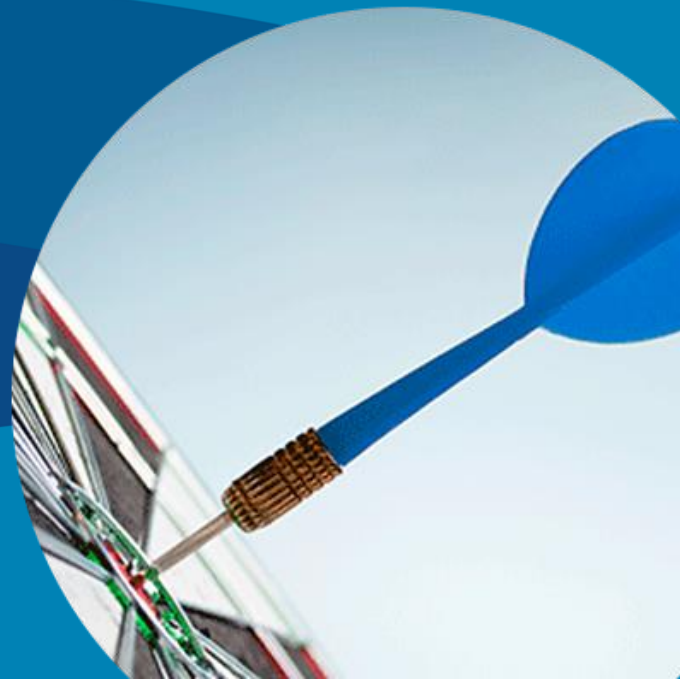


# Michigan State Employees' Retirement System

Pension Actuarial Valuation Results  
as of September 30, 2017

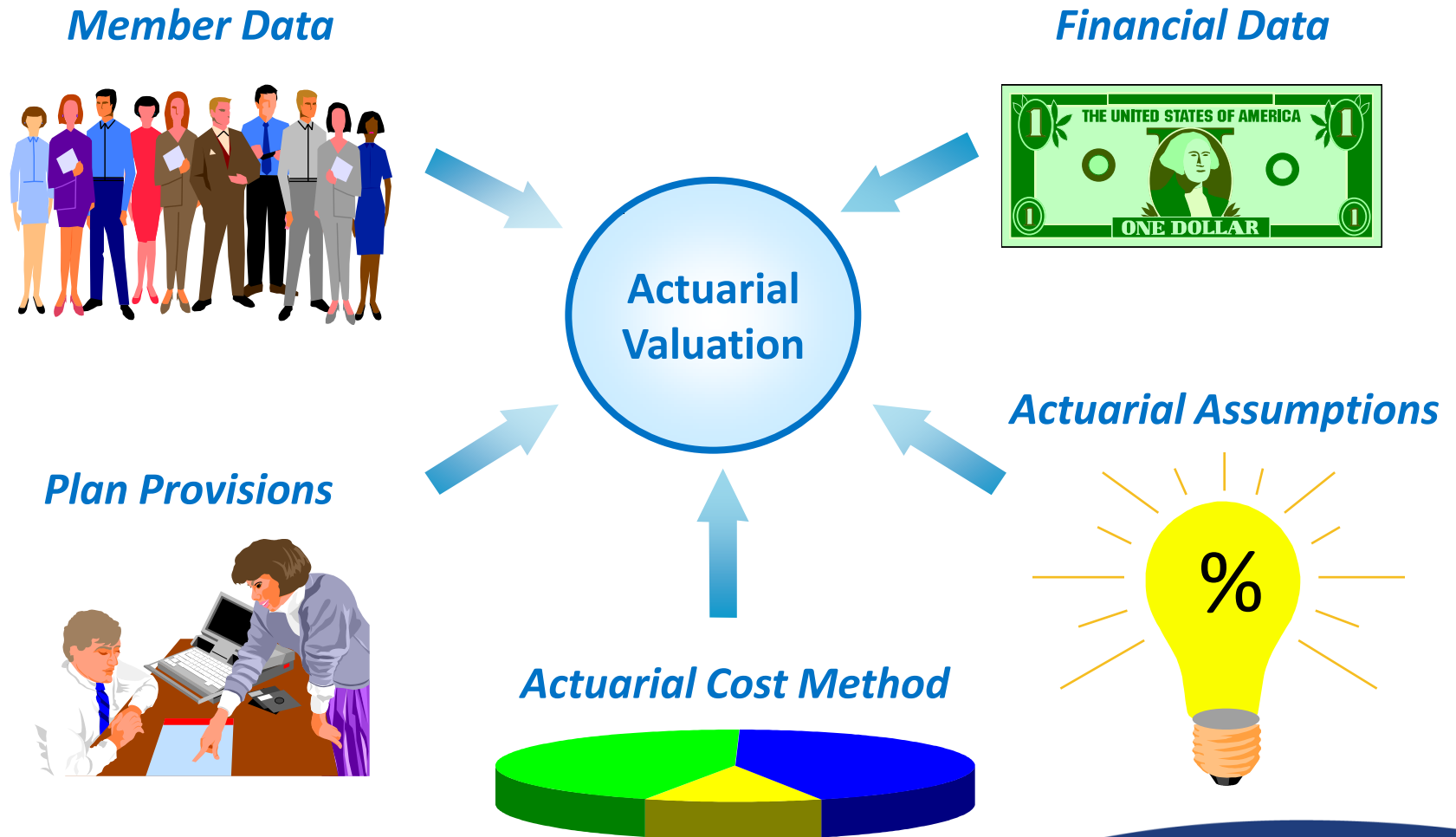


# September 30, 2017 Valuation

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- Purpose of the September 30, 2017 valuation is twofold:
  - Determine the employer contribution for fiscal year 2020
  - Measure the System's funding progress
- Reflects the Dedicated Gains Policy adopted by the Board of Trustees
  - The investment return assumption was reduced from 7.50% to 7.00% as a result of the Policy

