

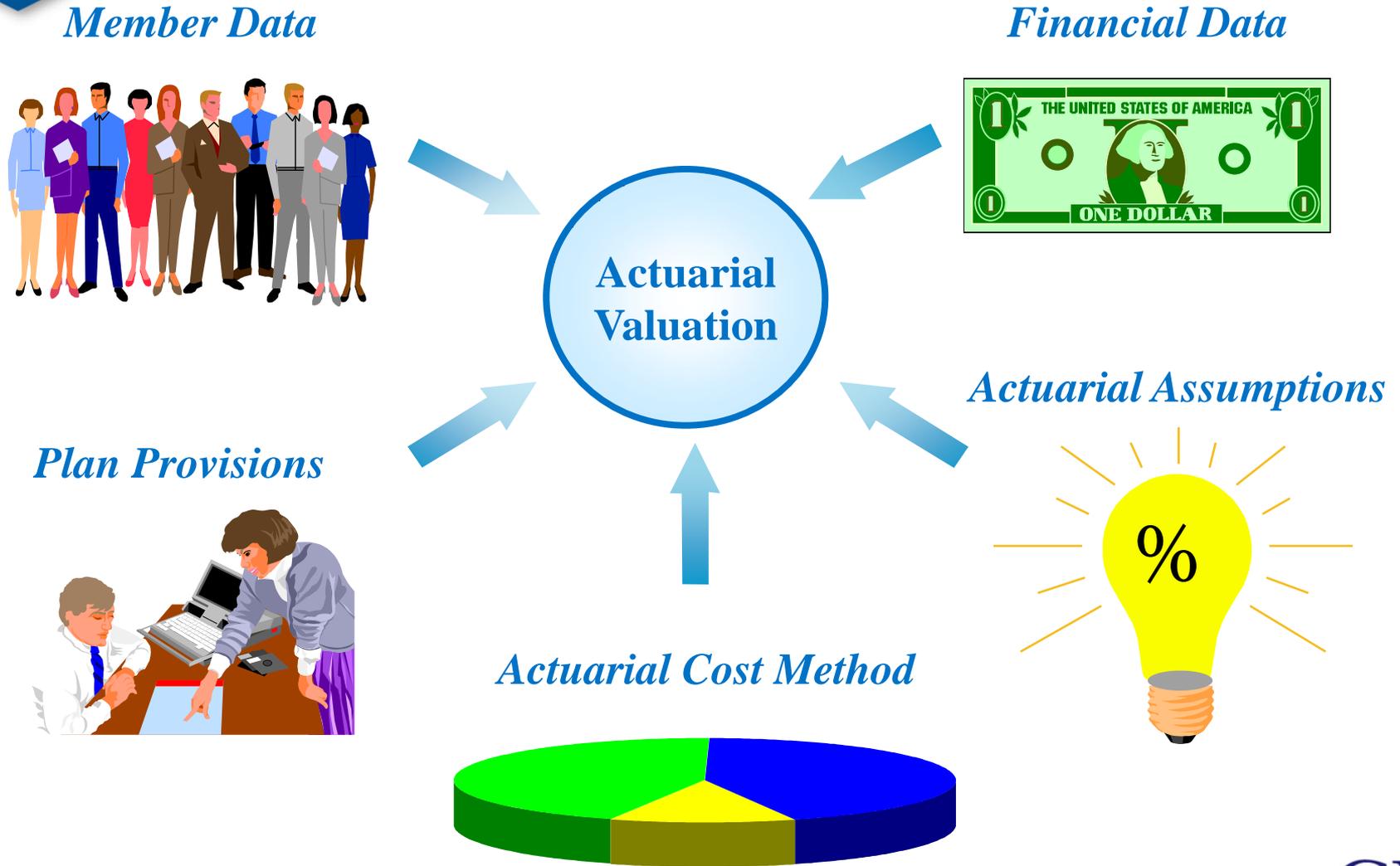
# Michigan State Employees Retirement System

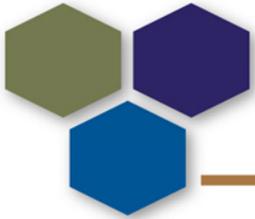
## Pension Actuarial Valuation Results as of September 30, 2012



**Gabriel Roeder Smith & Company**  
Consultants & Actuaries  
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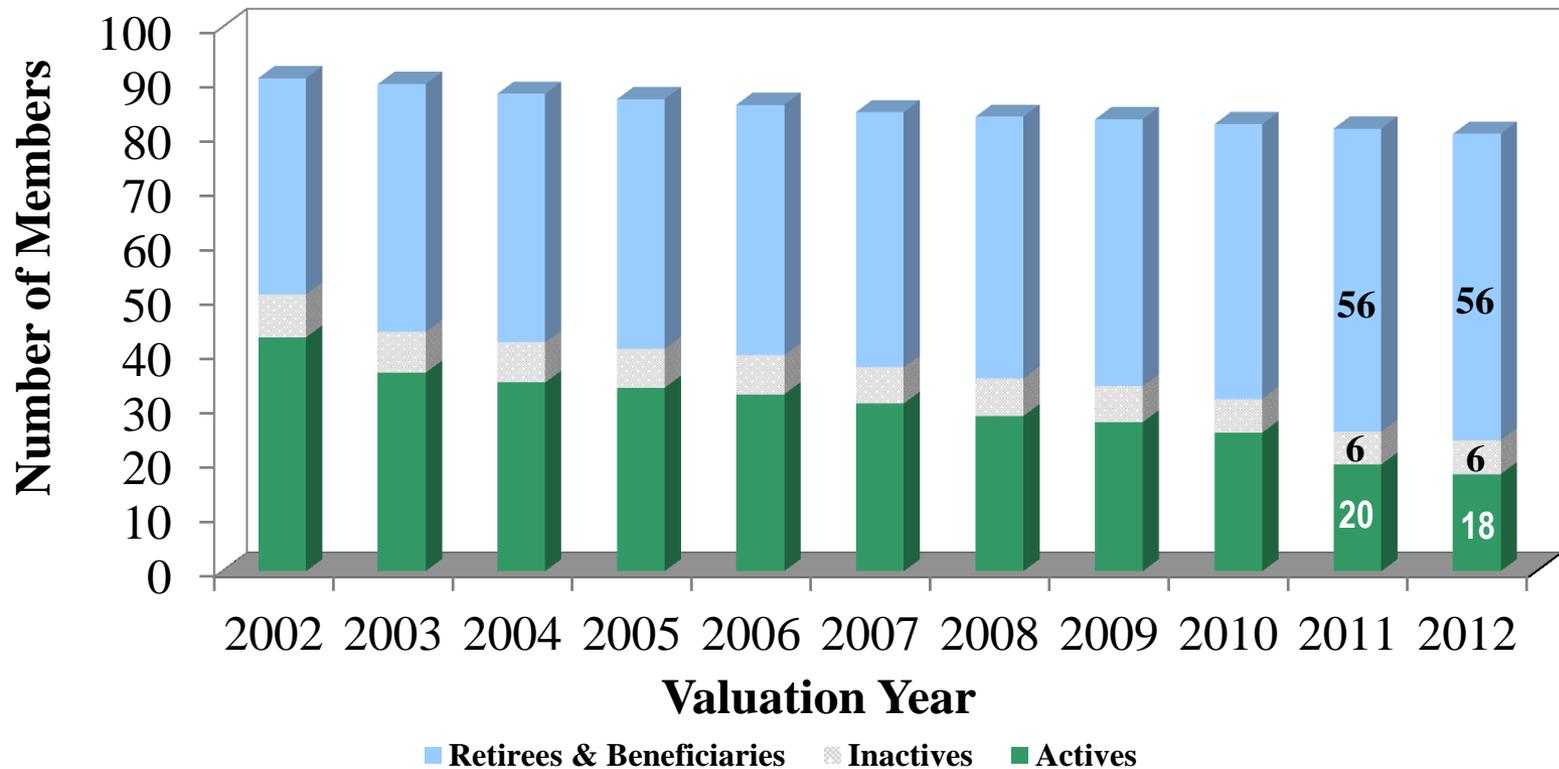
# Actuarial Valuation Process

