



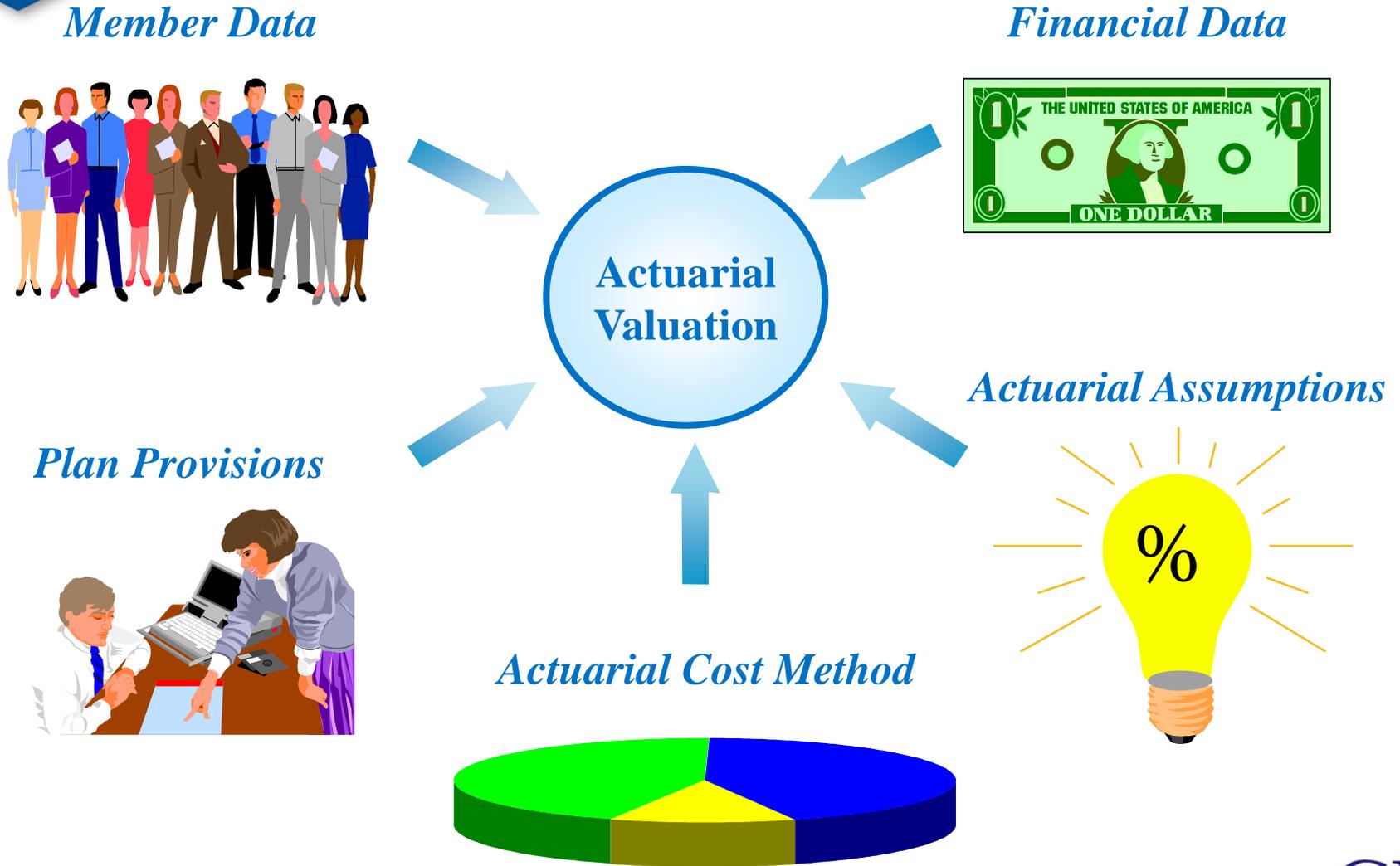
Michigan State Employees Retirement System and Military Retirement System

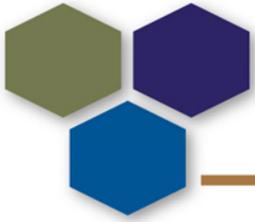
Pension Actuarial Valuation Results as of September 30, 2015