# Actuarial Valuation Process

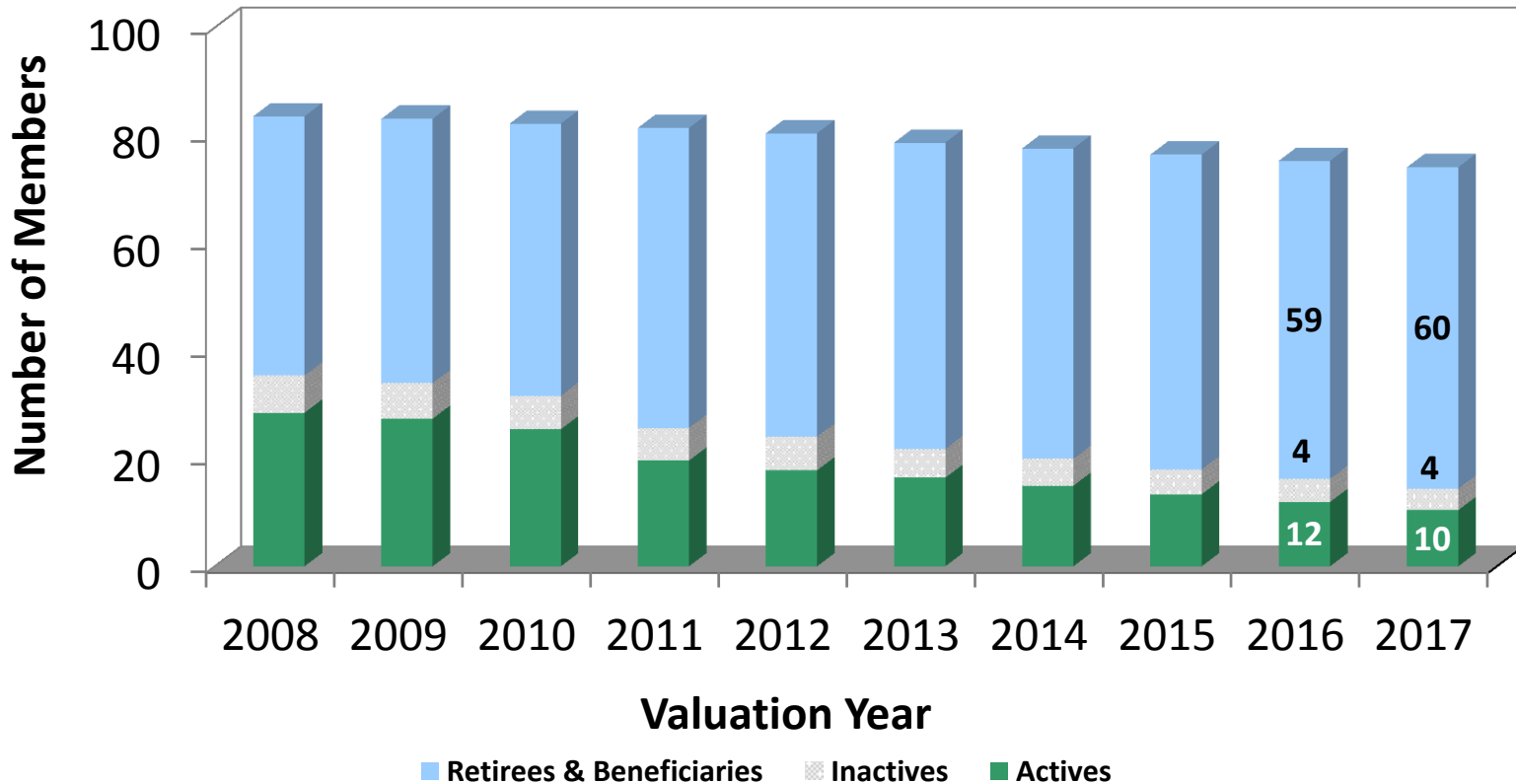


# Dedicated Gains Policy

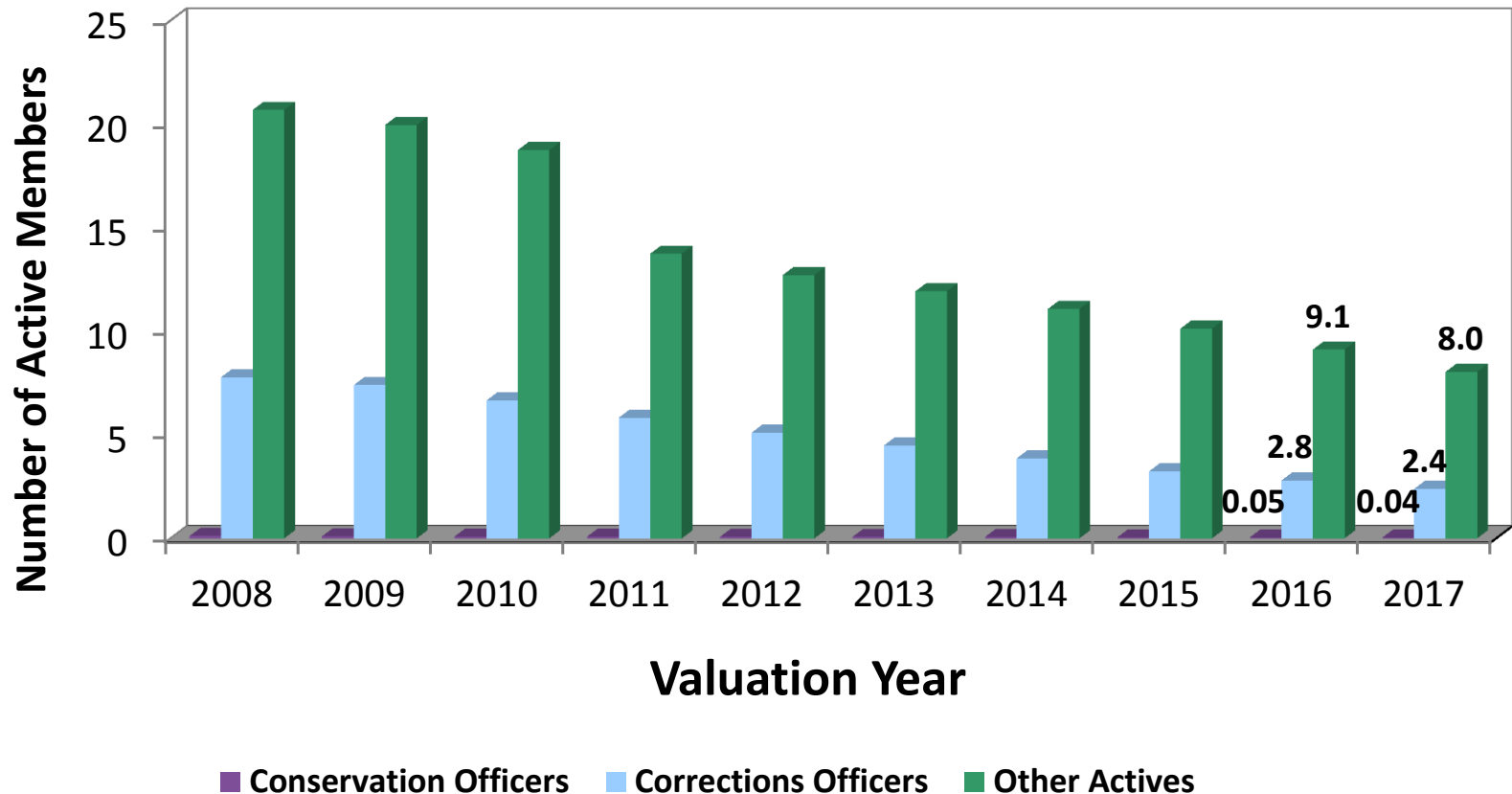
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- Adopted in 2017
- The purpose of the Policy is to reduce the investment return assumption for actuarial valuation purposes if the fiscal year's market value rate of return exceeds a certain amount
- The immediate recognition of the market value return is expected to offset the increase in the computed employer contribution from where it otherwise would have been