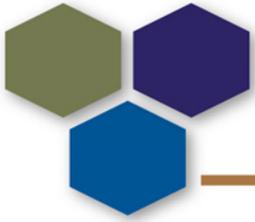




# Membership Data

(Counts in Thousands)

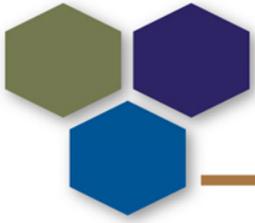




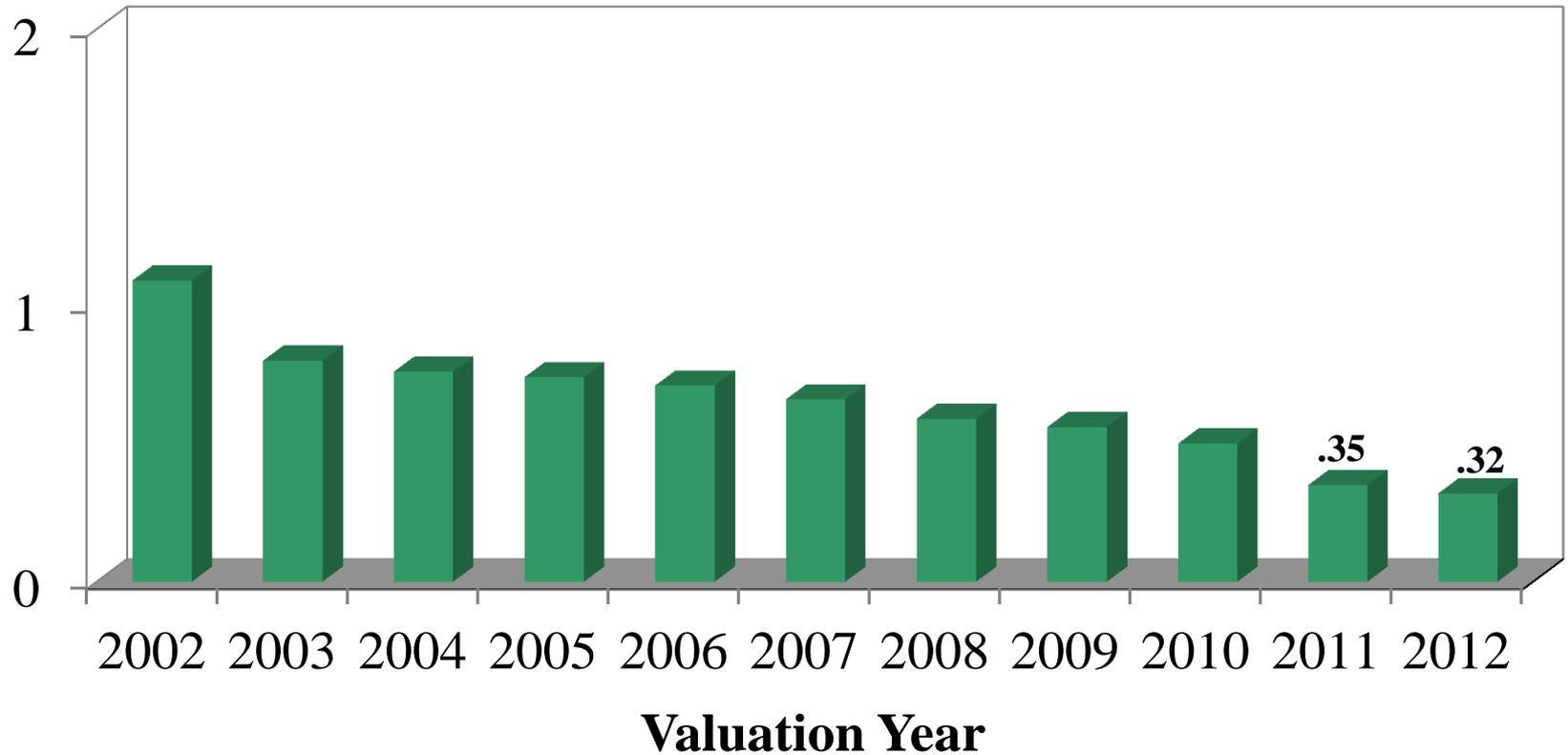
# Active Members by Classification

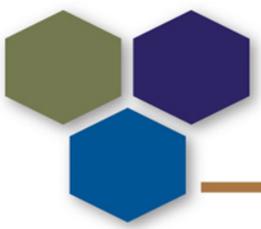
(Counts in Thousands)