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

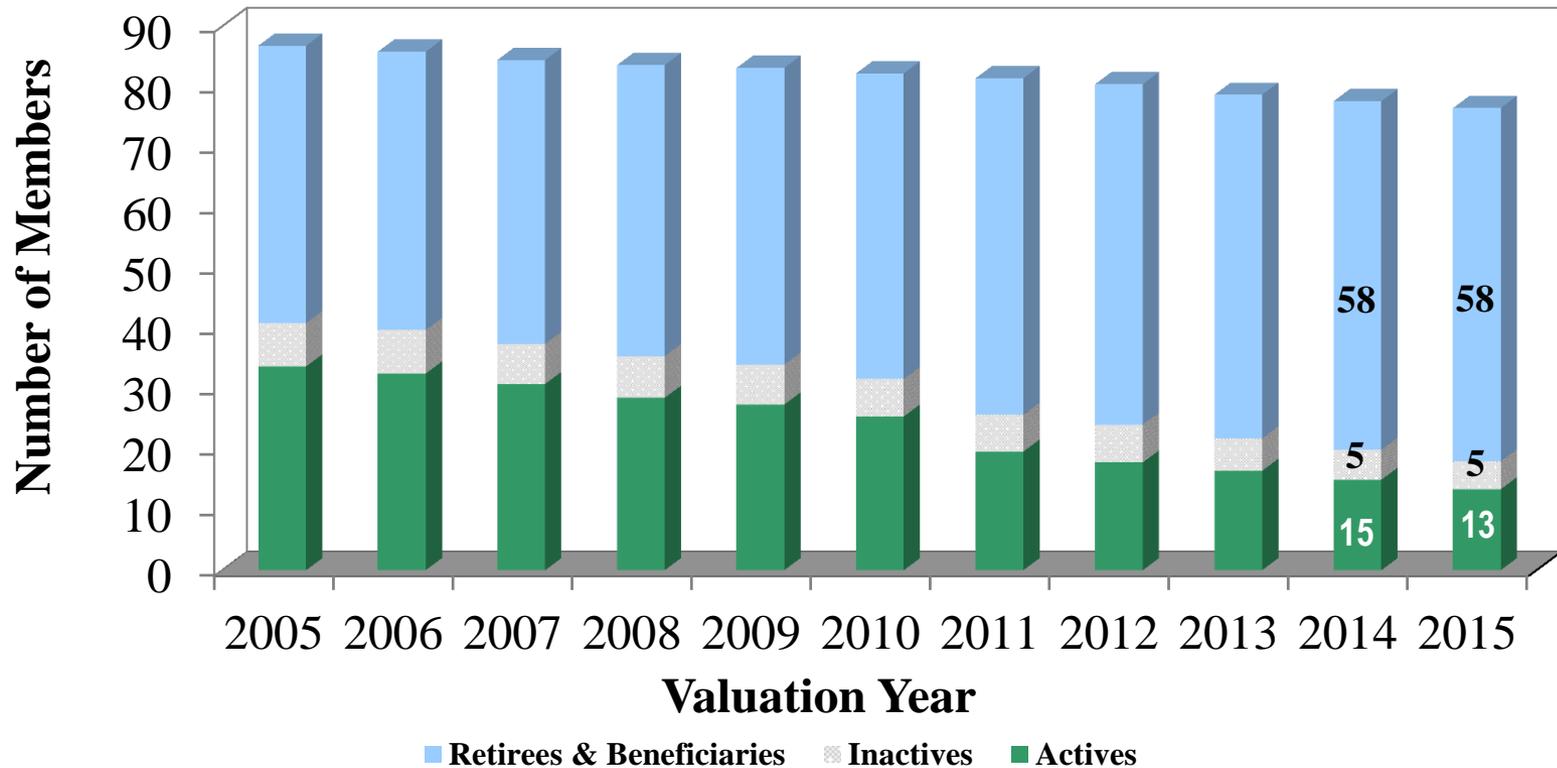
Actuarial Valuation Process

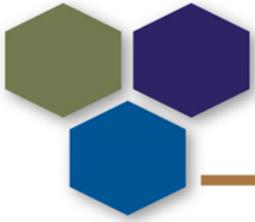




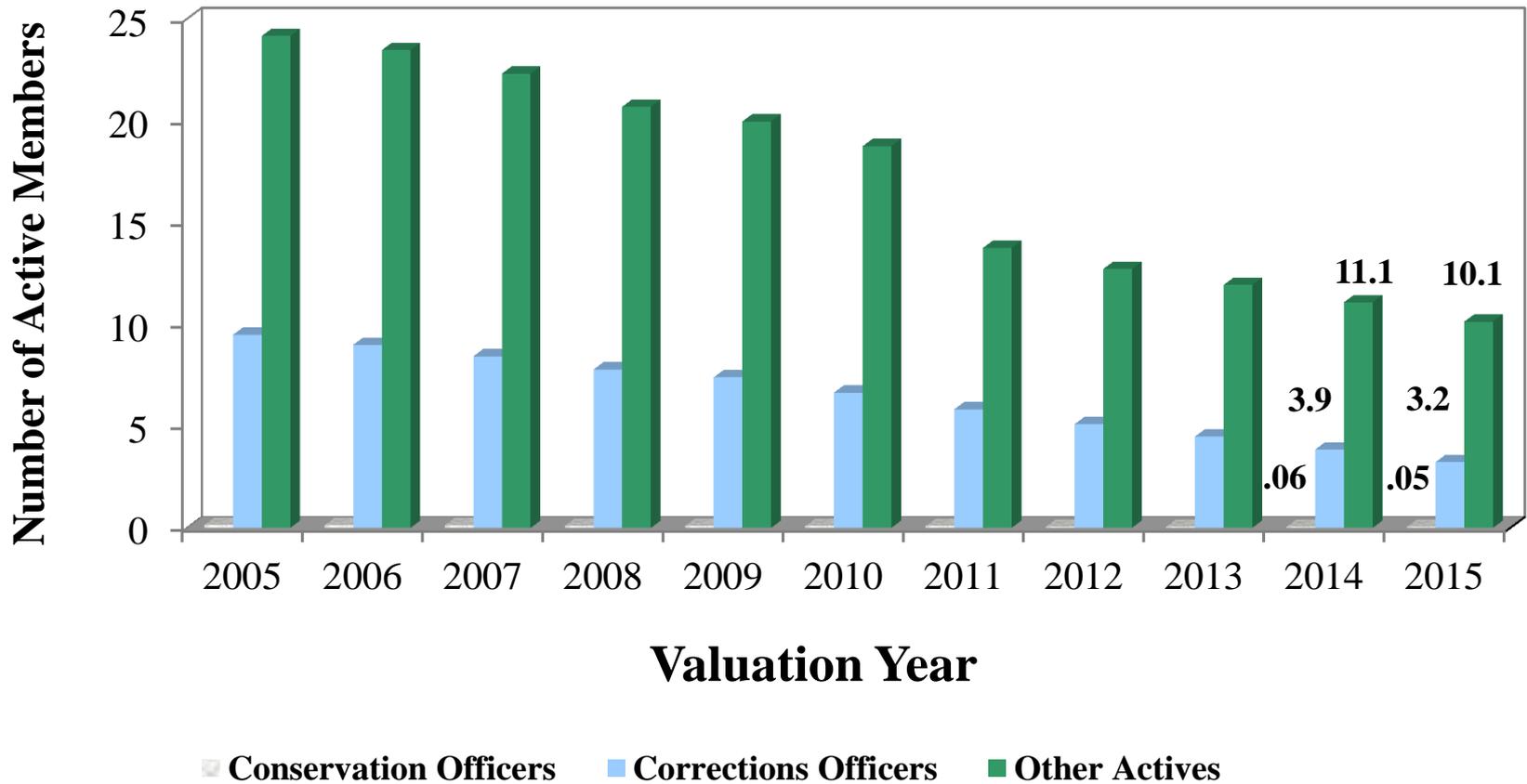
Membership Data - SERS

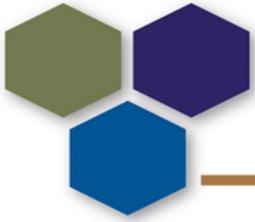
(Counts Rounded to Nearest Thousand)