# Defined Benefit Plan Membership Data (Counts in Thousands)

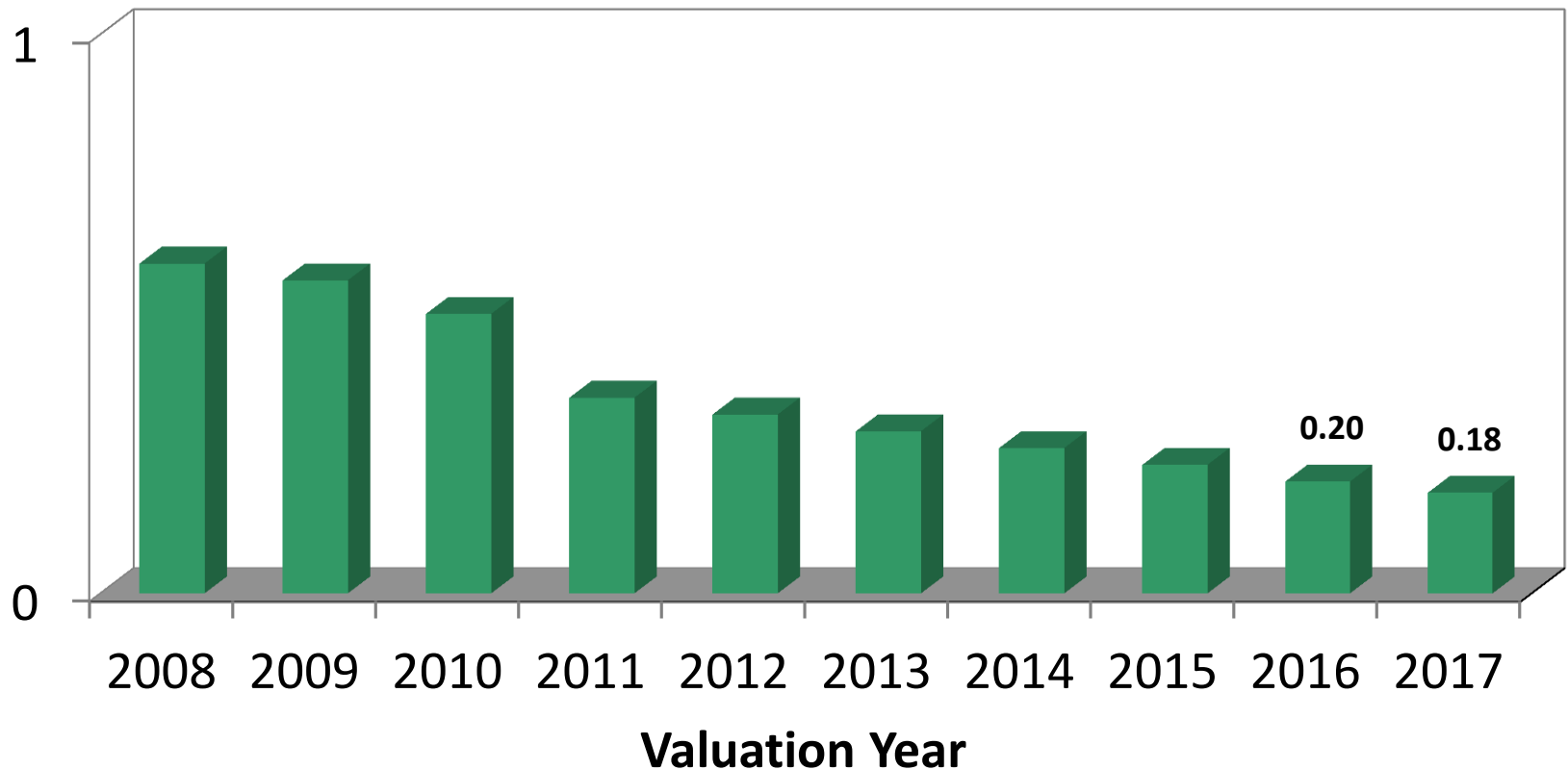


# Defined Benefit Plan Active Members by Group (Counts in Thousands)

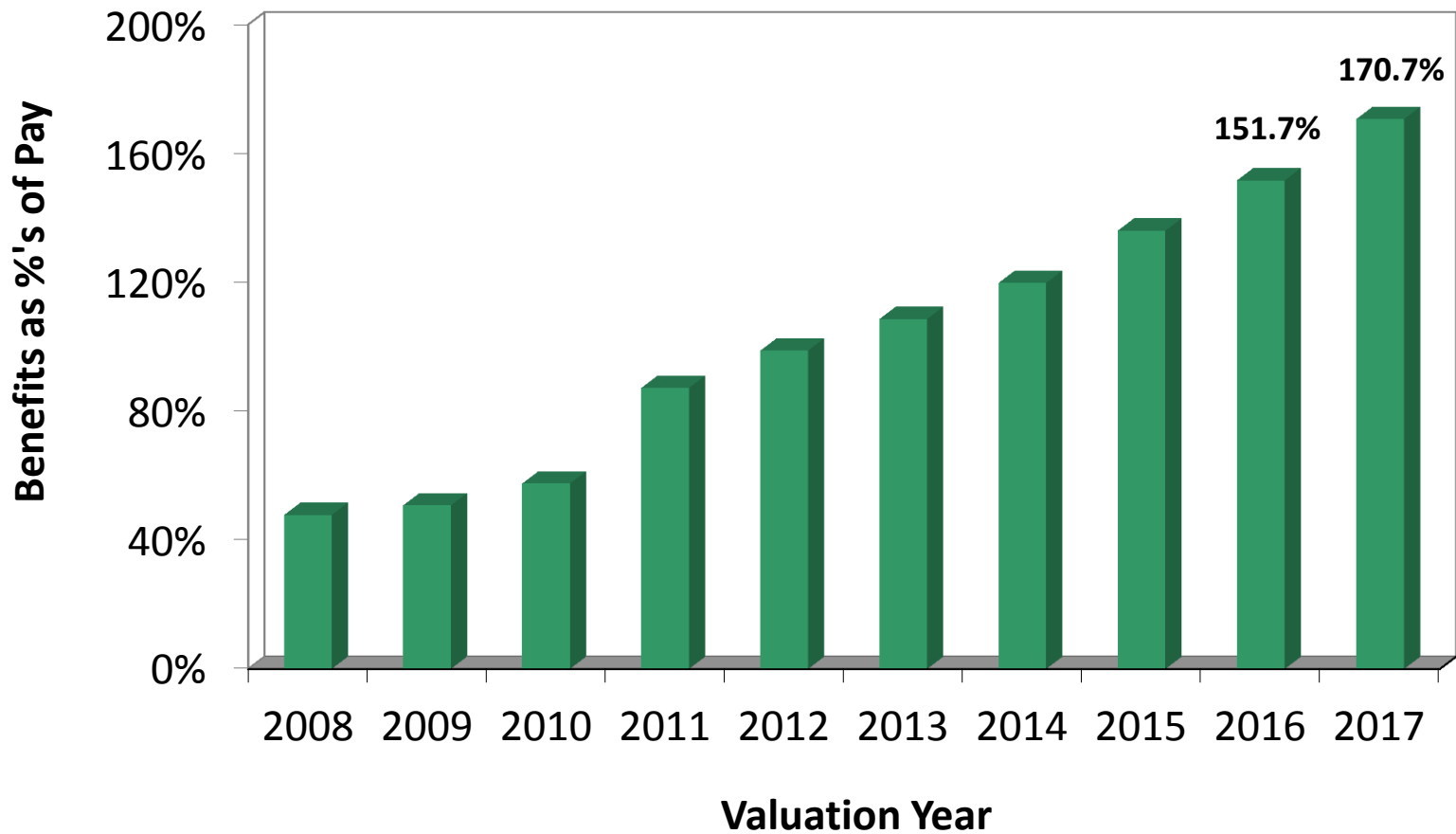


# Ratio of Active Members to Pension Benefit Recipients

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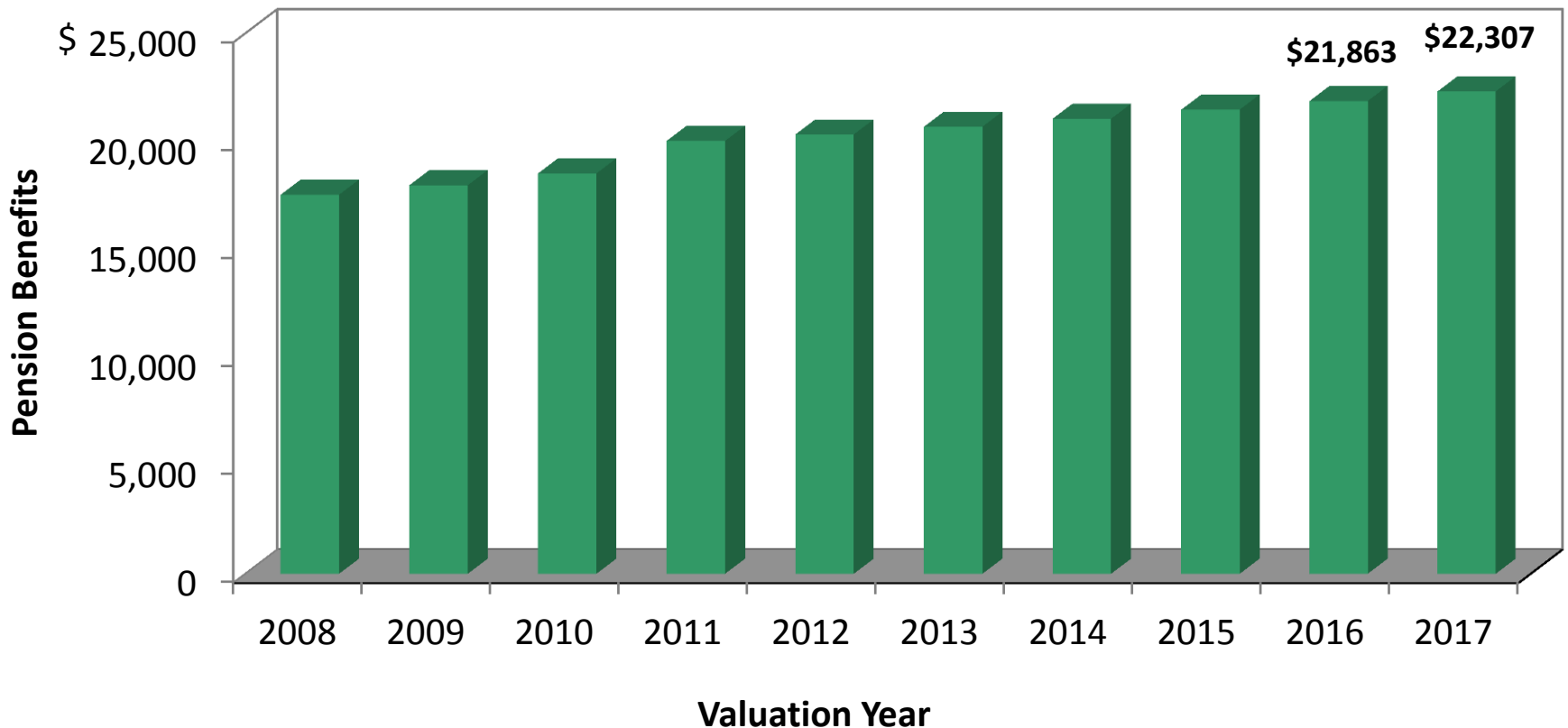


