



Montana Teachers' Retirement System Valuation Results July 1, 2016

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Benefit Financing

- Basic Retirement Funding Equation

$$C + I = B + E$$

C = Contributions

I = Investment Income

B = Benefits Paid

E = Expenses (administration)



Participation in TRS

- Teachers, administrators, specialists and others employed in a teaching or educational services capacity by a public school district, state agency, county, community college, Montana University System or educational cooperative are covered by TRS.

| | |
|------------------------------|--------|
| – Active members | 19,048 |
| – Inactive members | 14,592 |
| – Retirees and Beneficiaries | 15,164 |
| – Employers | 372 |



Actuarial Assumptions

- **Experience Study:** conducted every four years to compare the system's actual experience from the previous five years to what was expected to happen. Most recent experience study was adopted July 1, 2014.

Economic Assumptions:

- General Wage Increases 4.00%
- Investment Return 7.75%
- Price Inflation 3.25%
- Growth in Membership 0.00%
- Interest on Member Accounts 5.00%
- Administrative Expenses 0.31%

Demographic Assumptions:

- Individual Salary Increases
- Retirement Rates
- Disablement Rates
- Mortality Rates for Healthy and Disabled
- Other Terminations of Employment
- Probability of Retaining Membership in System

Next Experience Study is scheduled for the period 7/1/2012 – 7/1/2017

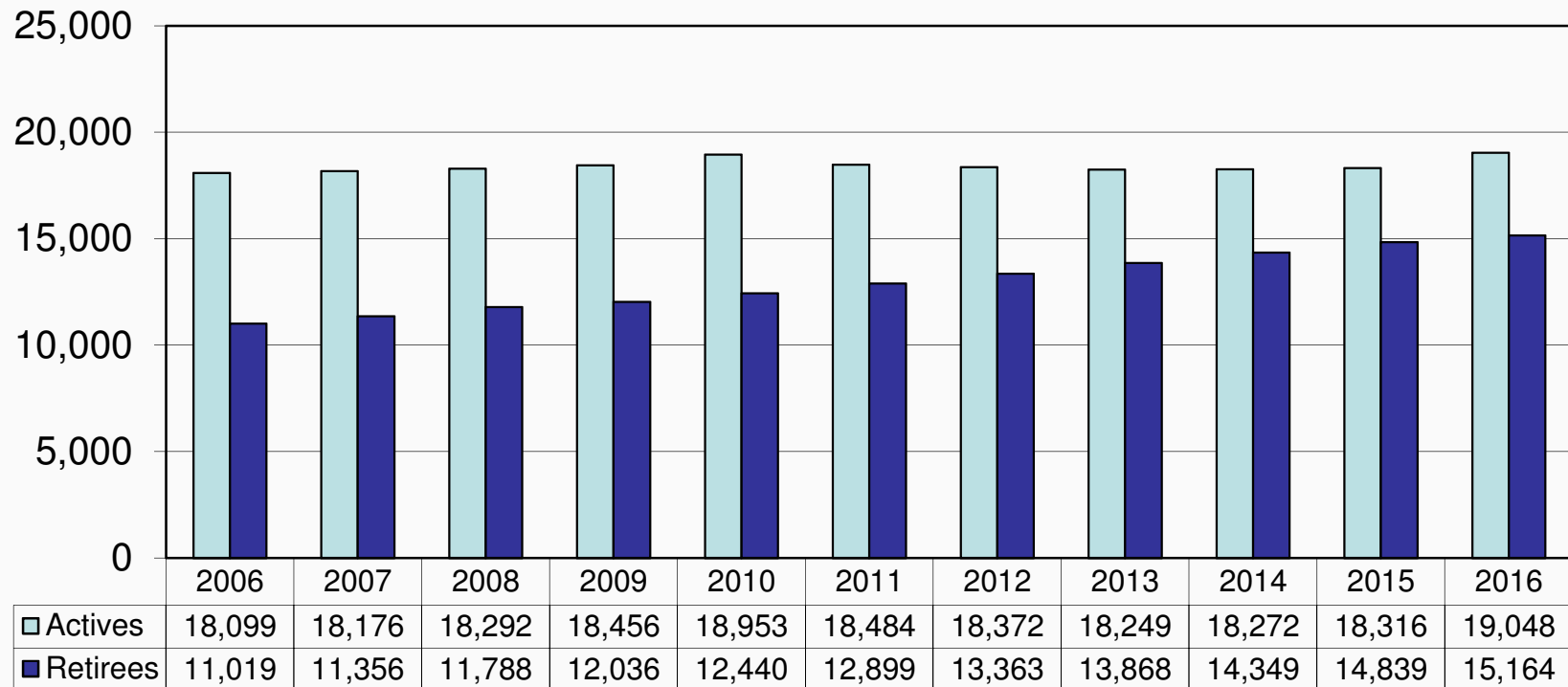


Comments on Valuation

- Asset returns
 - Market asset return 2.08% vs. 7.75% expected (5.67% less than expected).
 - Actuarial asset return 8.79% vs. 7.75% expected (1.04% greater than expected).
- Funded Ratio
 - Funding increased from 67.46% to 69.28%
- Amortization Period
 - Amortization period decreased from 26 to 24 years



Active and Retired Membership



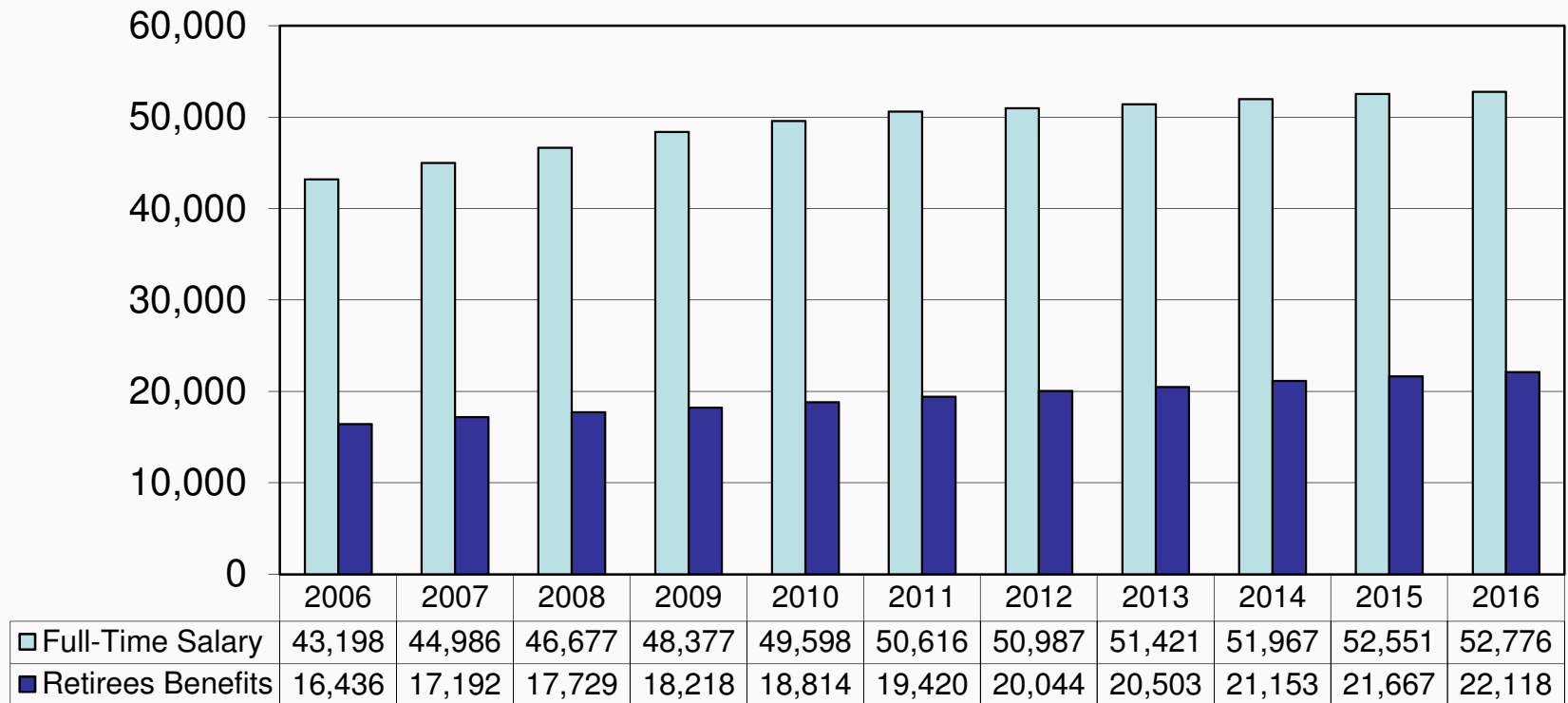
0.5% annual increase for active members since 2006; 4.0% increase for 2016.