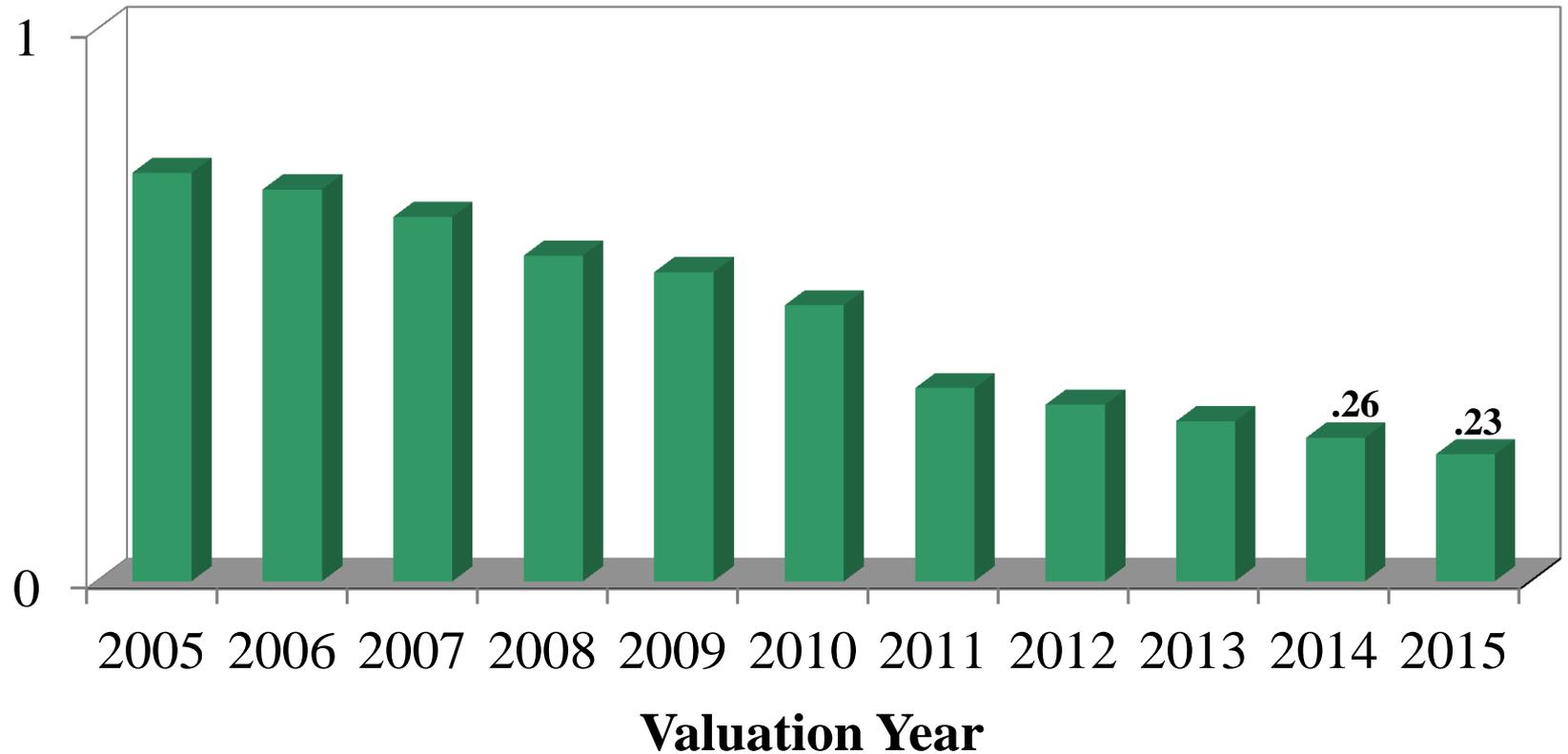


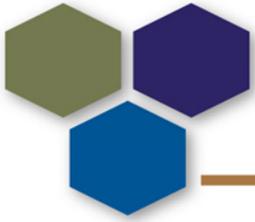
Active Members by Classification - SERS (Counts in Thousands)



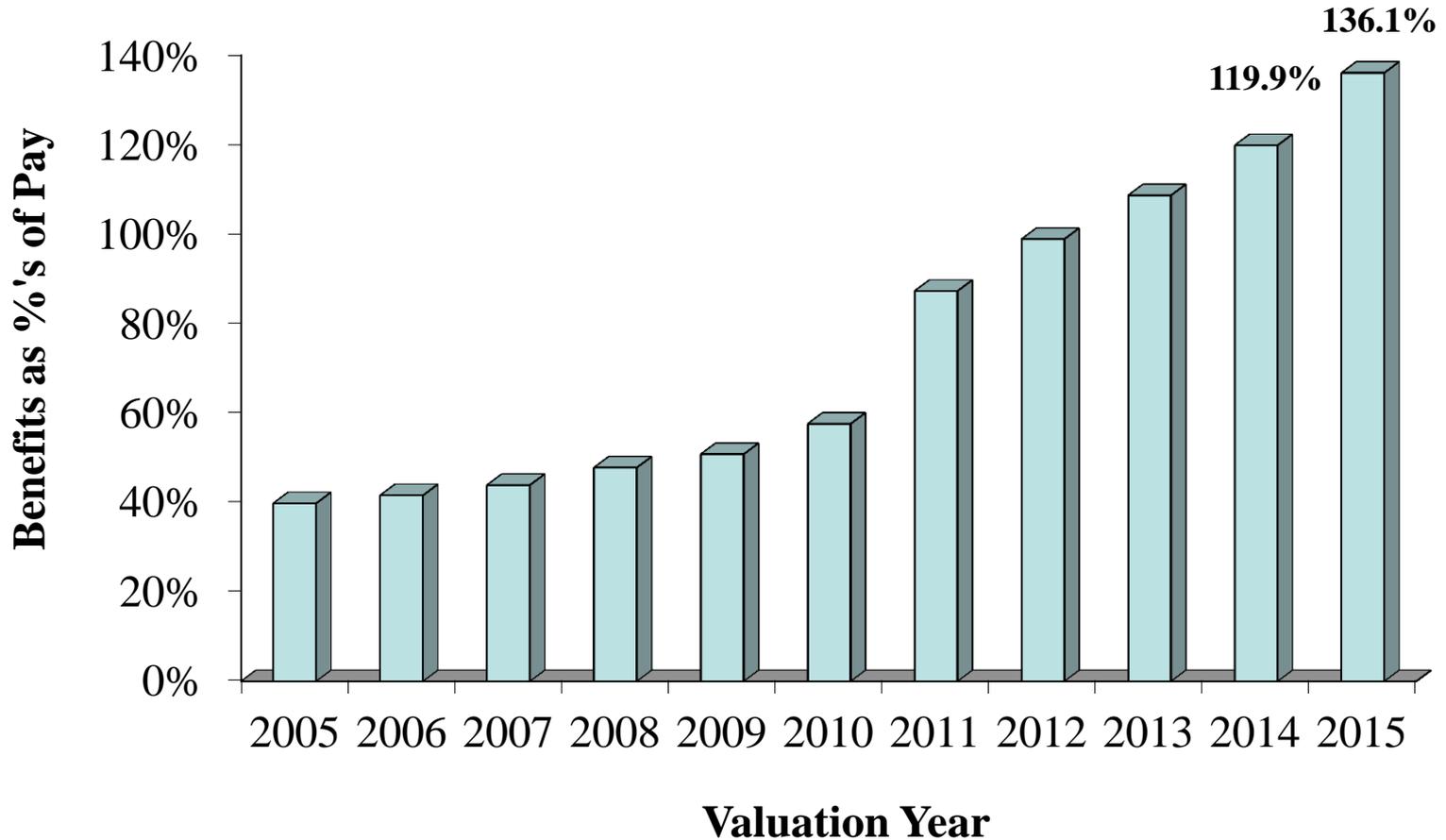


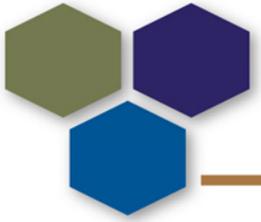
Ratio of Active Members to Pension Benefit Recipients - SERS