# Pension Benefits Expressed as Percents of Active Member Pay

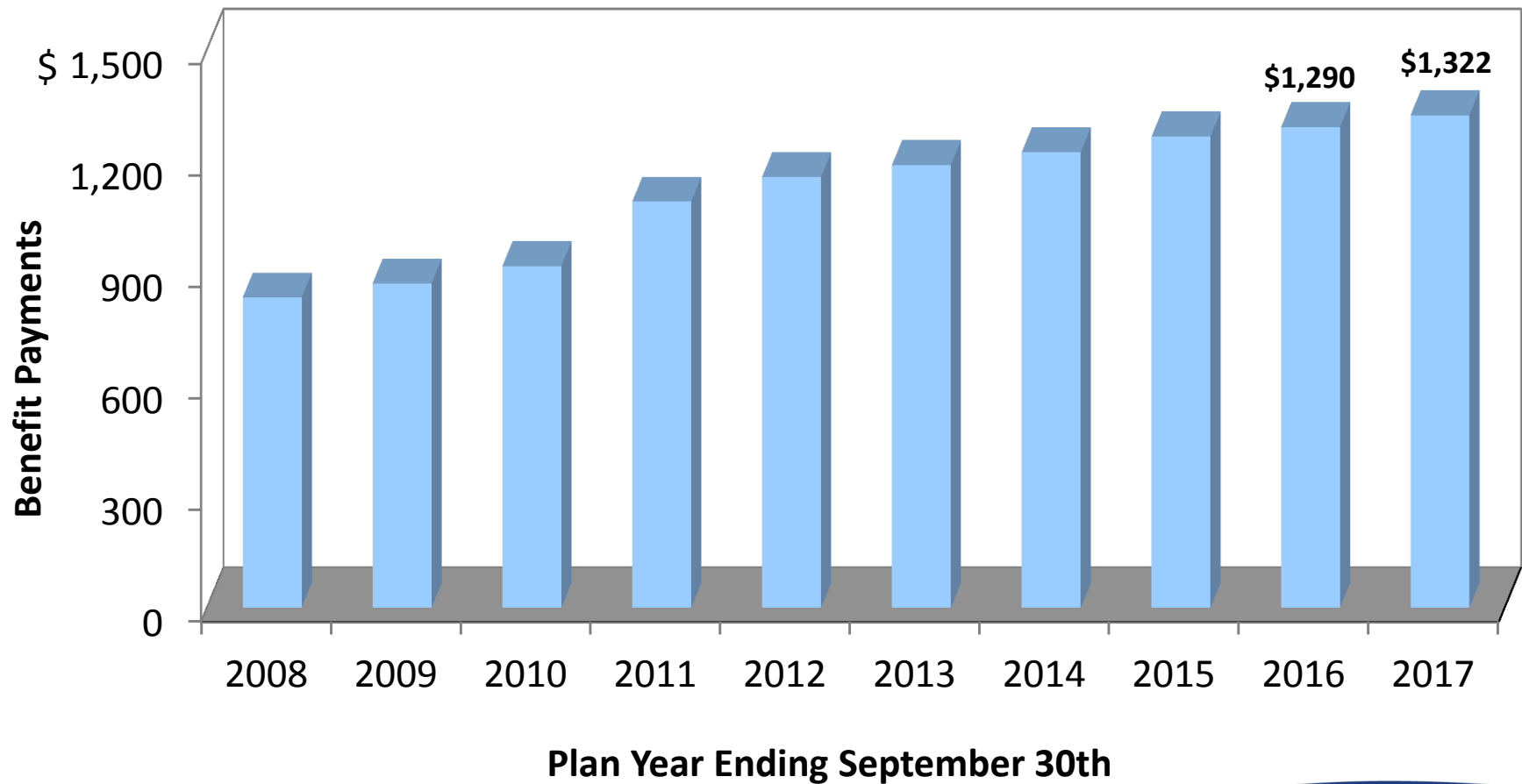




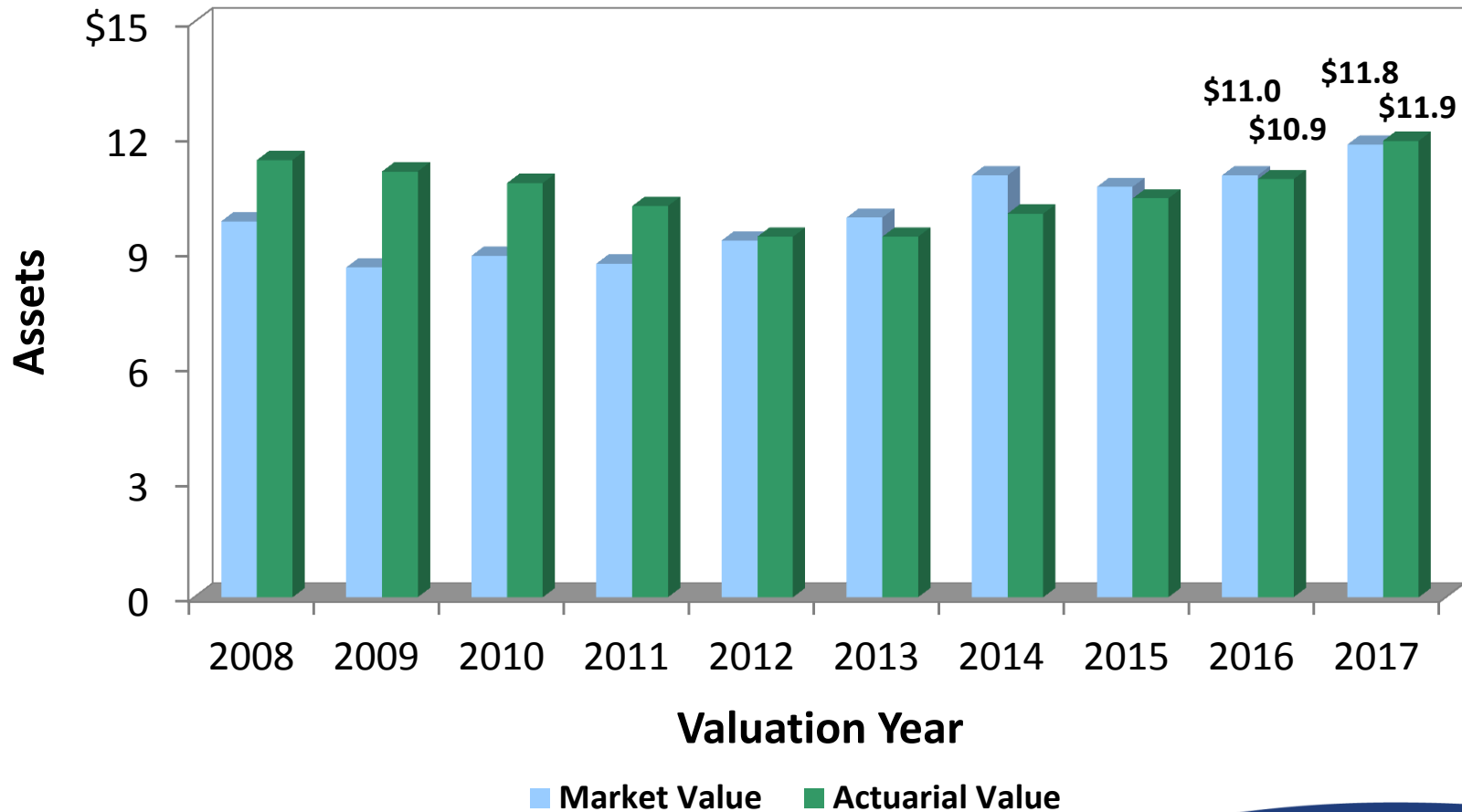