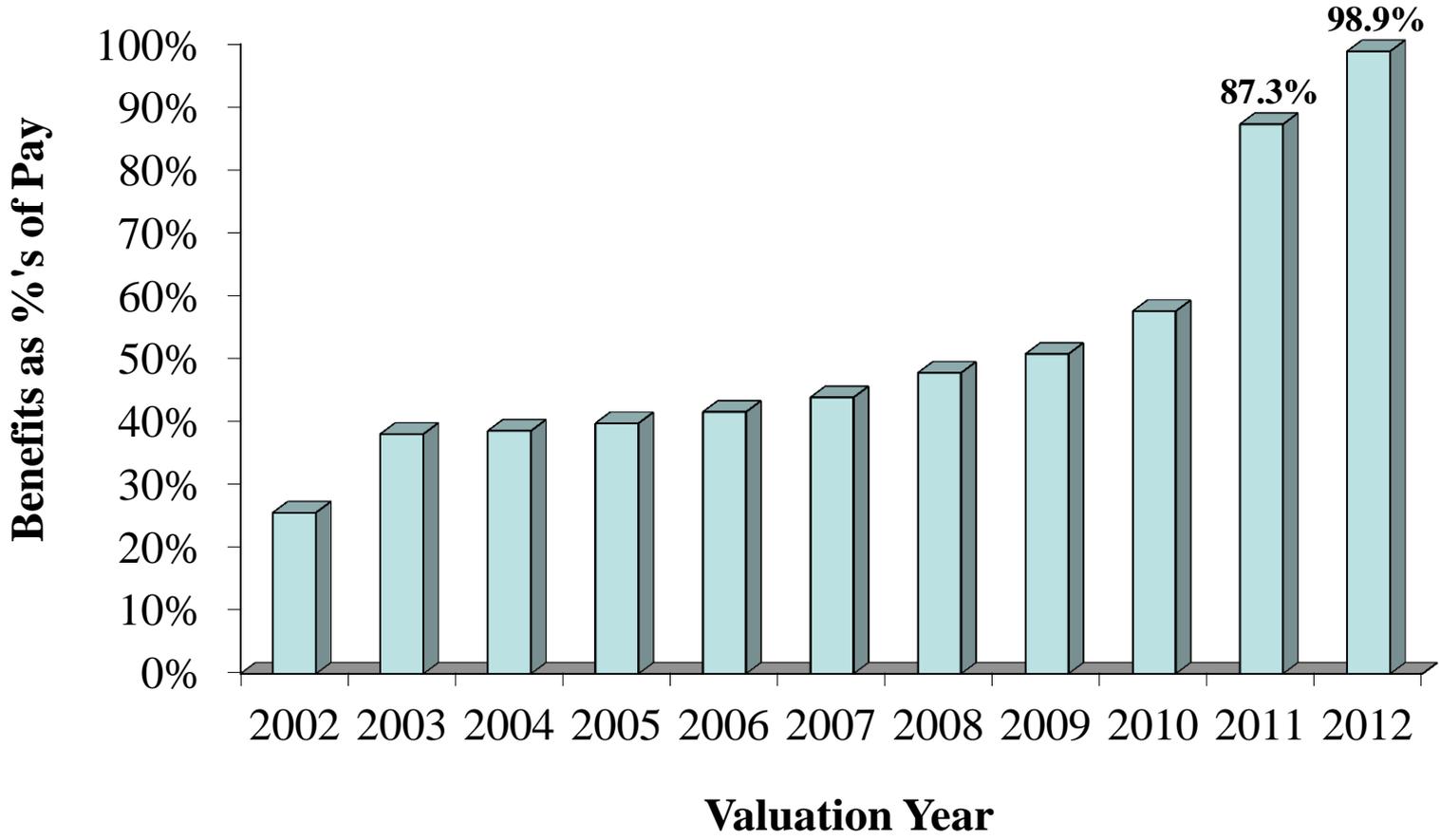


# Ratio of Active Members to Pension Benefit Recipients



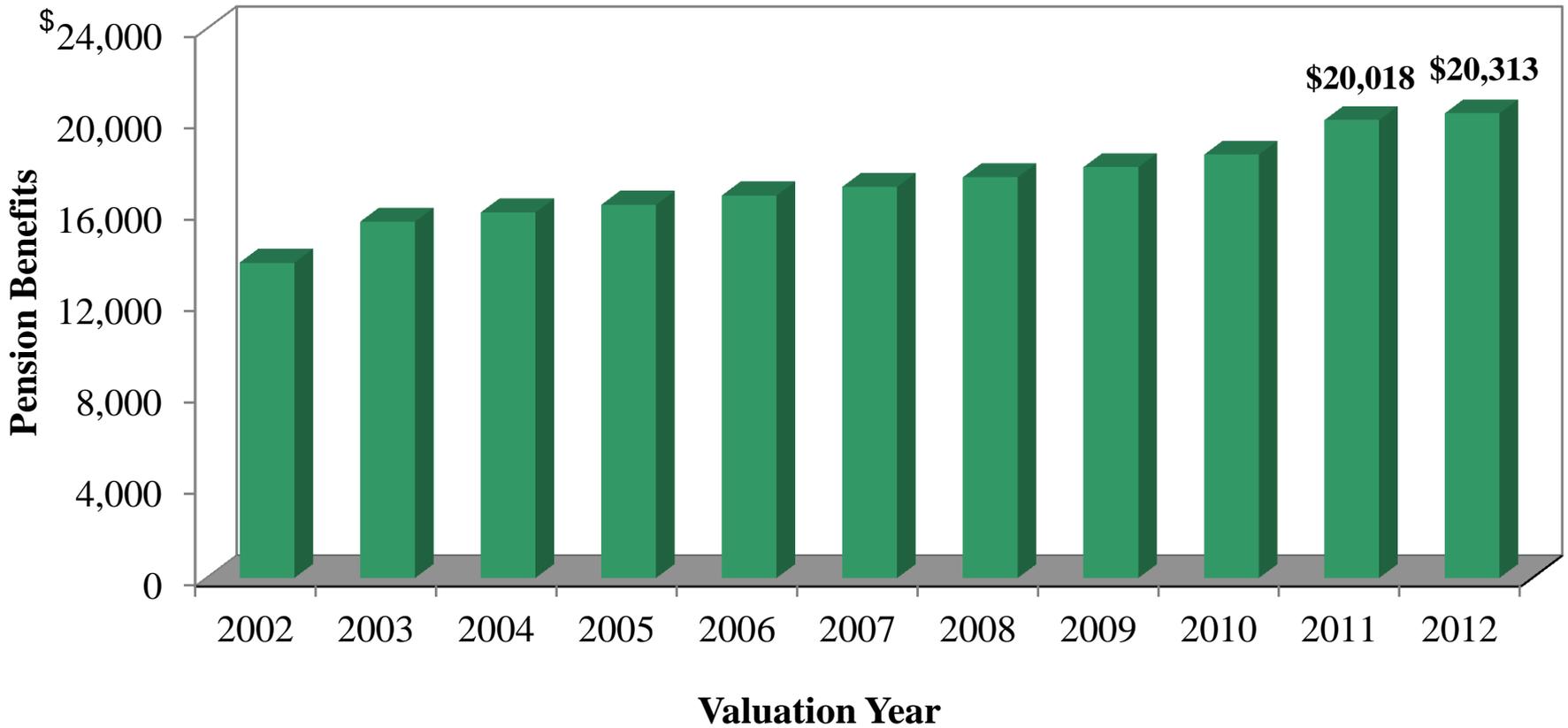


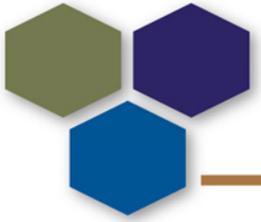
# Pension Benefits Expressed as %'s of Active Member Pay