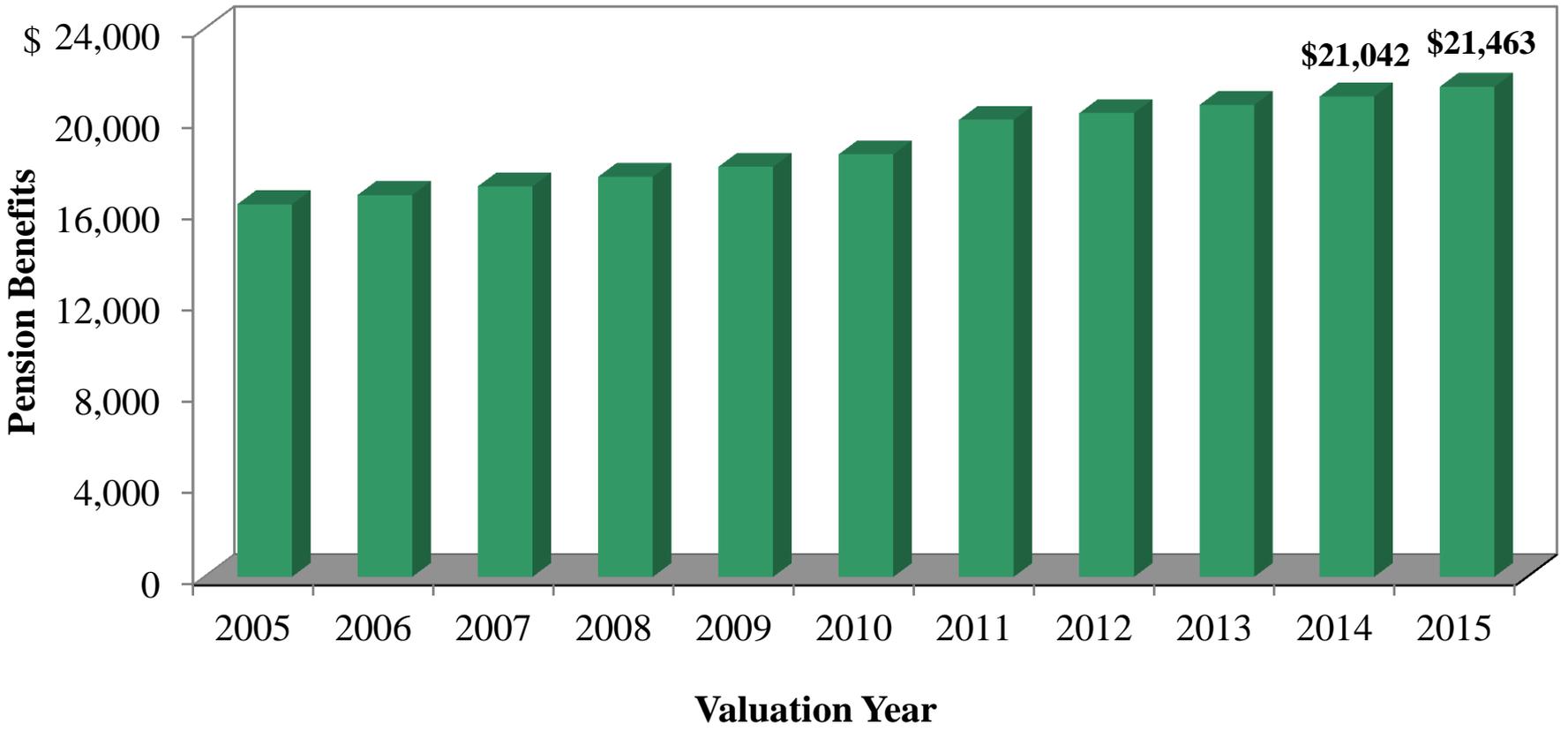


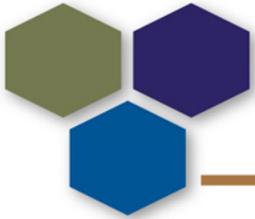
Pension Benefits Expressed as %'s of Active Member Pay - SERS





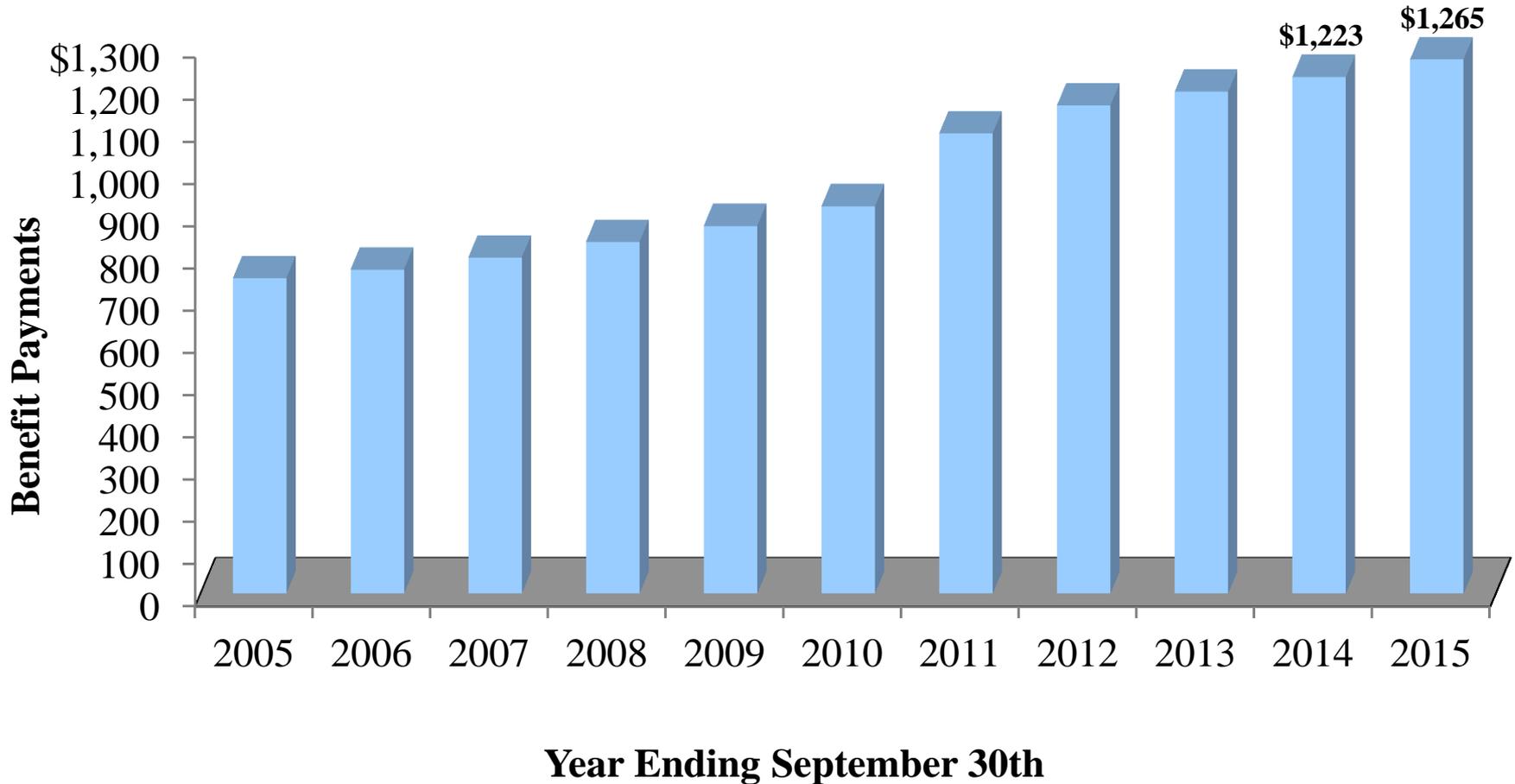
Average Annual Pension Benefits - SERS

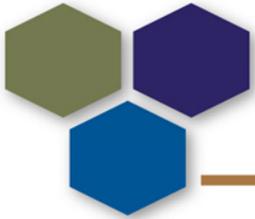




Pension Benefit Payments by Fiscal Year - SERS

(Amounts in Millions)