# Average Annual Pensions



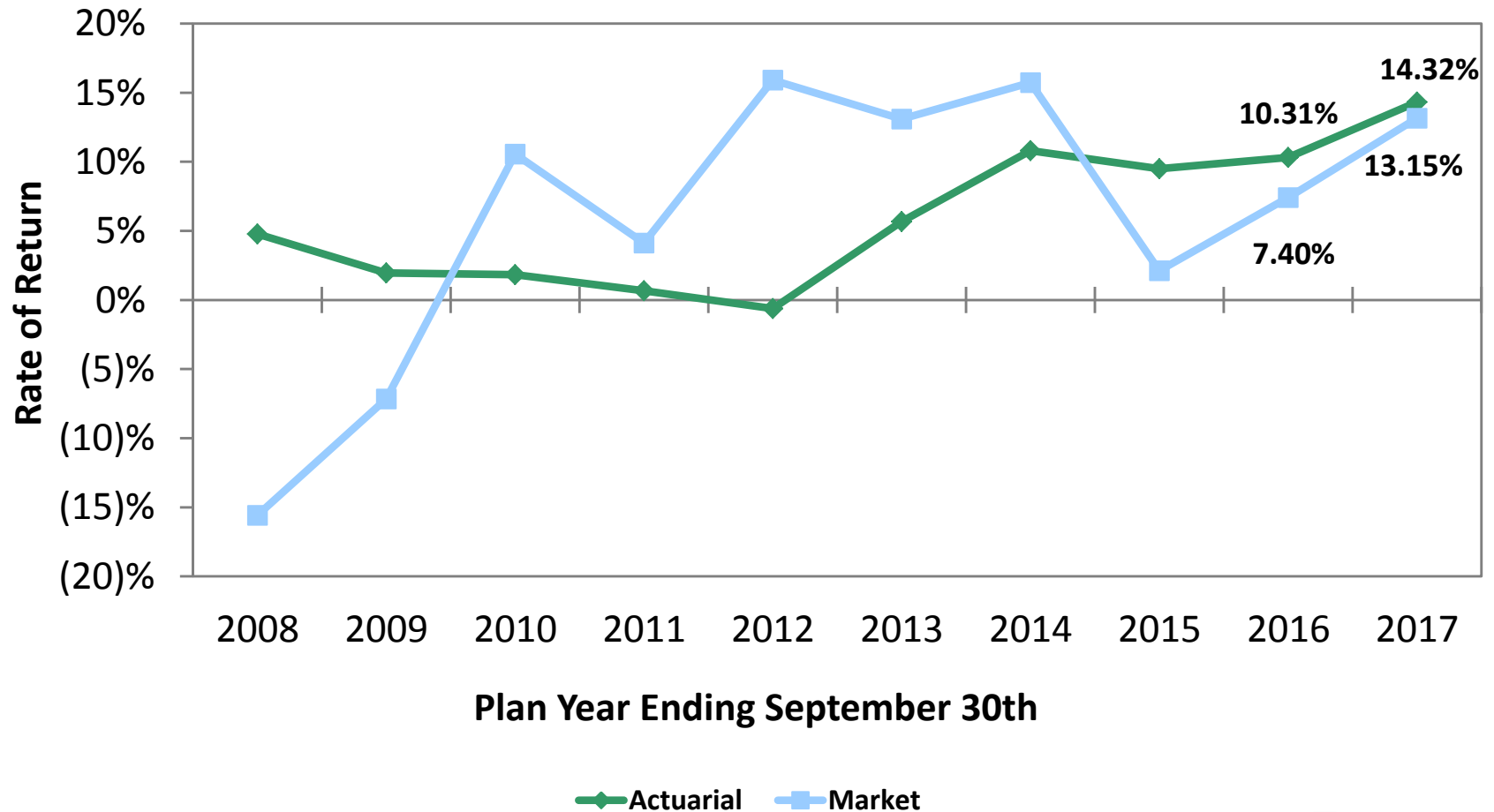
# Total Benefit Payments by Fiscal Year (Amounts in Millions)