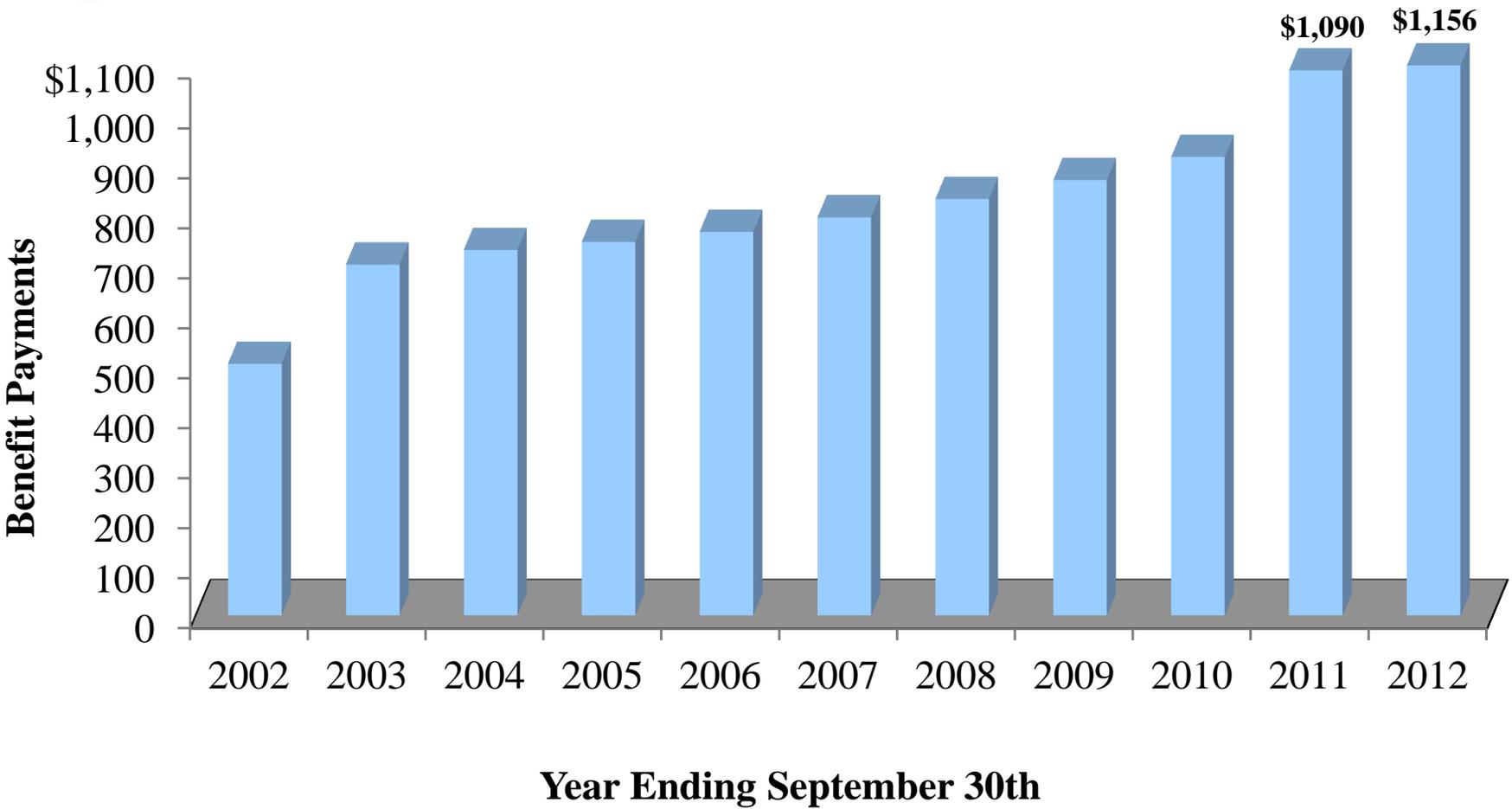


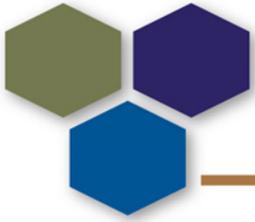
# Average Annual Pension Benefits





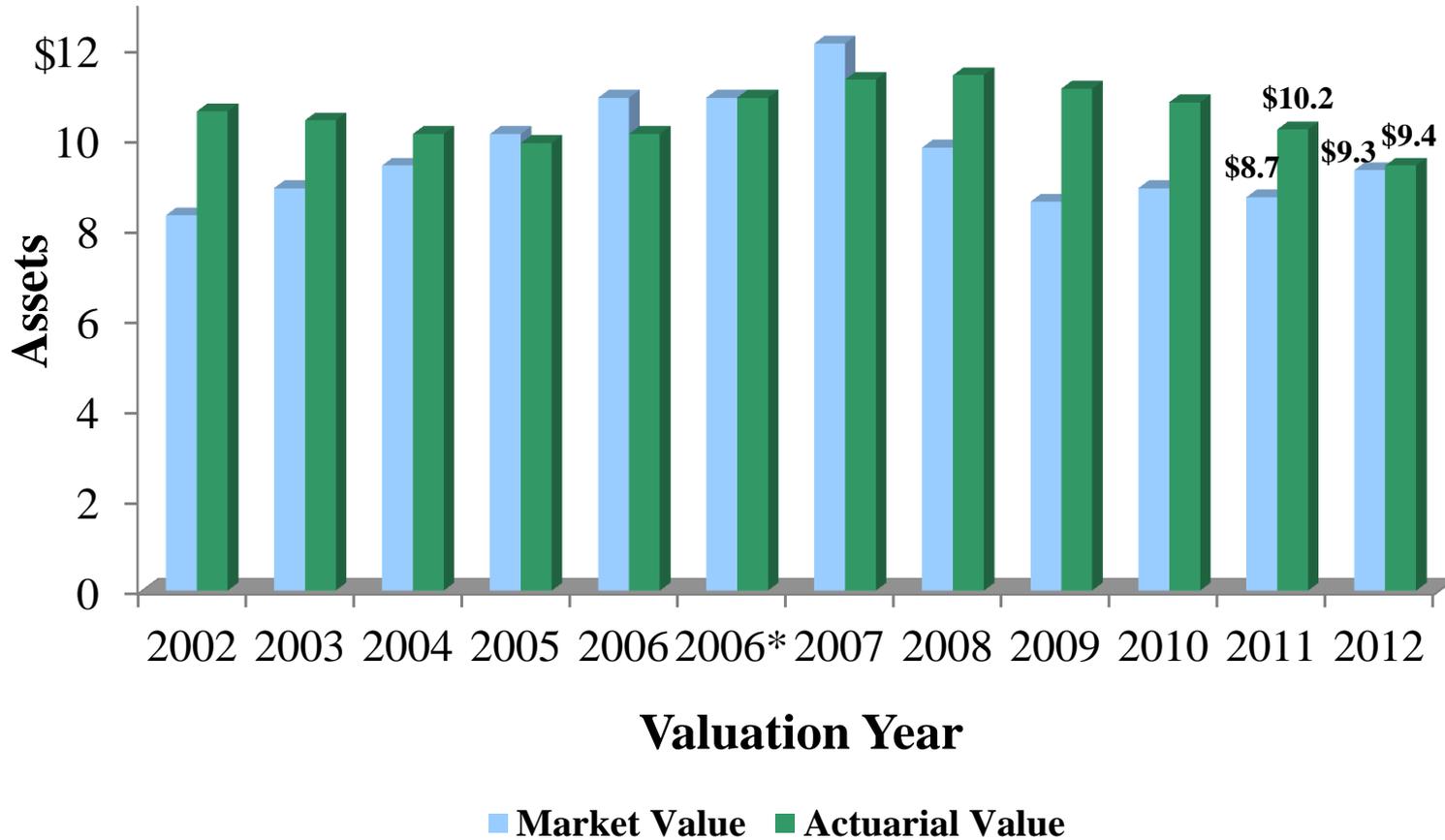
# Pension Benefit Payments by Fiscal Year (Amounts in Millions)