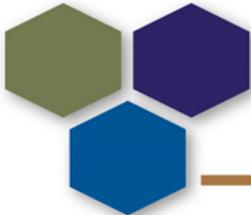


Pension Assets - SERS

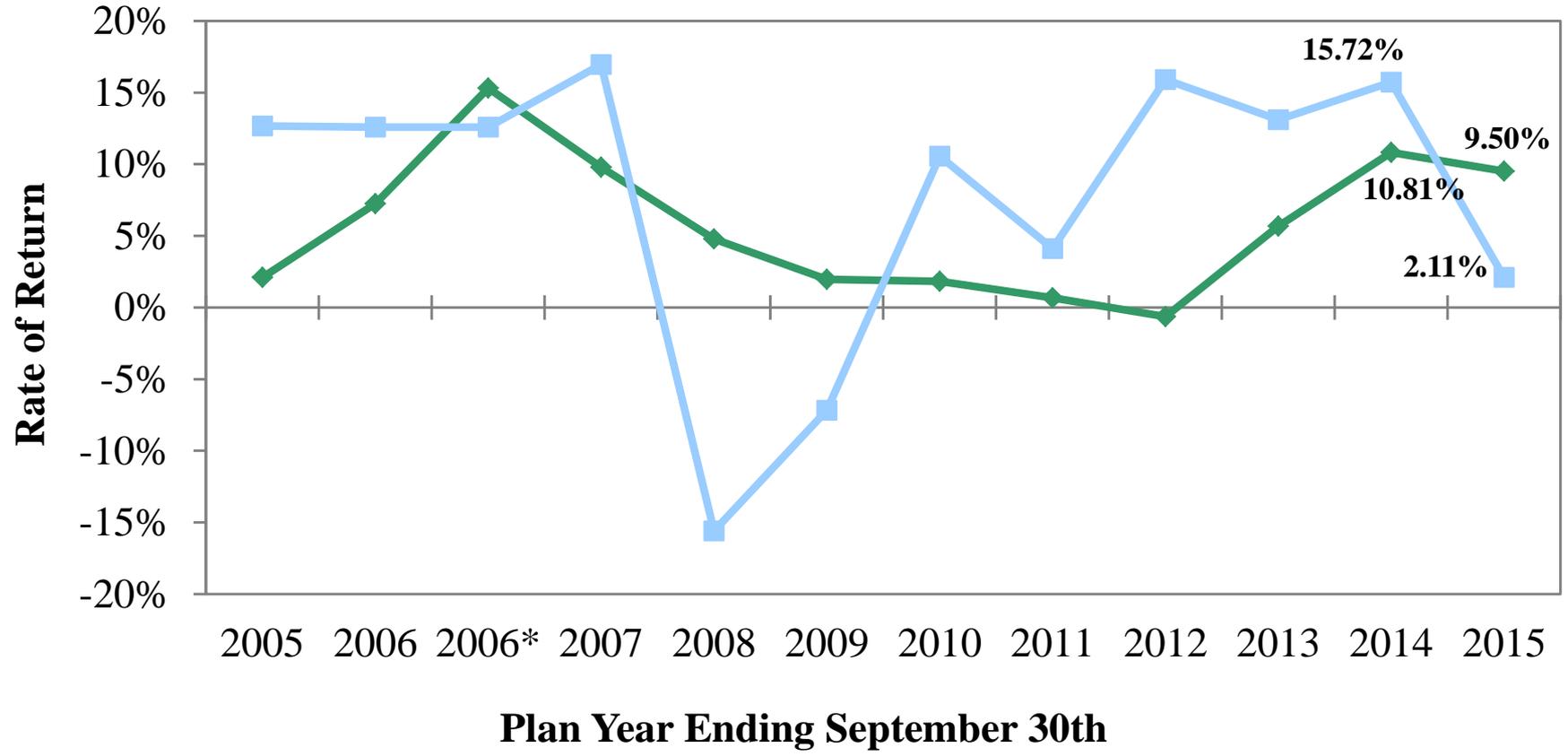
(Amounts in Billions)



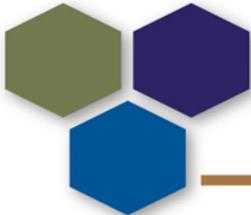
* After adjusting to market value.



Actuarial & Market Net Rates of Return - SERS

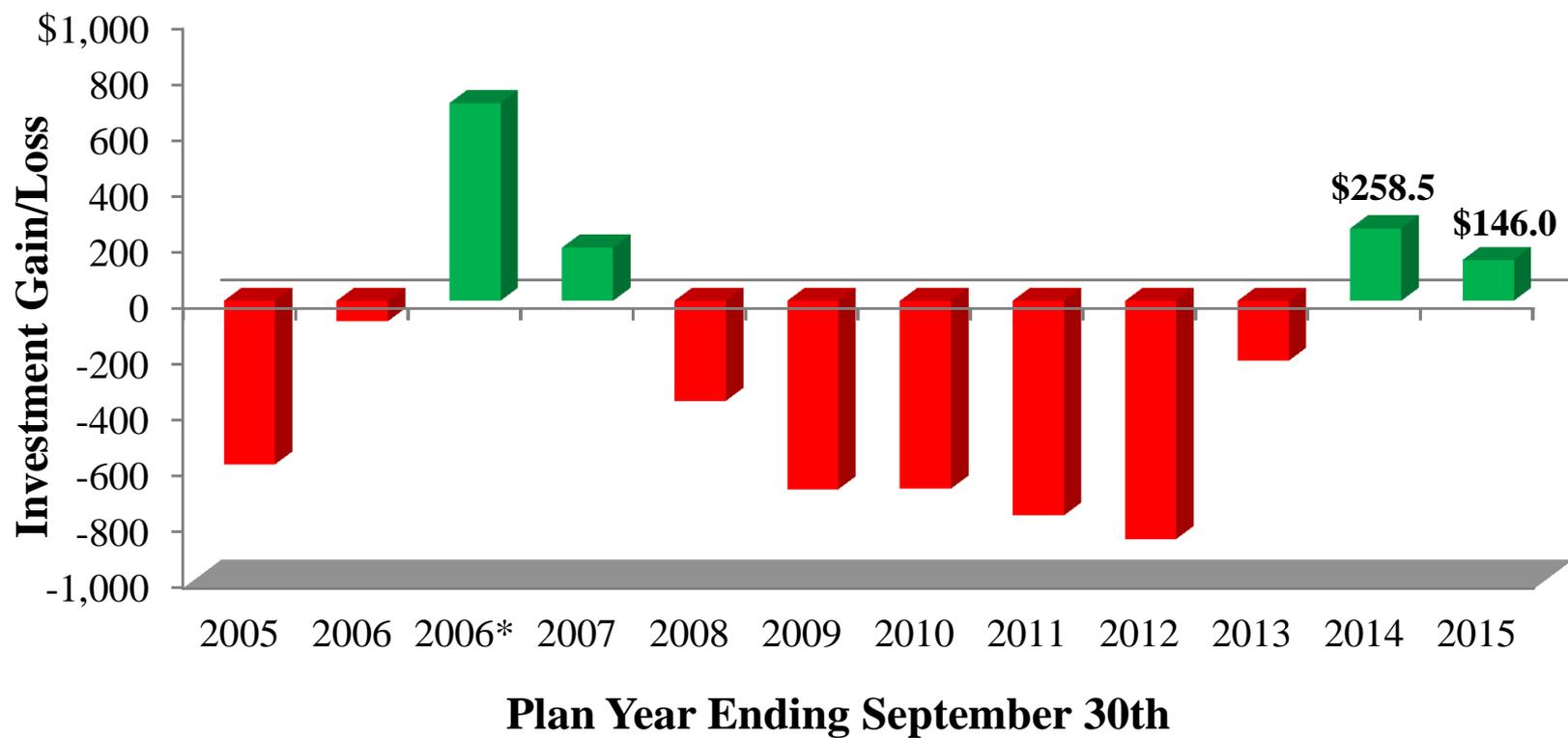


* After adjusting to market value.