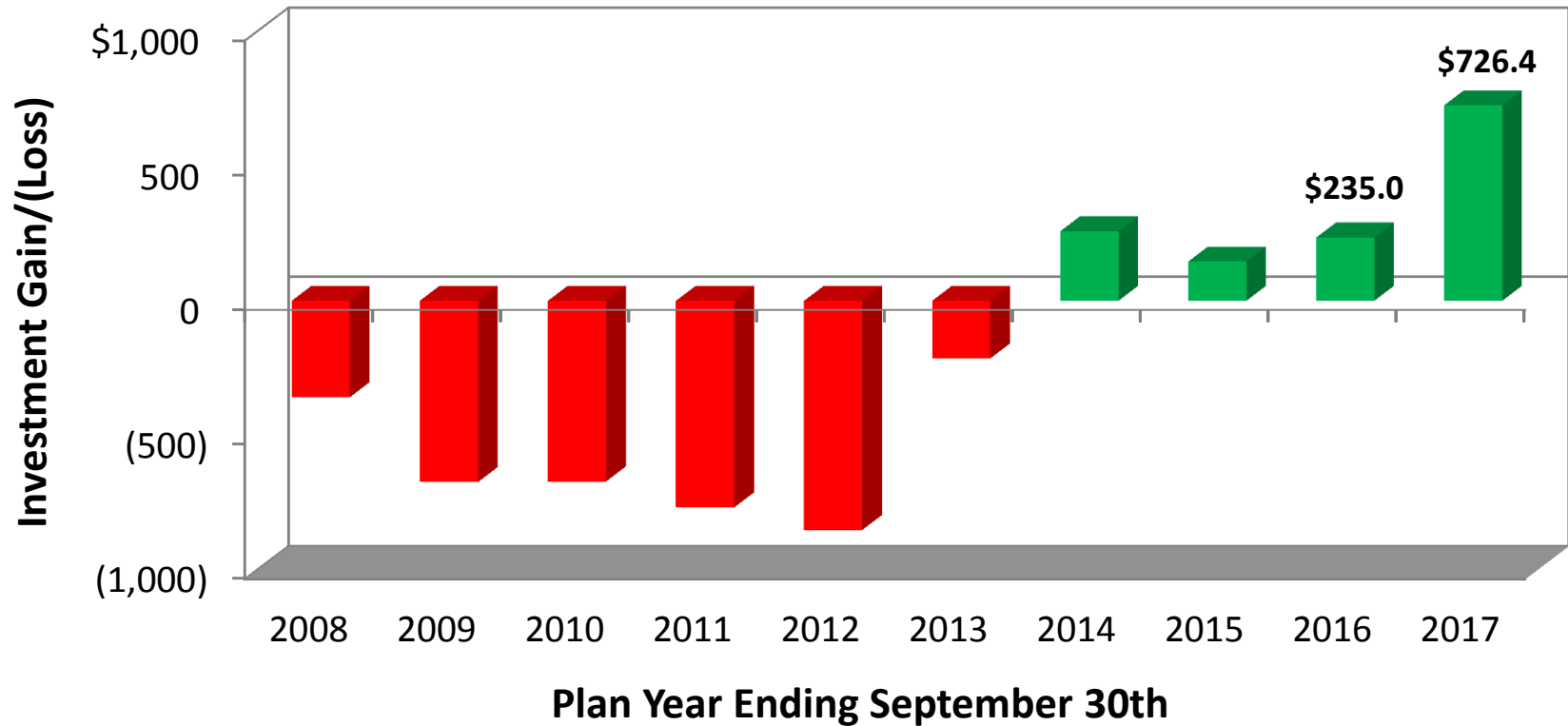
# Growth of Pension Assets (Amounts in Billions)



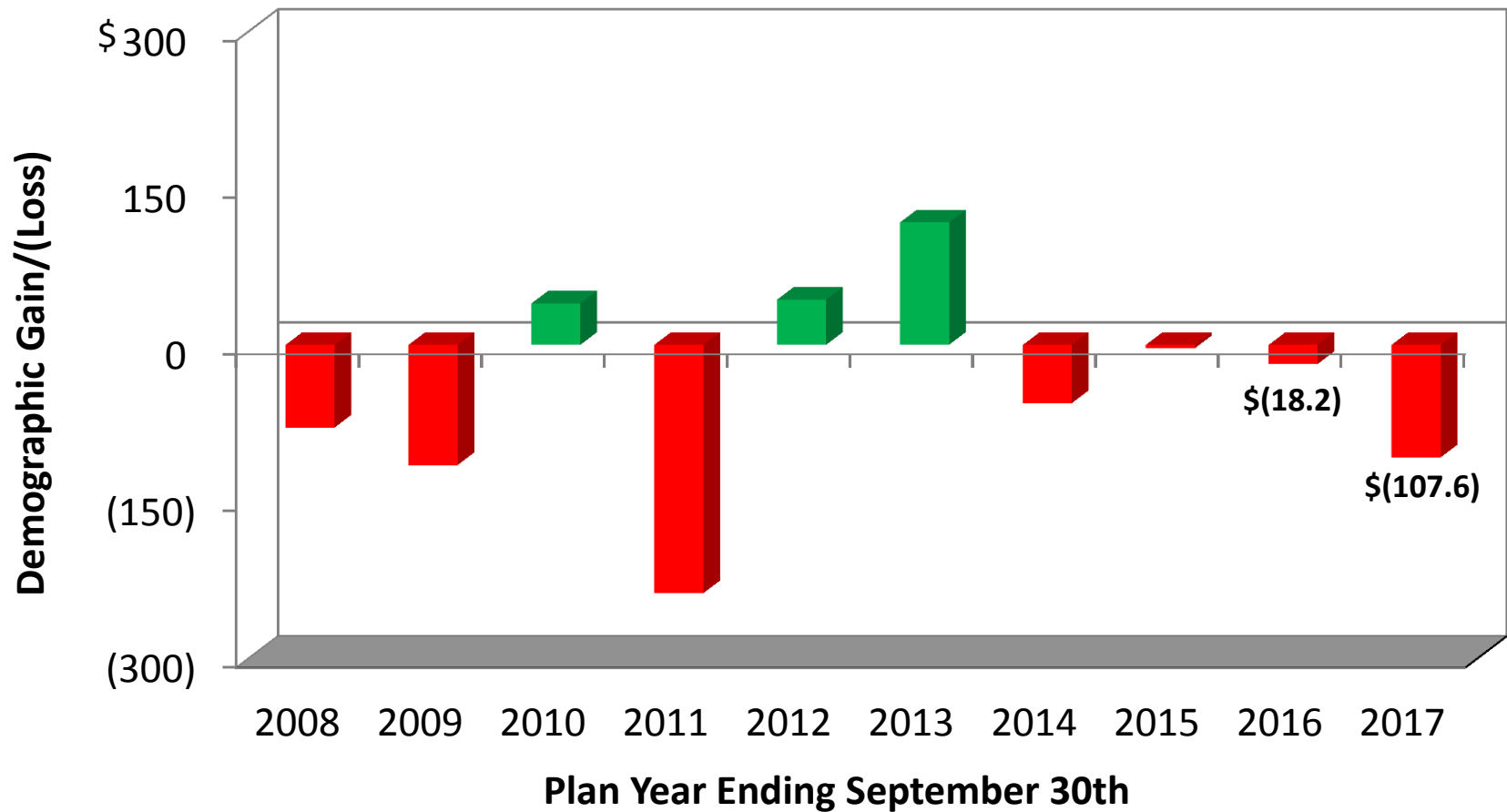
# Actuarial & Market Net Rates of Return



