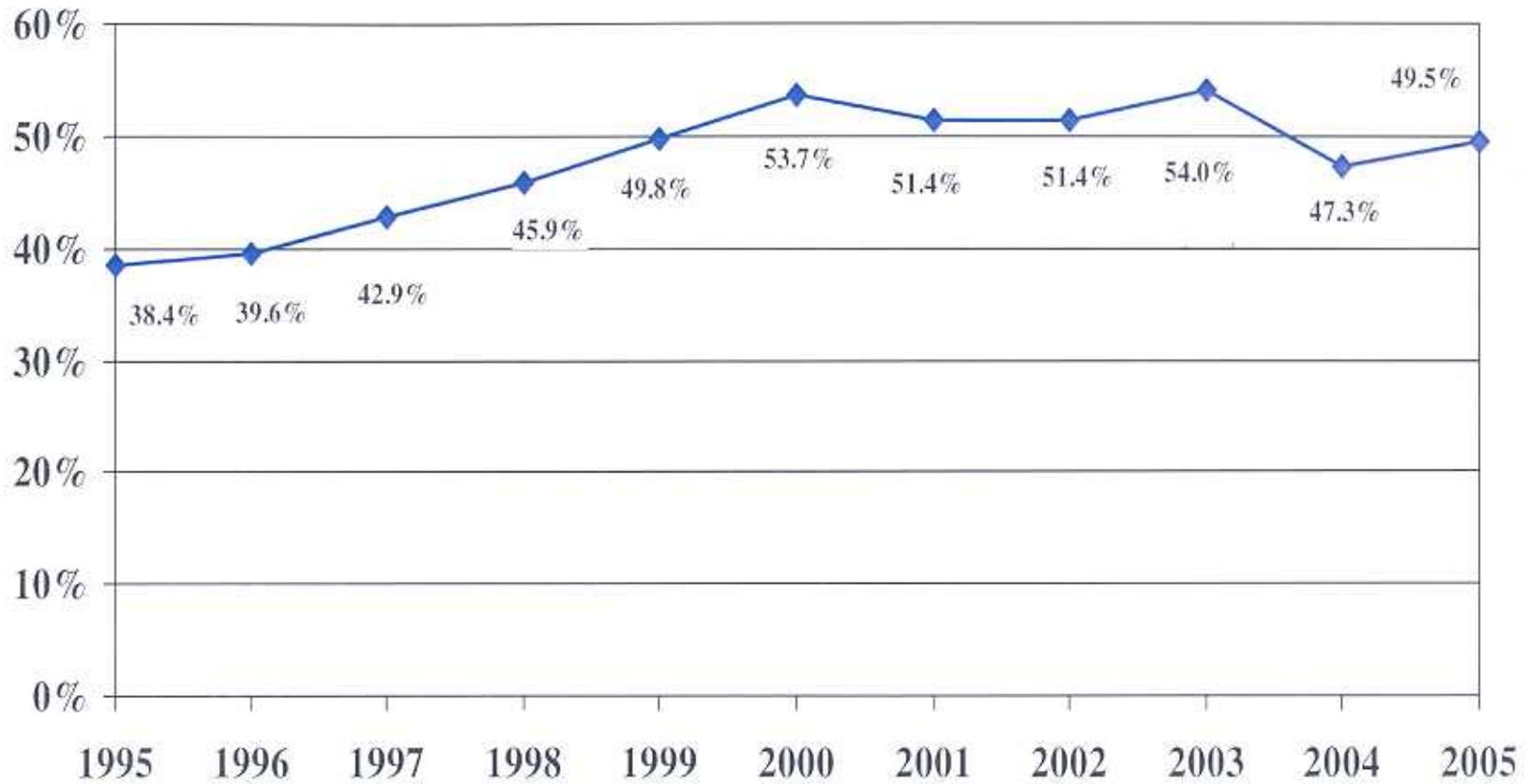
\*\* Employer, state and federal matching contributions