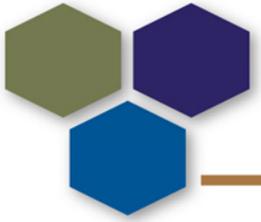


Investment Gain/Loss - SERS

(Amounts in Millions)

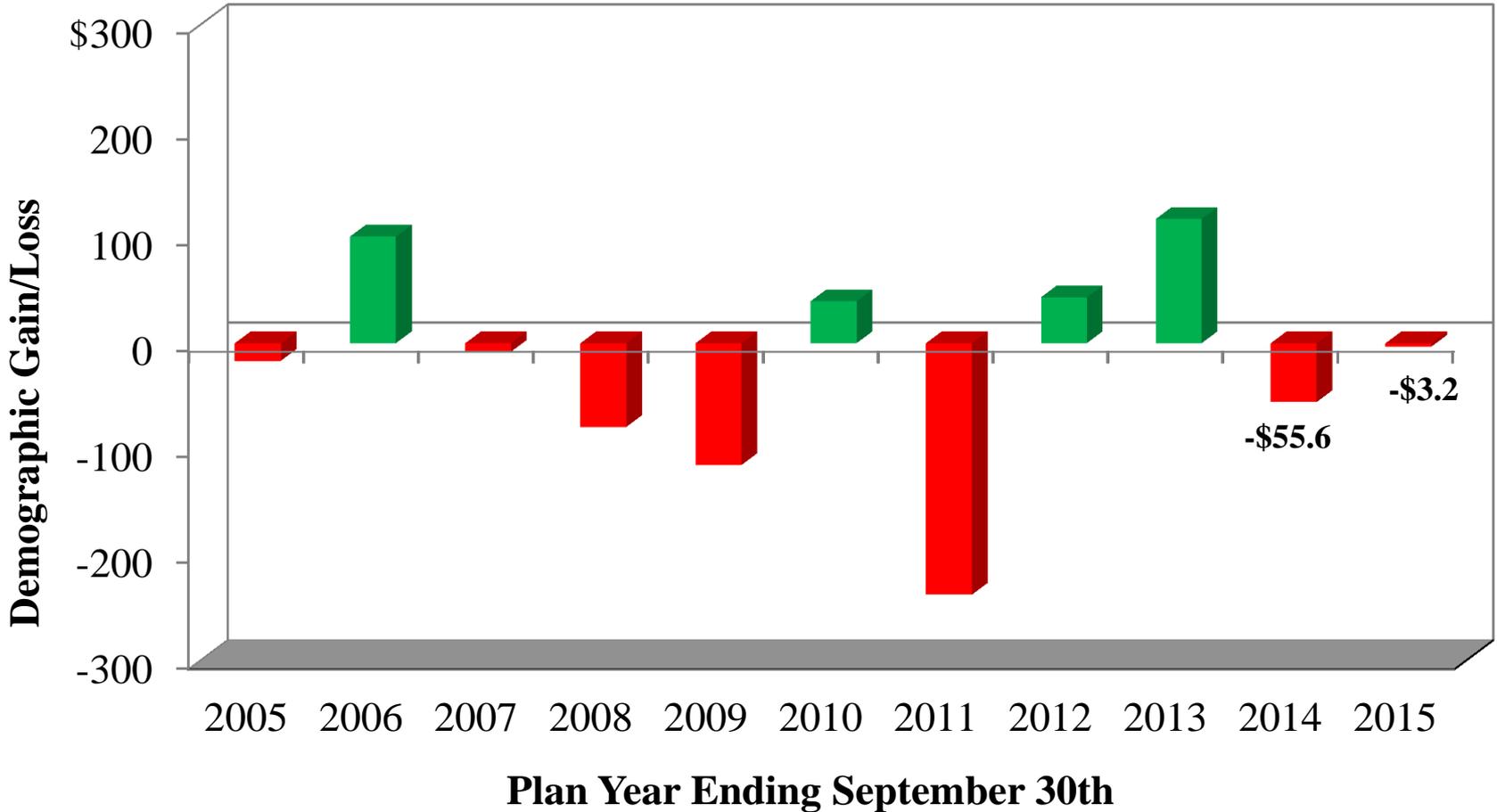


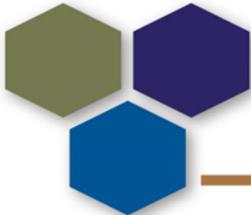
* After adjusting to market value.



Demographic Gain/Loss - SERS

(Amounts in Millions)

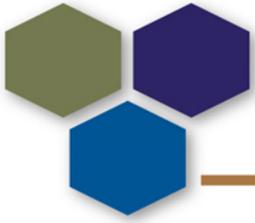




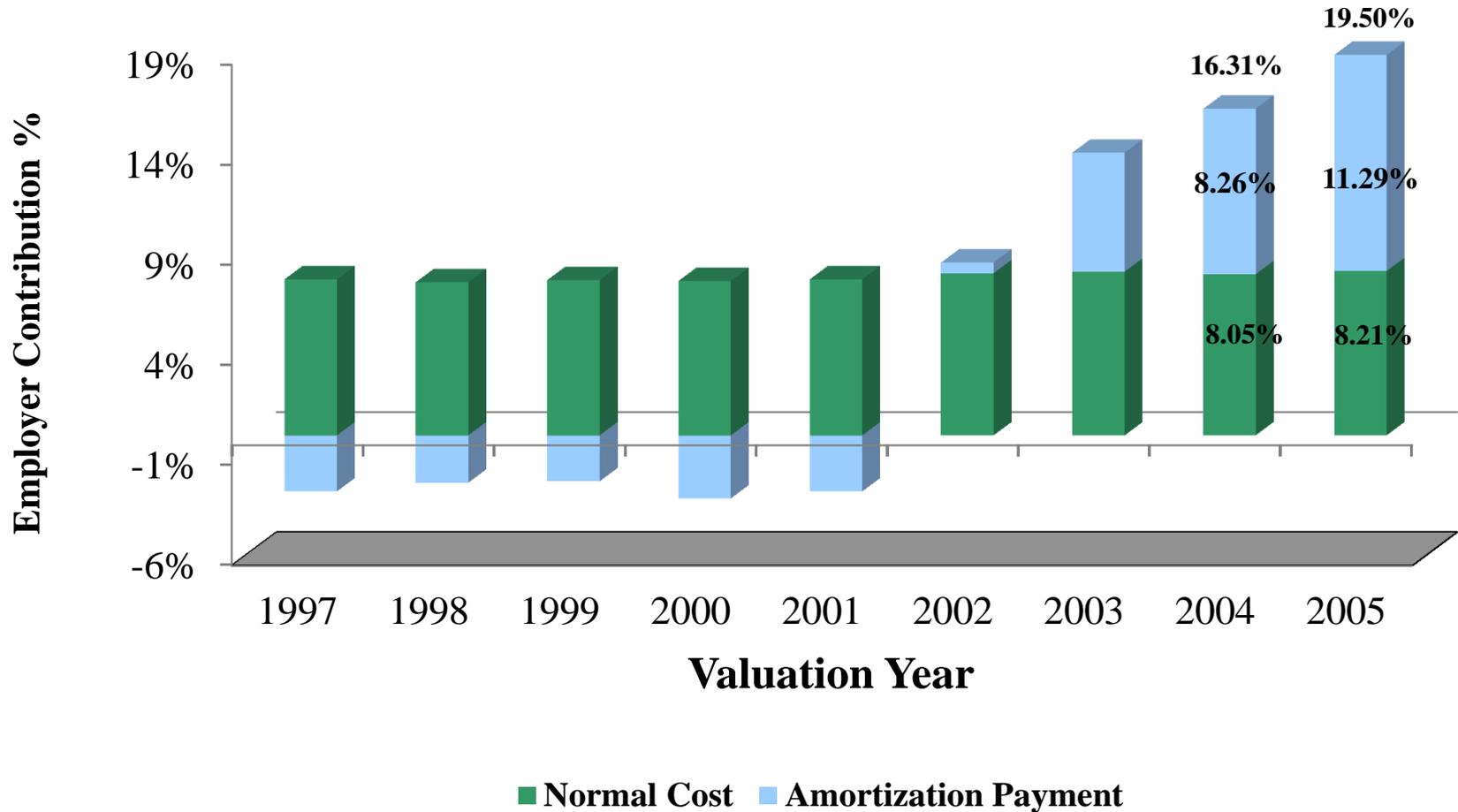
Gain/(Loss) by Type of Activity - SERS

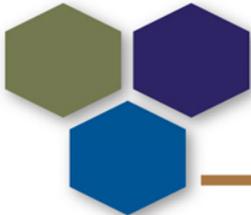
(Amounts in Millions)