3.3% annual increase for retired members since 2006; 2.2% increase for 2016.

0.6 retirees per active 10 years ago; 0.8 retirees per active now.



Average Salary and Benefits

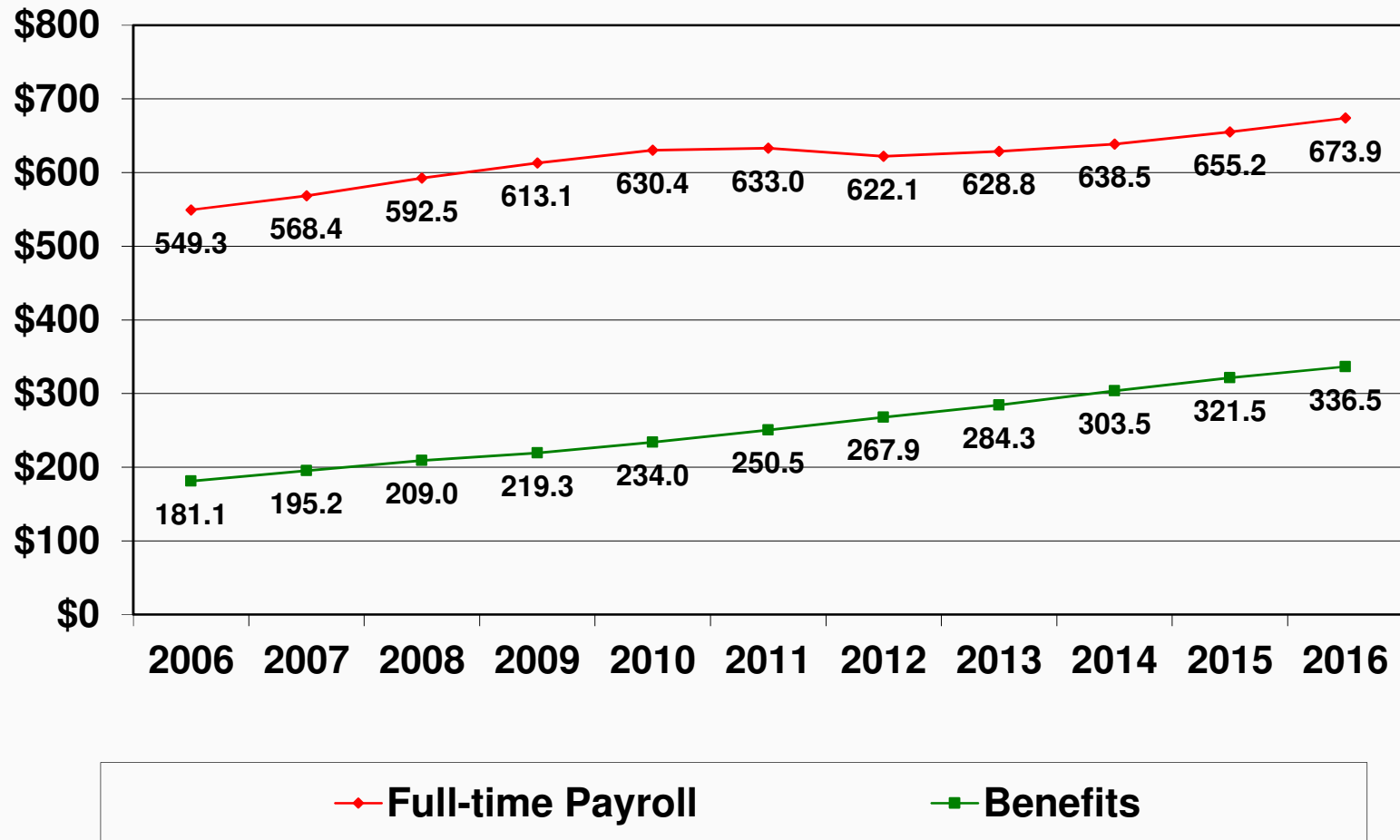


2.0% annual increase for average salary since 2006; 0.4% increase for 2016.