# Investment Gain/(Loss) (Amounts in Millions)



# Demographic Gain/(Loss) (Amounts in Millions)

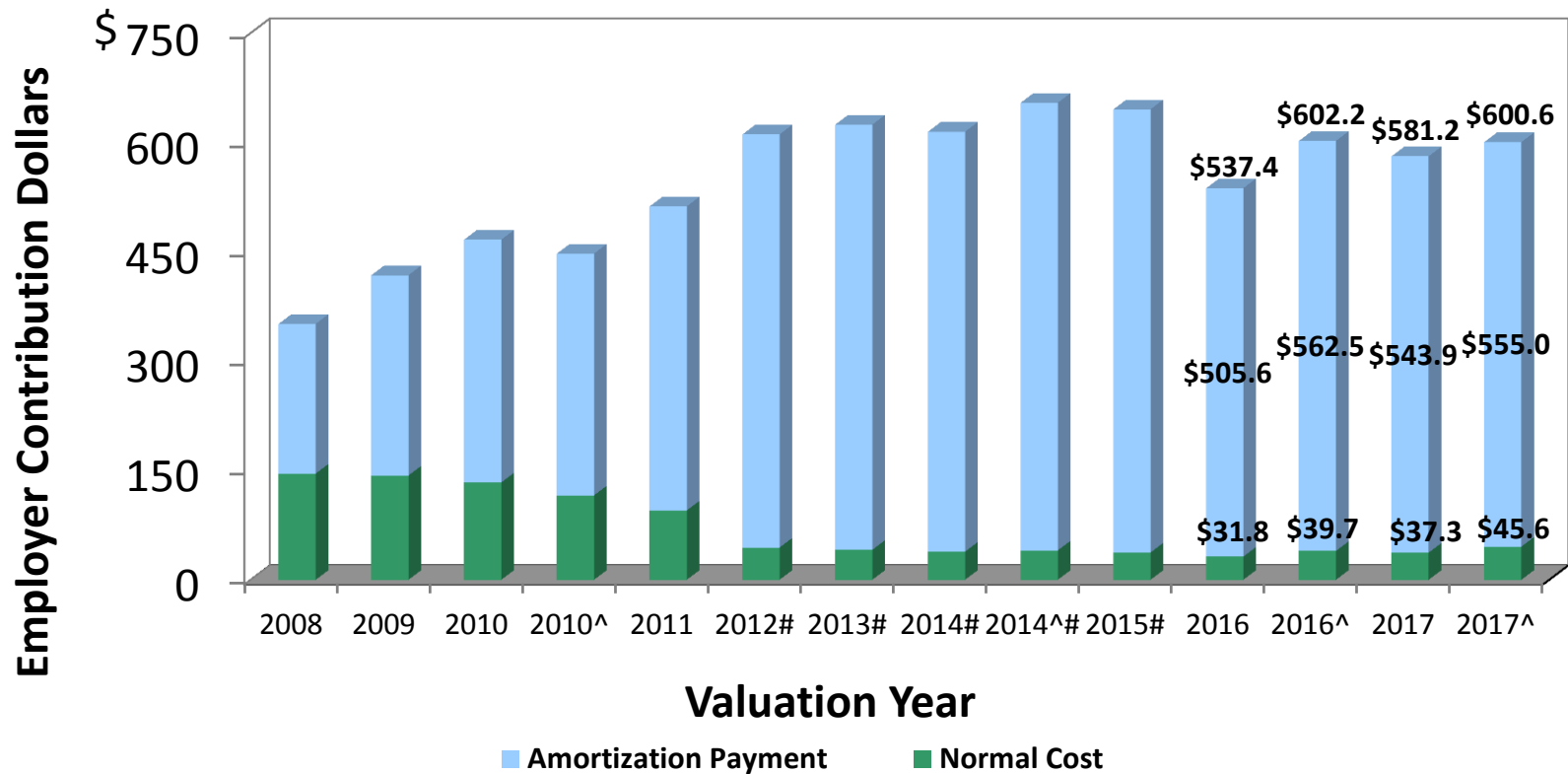


# Gain/(Loss) by Type of Activity (Amounts in Millions)

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Plan Year Ending 9/30	2017	2016	2015	2014	2013
Rehires	\$ 0.00	\$ (4.90)	\$ (9.95)	\$ (5.61)	\$ (4.99)
Retiree Deaths	(9.63)	0.87	3.40	(21.37)	(35.30)
Investments	726.40	235.04	145.96	258.49	(213.85)
Pay Increases	(59.91)	12.64	39.61	28.47	85.62
Withdrawals	2.40	(3.04)	(1.30)	(9.24)	(8.17)
Retirements	(29.69)	(13.85)	(31.33)	(9.86)	(0.95)
Other	(10.80)	(9.89)	(3.62)	(37.95)	80.85
<b>Total</b>	<b>618.77</b>	<b>216.87</b>	<b>142.77</b>	<b>202.93</b>	<b>(96.79)</b>