## Actual Contributions as Percentage Of Annual Required Contribution

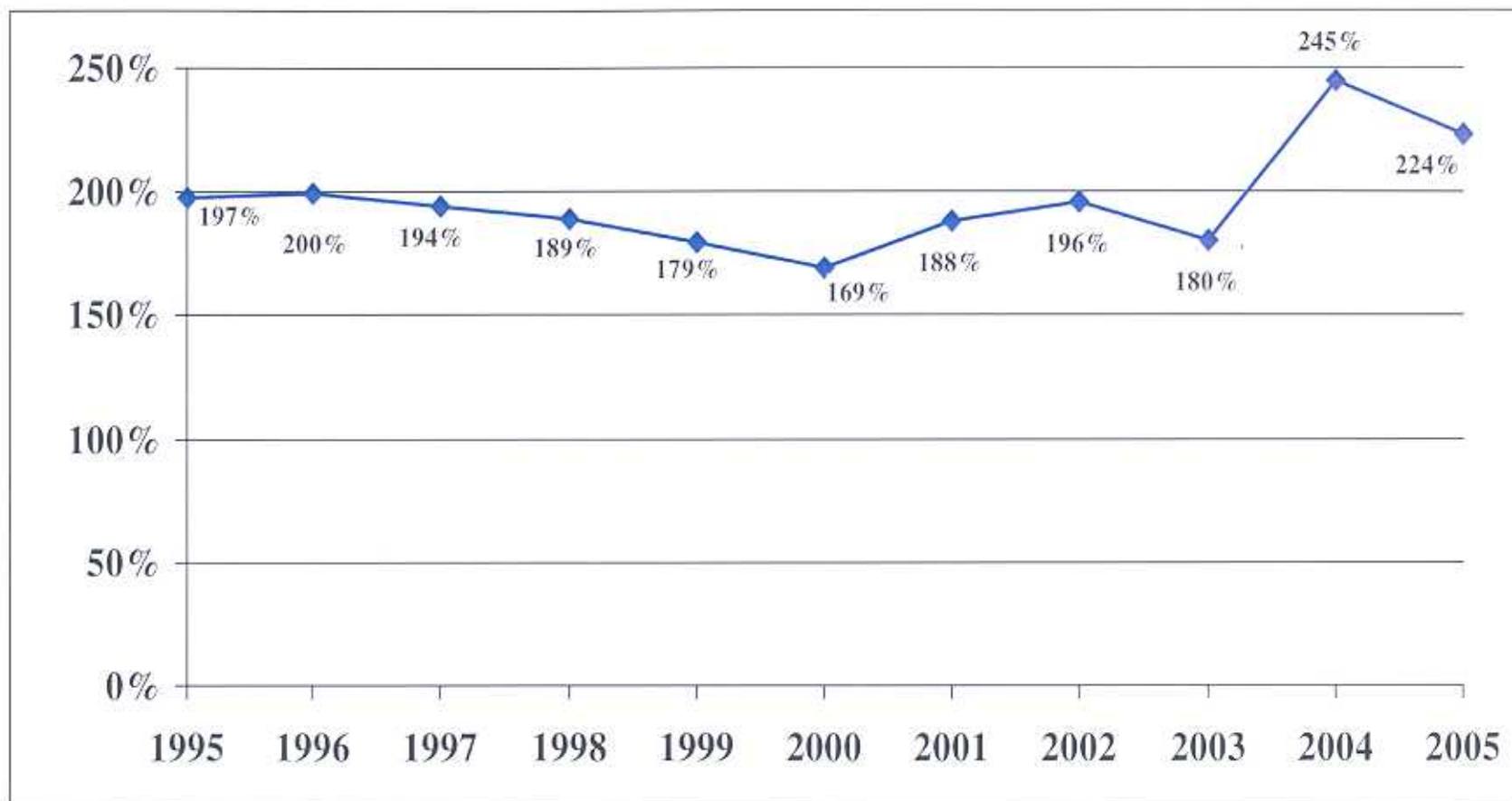


## GASB #25 Funded Ratio



## UAAL as a Percentage of Covered Payroll

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

	<u>FY 2005</u>	<u>FY 2004</u>
1. UAAL, beginning of year	\$7,419.2	\$5,488.3
2. Expected increase (decrease)	321.8	147.2
3. Actual vs. expected contributions	(41.7)	(19.1)
4. Asset loss / (gain)	149.7	215.4
5. Liability loss / (gain)	(28.0)	(6.3)
6. Legislative changes	0.0	537.9
7. Assumption changes	(721.3)	1,055.8
8. UAAL, end of year	<u>\$7,099.7</u>	<u>\$7,419.2</u>



## Reporting for State Pension Commission

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- 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)
- Actuarial results:
  - Actuarial accrued liability: \$16.1 billion vs. \$14.1 billion in regular valuation
  - Actuarial assets: \$7.0 billion (no difference)
  - UAAL: \$9.2 billion vs. \$7.1 billion in regular valuation
  - Funded ratio: 43.1% vs. 49.5% in regular valuation



## Reporting for State Pension Commission

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- Calculated contribution (in millions)

Total	\$1,208	36.82%
Less members	\$230	7.00%
Less employers	\$231	7.05%
Less federal	\$16	0.48%
Net (State)	<u>\$731</u>	<u>22.29%</u>

- Was net \$717 million last year, or 23.06%