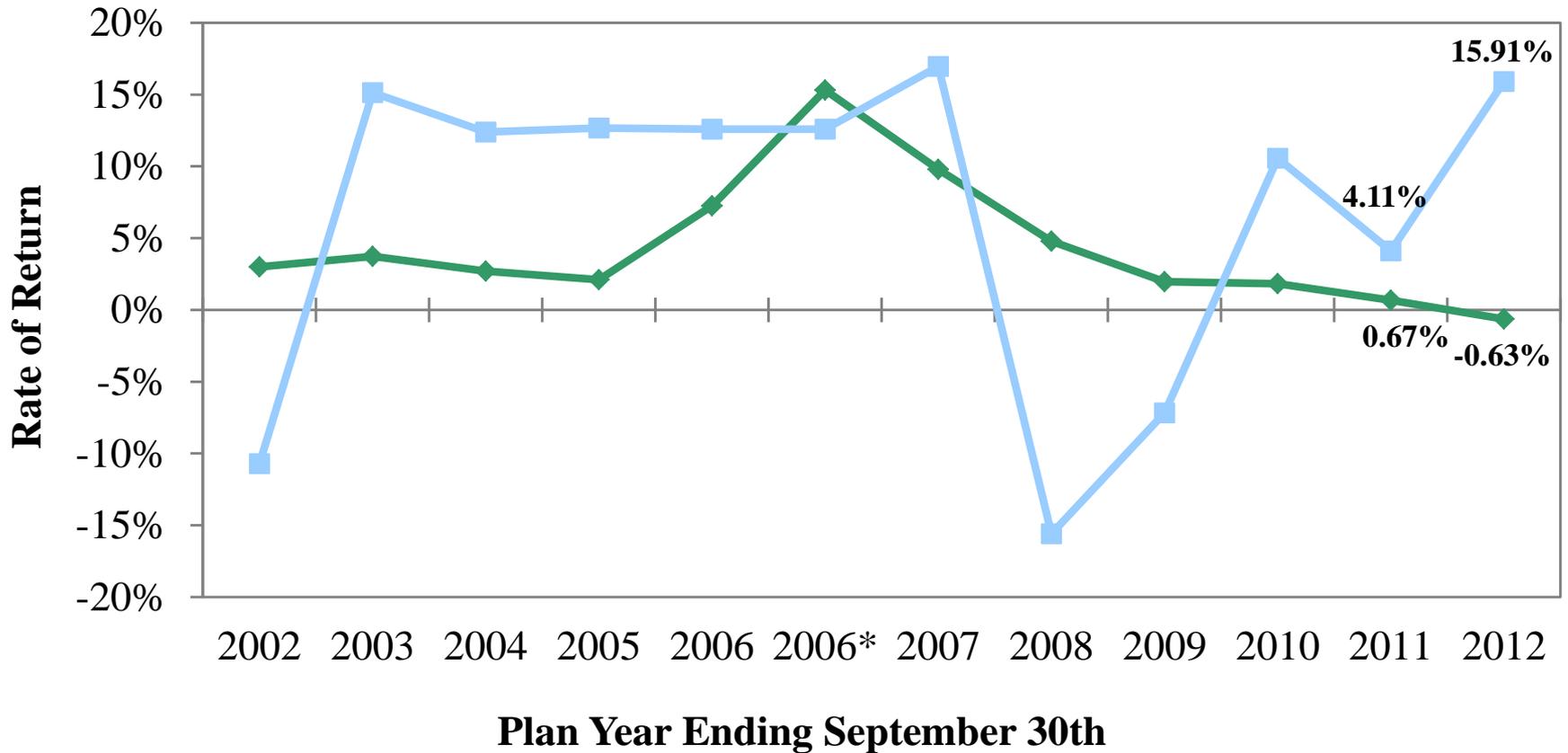
# Pension Assets

(Amounts in Billions)

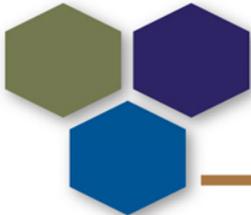


\* After adjusting to market value.

# Actuarial & Market Net Rates of Return

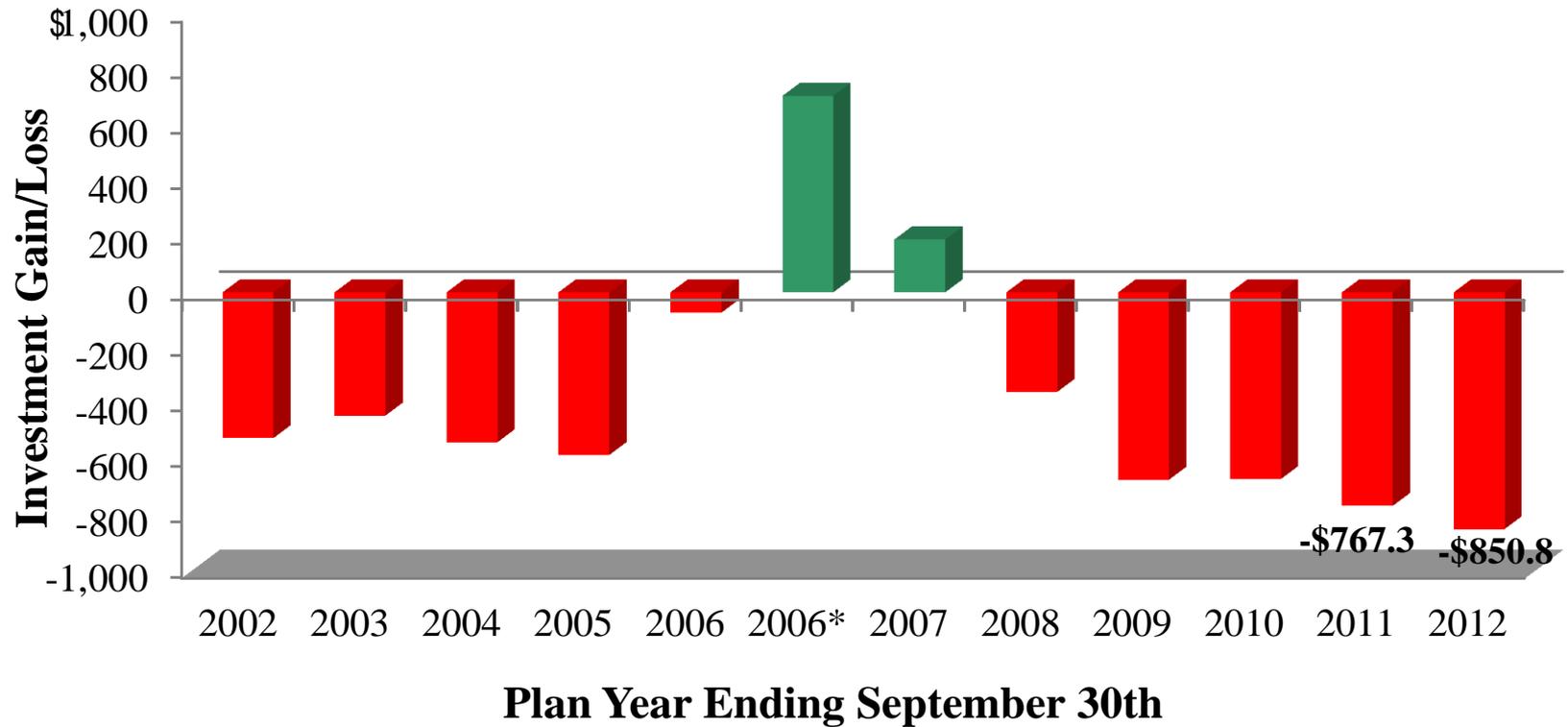


\* After adjusting to market value.