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

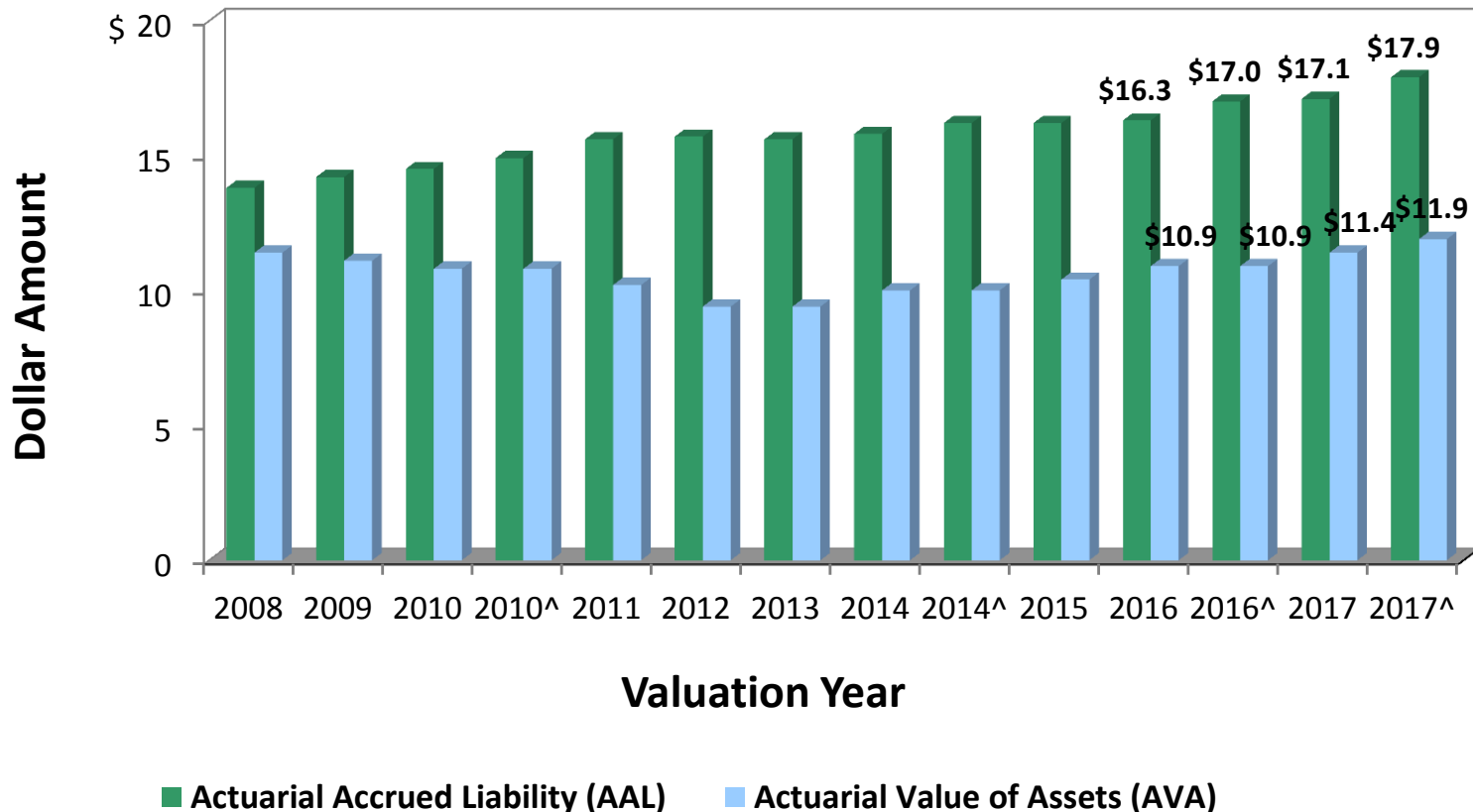


^ Revised actuarial assumptions and/or methods.

# Includes ERI payment.

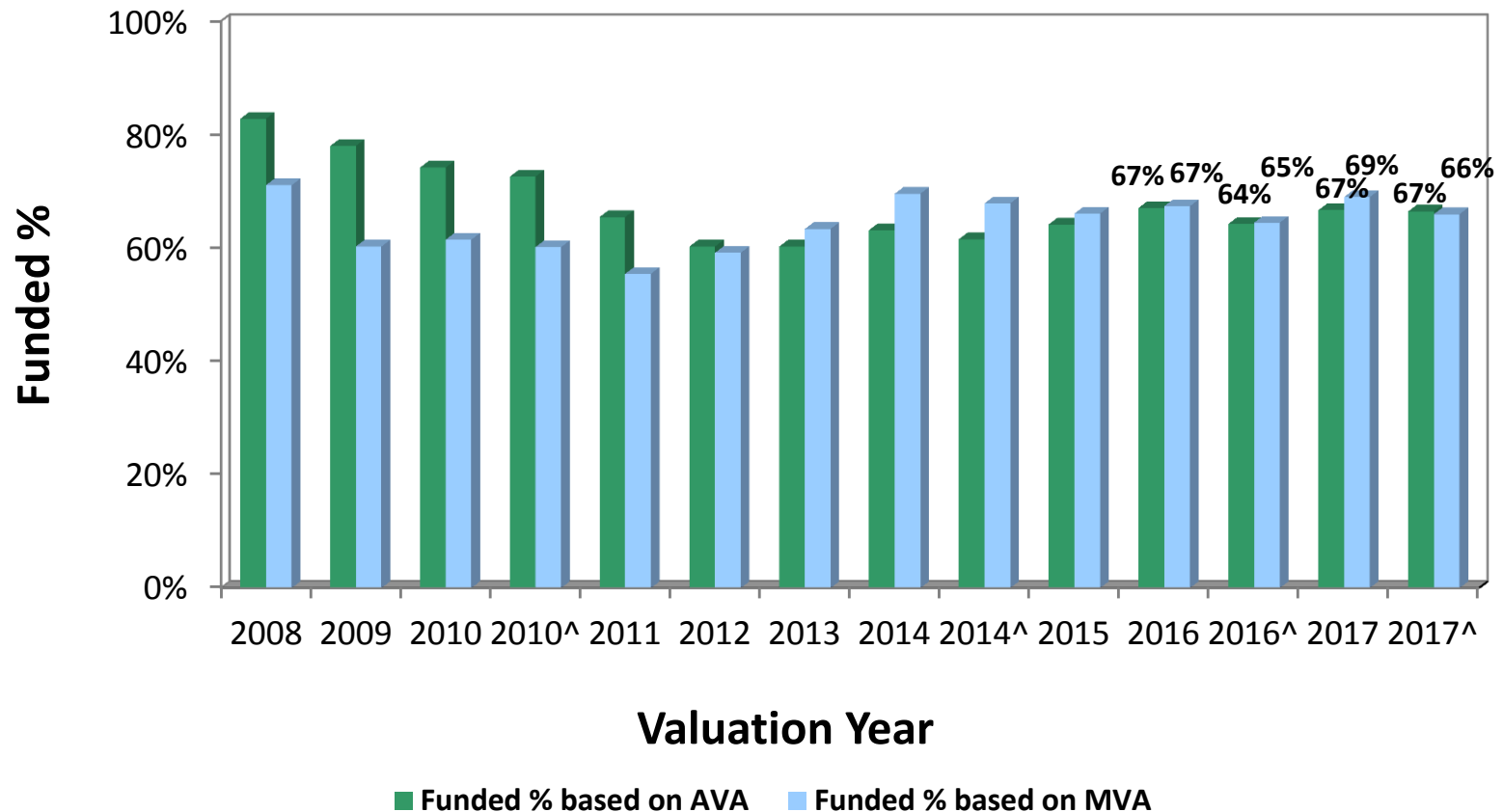


# Actuarial Accrued Liability Compared to Actuarial Value of Assets (Amounts in Billions)



^ Revised actuarial assumptions and/or methods.

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



<sup>^</sup> Revised actuarial assumptions and methods.

# Disclaimers

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- This presentation is intended to be used in conjunction with the September 30, 2017 pension annual actuarial valuation report issued on March 6, 2018. This presentation should not be relied on for any purpose other than the purpose described in the valuation report.
- 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 opinions contained herein.