Plan Year					
Ending 9/30	2015	2014	2013	2012	2011
Rehires	\$ (9.95)	\$ (5.61)	\$ (4.99)	\$ (15.04)	\$ (21.97)
Retiree Deaths	3.40	(21.37)	(35.30)	(36.07)	(51.64)
Investments	145.96	258.49	(213.85)	(850.82)	(767.32)
Pay Increases	39.61	28.47	85.62	152.18	10.70
Withdrawals	(1.30)	(9.24)	(8.17)	(1.63)	1.64
Retirements	(31.33)	(9.86)	(0.95)	(4.43)	(32.13)
Other	(3.62)	(37.95)	80.85	(51.80)	(144.05)
Total	142.77	202.93	(96.79)	(807.61)	(1,004.77)

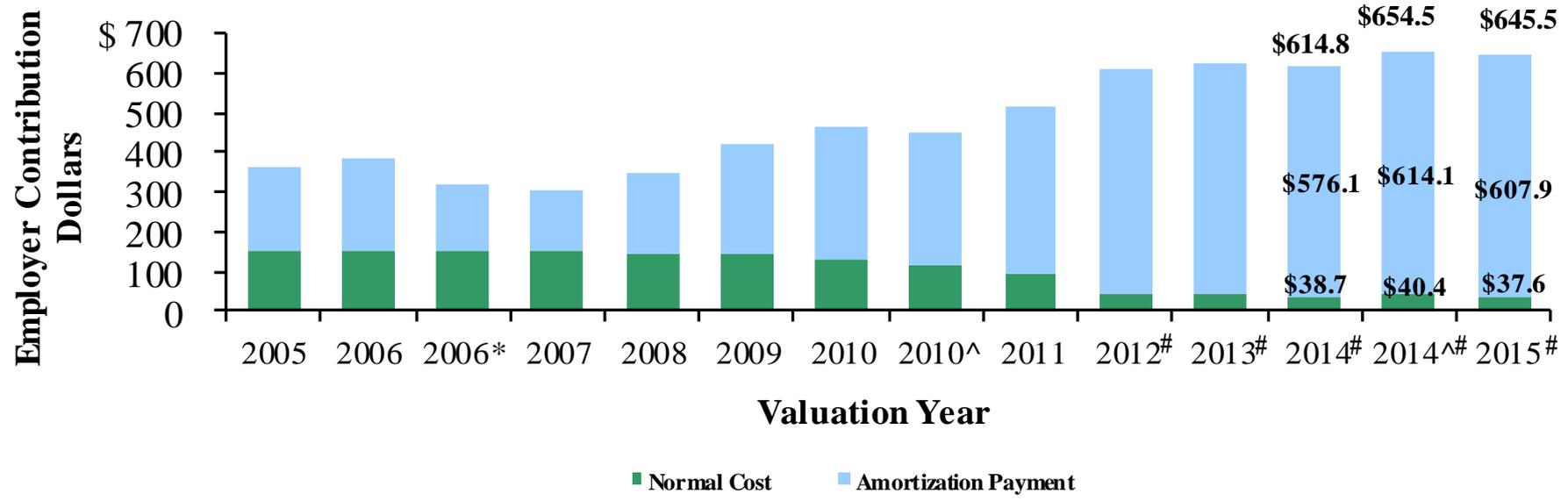


Historical Employer Contribution %'s Valuation as of September 30 - SERS

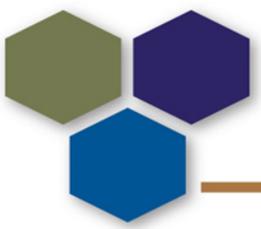




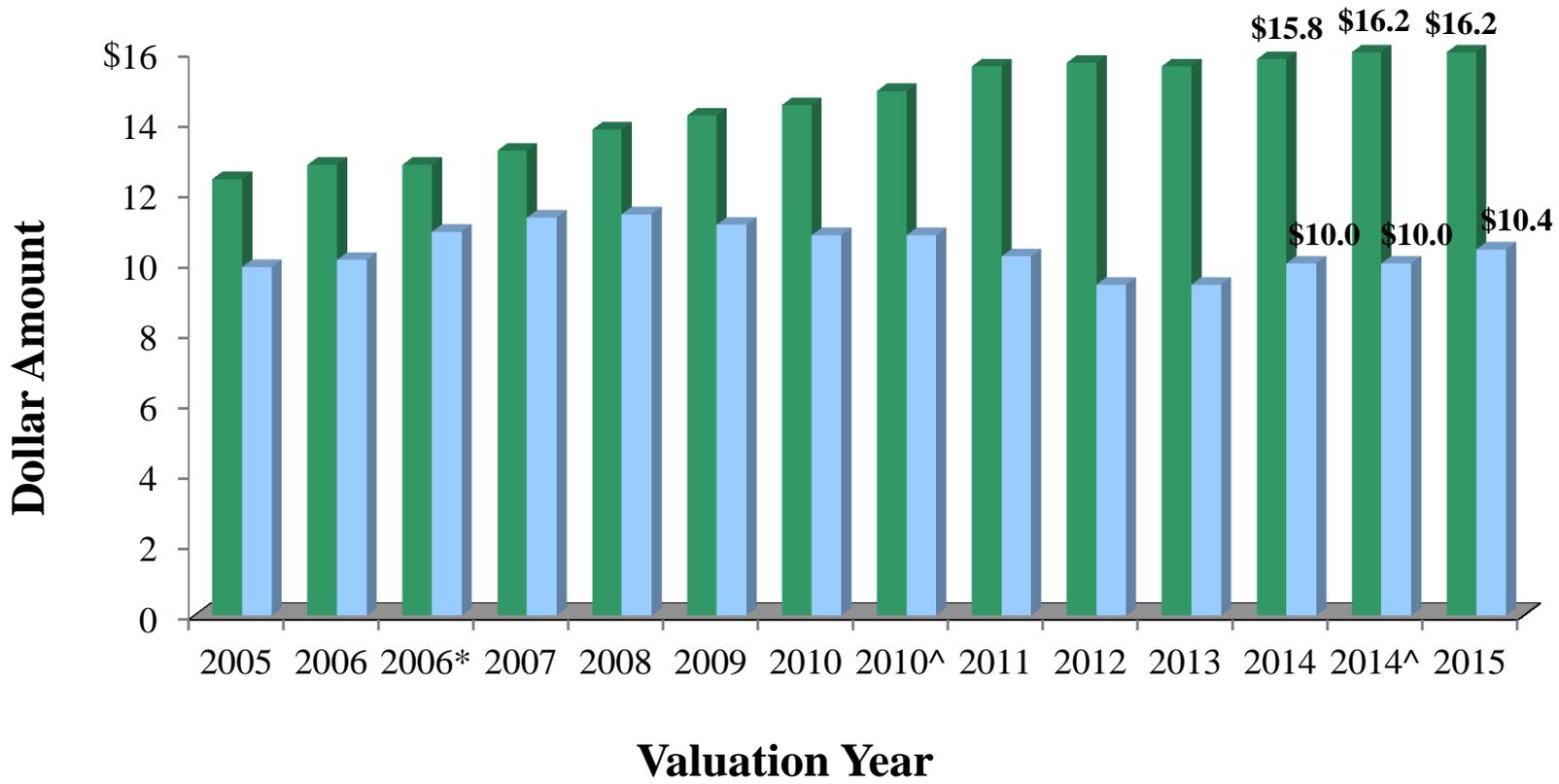
Employer Contribution Dollars (in Millions) Valuation as of September 30 - SERS



* After adjusting to market value.
 ^ Revised actuarial assumptions and methods.
 # Includes ERI payment.