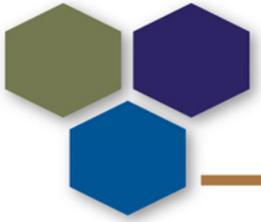


# Investment Gain/Loss

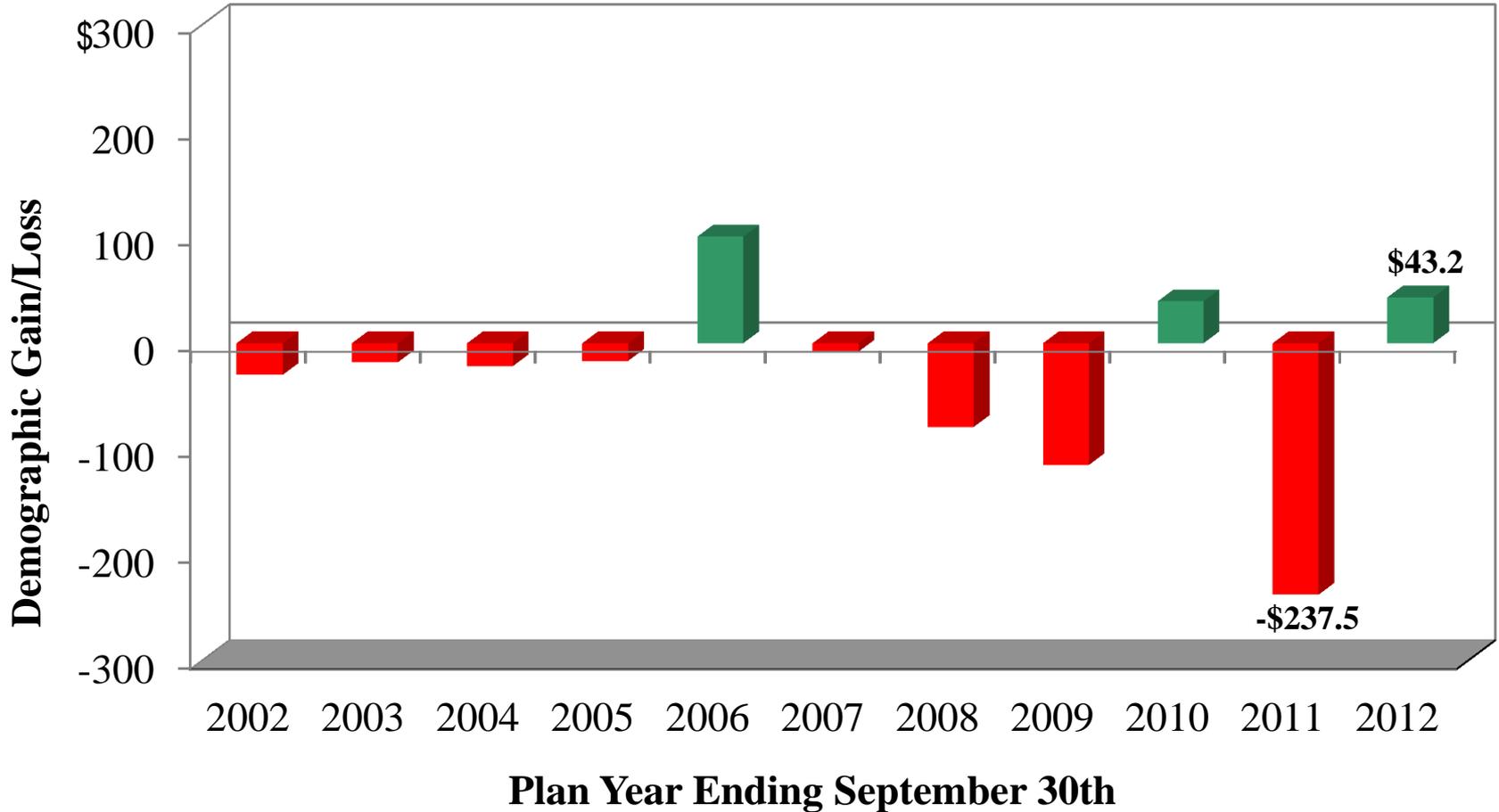
(Amounts in Millions)

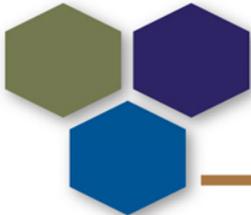


\* After adjusting to market value.



# Demographic Gain/Loss (Amounts in Millions)



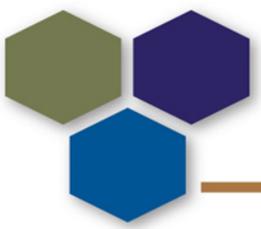


# Gain/(Loss) by Type of Activity

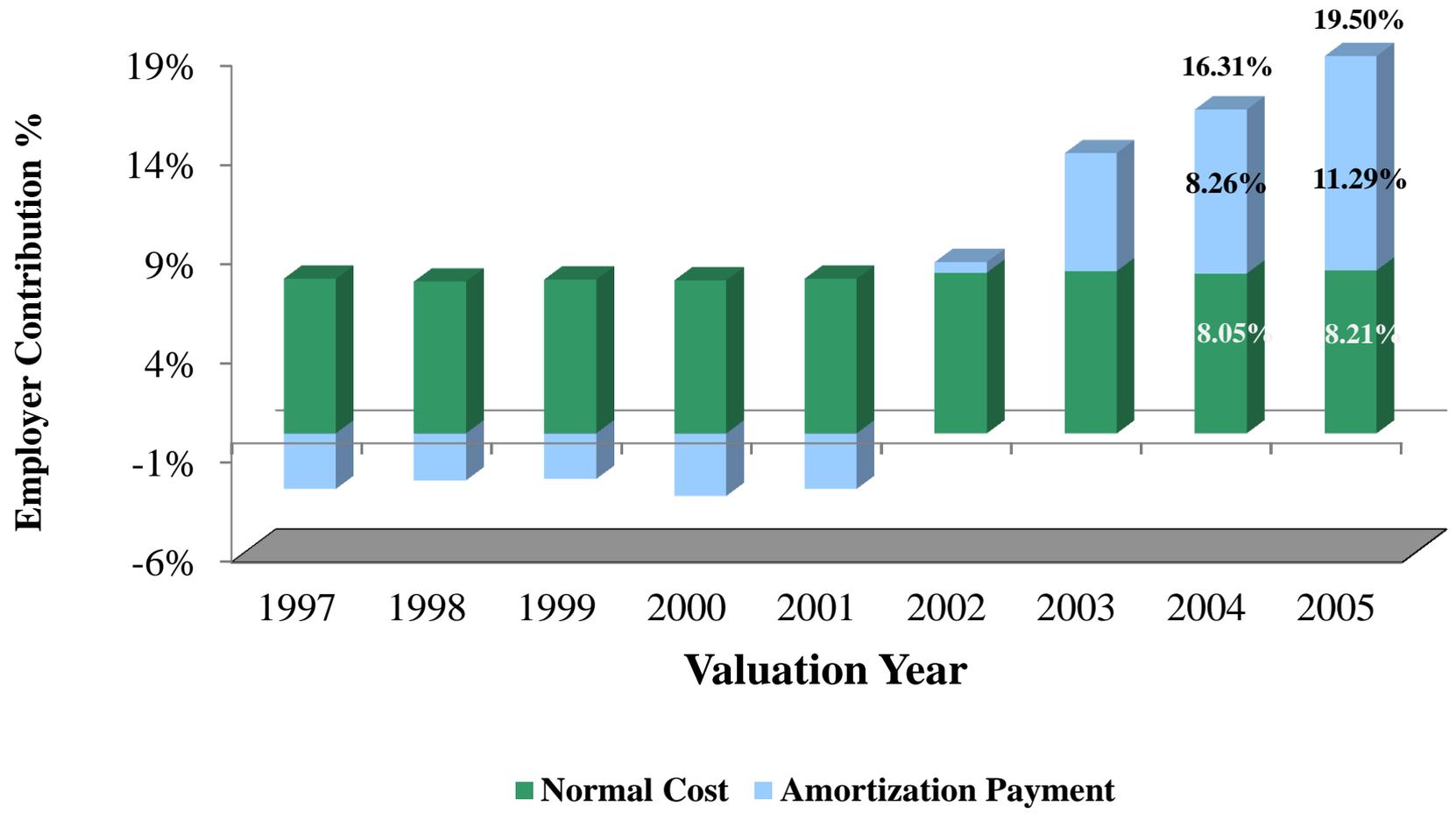
(Amounts in Millions)

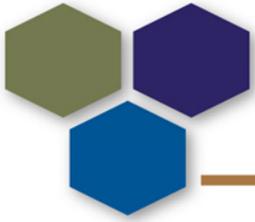
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| <b>Plan Year</b>   |                 |                   |                 |                 |                 |
|--------------------|-----------------|-------------------|-----------------|-----------------|-----------------|
| <b>Ending 9/30</b> | <b>2012</b>     | <b>2011</b>       | <b>2010</b>     | <b>2009</b>     | <b>2008</b>     |
| Rehires            | \$ (15.04)      | \$ (21.97)        | \$ (33.96)      | \$ (52.28)      | \$ (1.85)       |
| Retiree Deaths     | (36.07)         | (51.64)           | (27.00)         | (80.10)         | (38.48)         |
| Investments        | (850.82)        | (767.32)          | (670.79)        | (672.97)        | (357.93)        |
| Pay Increases      | 152.18          | 10.70             | 127.51          | 59.58           | (14.66)         |
| Withdrawals        | (1.63)          | 1.64              | (3.51)          | (6.44)          | 20.07           |
| Retirements        | (4.43)          | (32.13)           | (23.46)         | 17.89           | (5.09)          |
| Other              | (51.80)         | (144.05)          | (0.07)          | (53.63)         | (38.96)         |
| <b>Total</b>       | <b>(807.61)</b> | <b>(1,004.77)</b> | <b>(631.28)</b> | <b>(787.95)</b> | <b>(436.90)</b> |

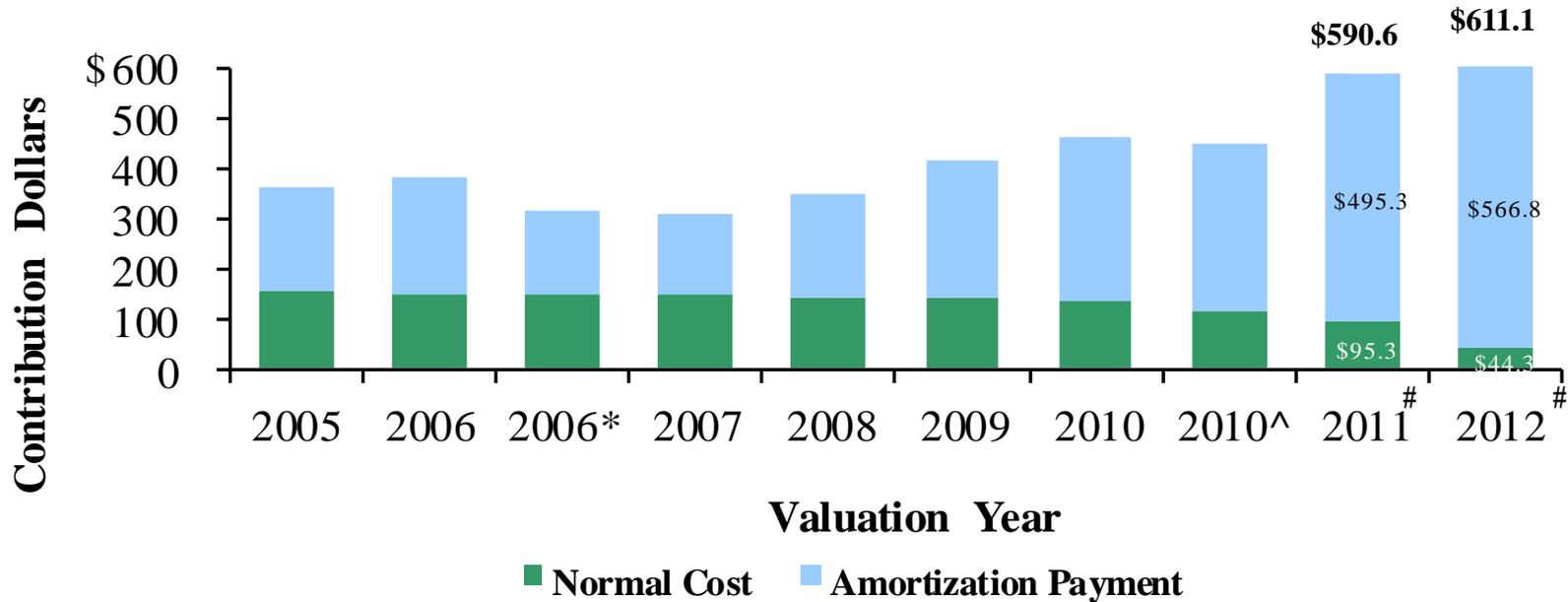


# Historical Employer Contribution %'s Valuation as of September 30





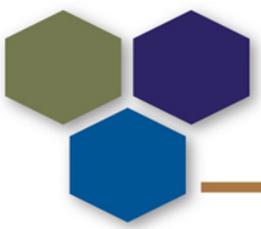
# Employer Contribution Dollars (in Millions) Valuation as of September 30



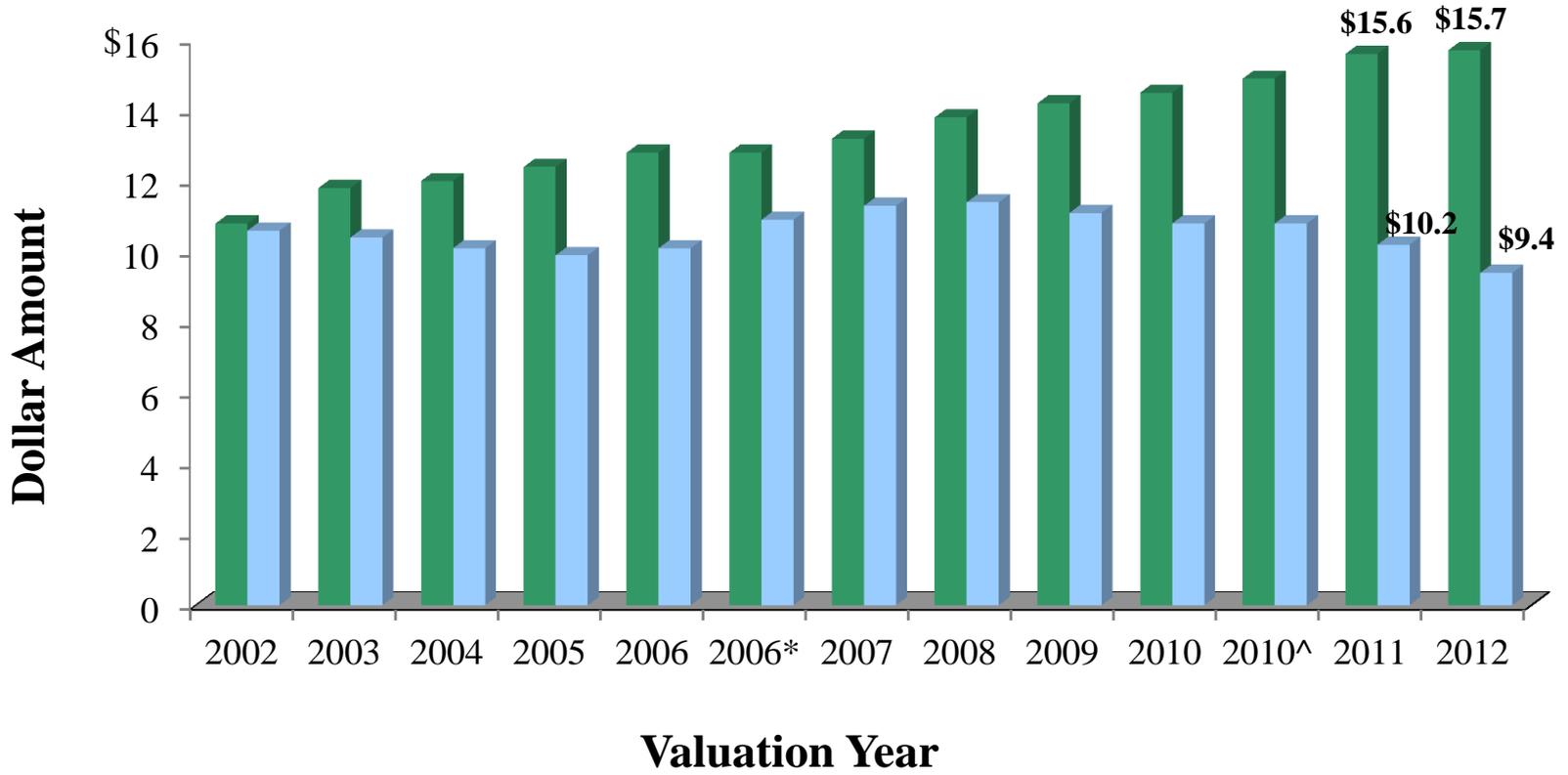
\* After adjusting to market value.