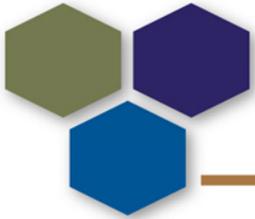


Actuarial Accrued Liability Compared to Actuarial Value of Assets - SERS (in Billions)

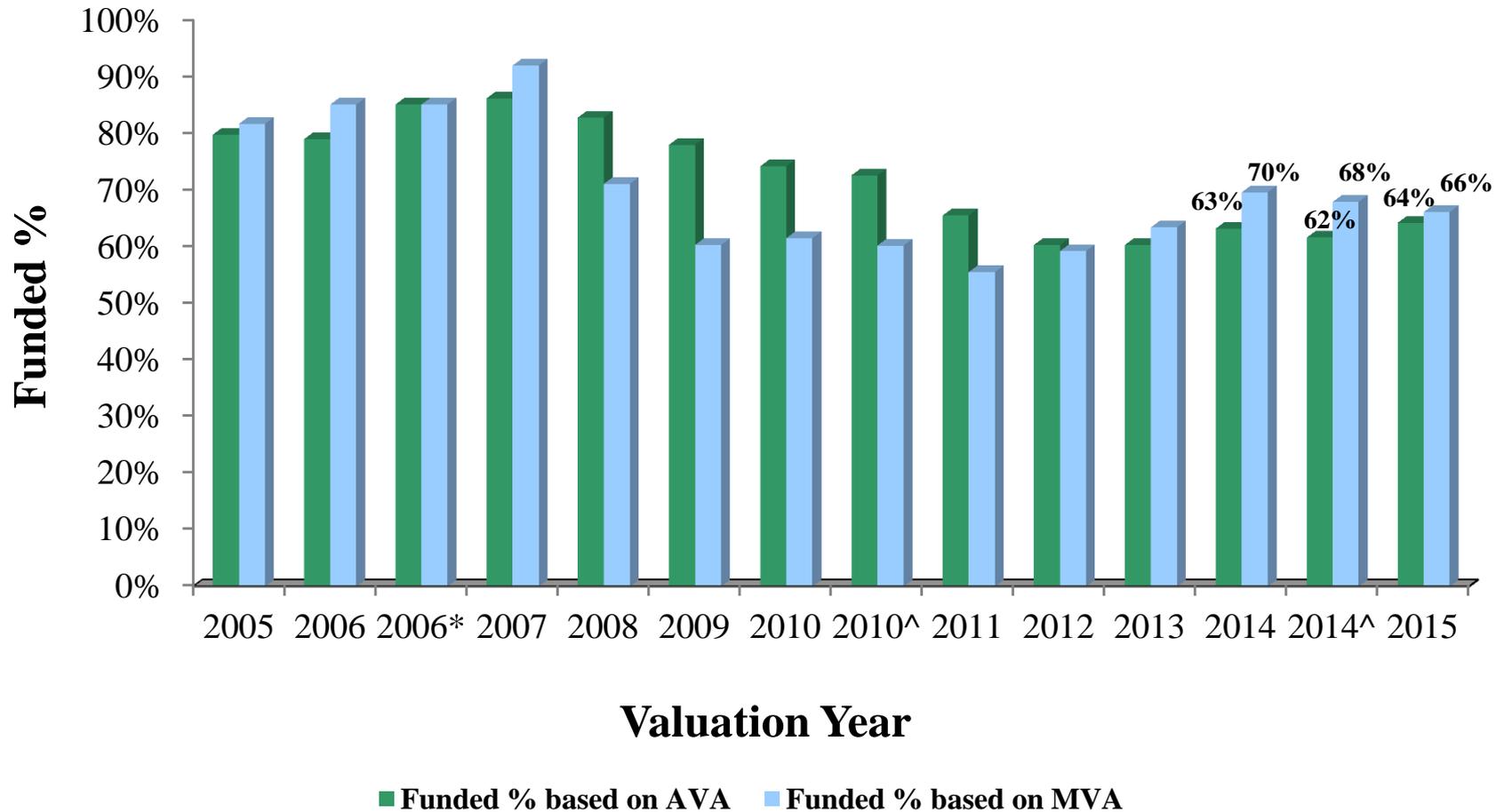


■ Actuarial Accrued Liability (AAL) ■ Actuarial Value of Assets (AVA)

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

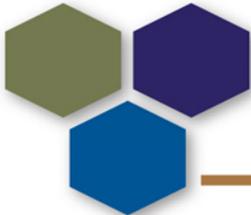


Retirement System Funded % Based on Actuarial Value and Market Value of Assets - SERS



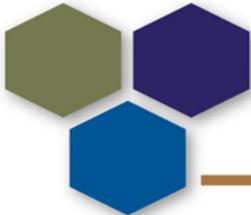
* After adjusting to market value.

^ Revised actuarial assumptions and methods.



Comments on the Investment Markets and Other Issues - SERS

- ◆ Investment markets have been very volatile
- ◆ Valuation is based on a 5-year smoothed value of assets
 - ▶ Reduces the volatility of the valuation results
- ◆ 9/30/15 smoothed value of assets was lower than market value
 - ▶ Provides some margin for possible adverse investment experience in the near term
- ◆ Optional forms of payment
 - ▶ May wish to review factors based on 2007-2012 Experience Study or 2012-2017 Experience Study



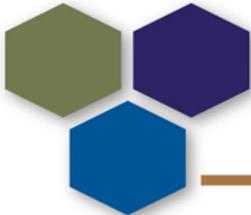
Military Retirement System Select Valuation Results

Results as of September 30, 2015

Total Computed Employer Contribution	\$ 6,848,781
(21-year amortization of UAAL and additional prefunding contribution)	
Total Accrued Liability	\$ 47,311,896
Funding Value of Assets	<u>0</u>
Unfunded Actuarial Accrued Liabilities (UAAL)	\$ 47,311,896

Plan Membership as of September 30, 2015

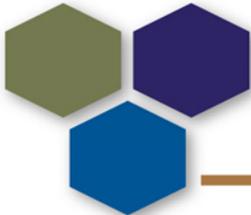
Current Employees	10,047
Retired Members Including Beneficiaries	4,248
Inactive Employees	<u>457</u>
Total Participants	14,752



Military Retirement System

Other Comments

- ◆ Computed employer contribution is for fiscal year 2018
 - ▶ Normal cost component includes an administrative expense contribution of \$380,000
- ◆ UAAL amortization period of 21 years and additional recommended prefunding contribution would be expected to result in an asset balance of 1 to 2 years' worth of benefit payments by fiscal 2019
 - ▶ Fiscal year 2015 benefit payments were reported to be approximately \$4,000,000



Disclaimers

- ◆ This presentation is intended to be used in conjunction with the September 30, 2015 pension annual actuarial valuation reports issued in 2016. This presentation should not be relied on for any purpose other than the purpose described in the valuation report.
- ◆ Circular 230 Notice: Pursuant to regulations issued by the IRS, to the extent this presentation concerns tax matters, it is not intended or written to be used, and cannot be used, for the purpose of (i) avoiding tax-related penalties under the Internal Revenue Code or (ii) marketing or recommending to another party any tax-related matter addressed within. Each taxpayer should seek advice based on the individual's circumstances from an independent tax advisor.
- ◆ This presentation shall not be construed to provide tax advice, legal advice or investment advice.
- ◆ The actuaries submitting this presentation (Mita Drazilov and Louise Gates) are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.