^ Revised actuarial assumptions and methods.

# Includes ERI payment.

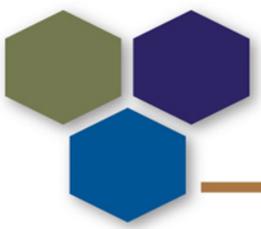


# Actuarial Accrued Liability Compared to Actuarial Value of Assets (in Billions)

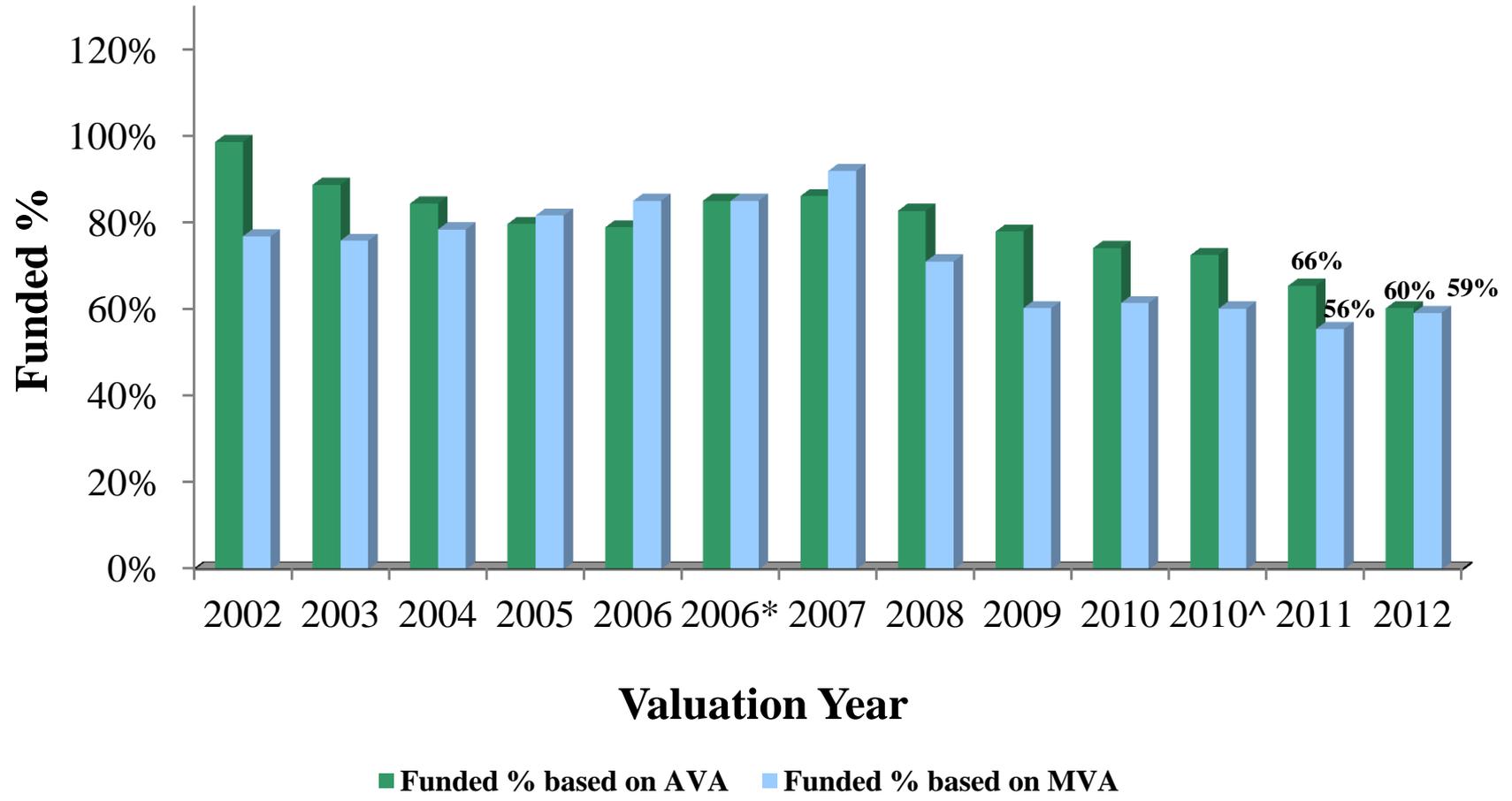


■ Actuarial Accrued Liability (AAL)    ■ Actuarial Value of Assets (AVA)

\* After adjusting to market value.  
^ Revised actuarial assumptions and methods.

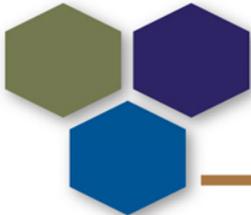


# Retirement System Funded % Based on Actuarial Value and Market Value of Assets



\* After adjusting to market value.

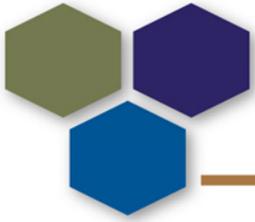
^ Revised actuarial assumptions and methods.



# Comments on the Investment Markets

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- ◆ Investment markets have been very volatile.
- ◆ Valuation is based on a 5-year smoothed value of assets.
  - ▶ Reduces the volatility of the valuation results.
- ◆ 9/30/2012 smoothed value of assets was higher than market value.
  - ▶ Meeting the actuarial assumption will require average future market returns over 8%.
- ◆ 9/30/2012 valuation results based on market value:
  - ▶ Funded percent would be 59.2% (instead of 60.3%).
  - ▶ Employer contribution would be \$627.1 million (instead of \$611.1 million).



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