3.0% annual increase for average benefits since 2006; 2.1% increase for 2016.

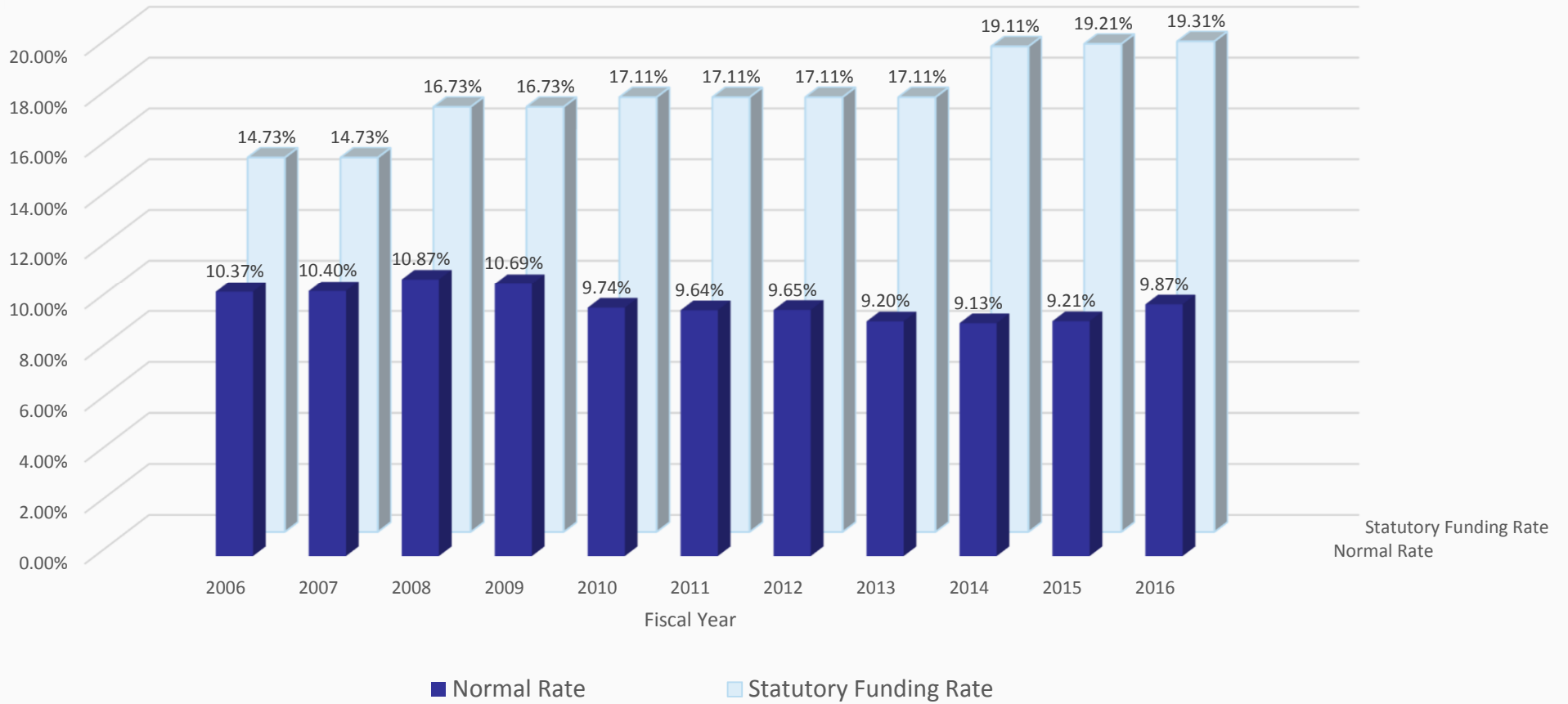


Payroll & Benefits (in Millions)



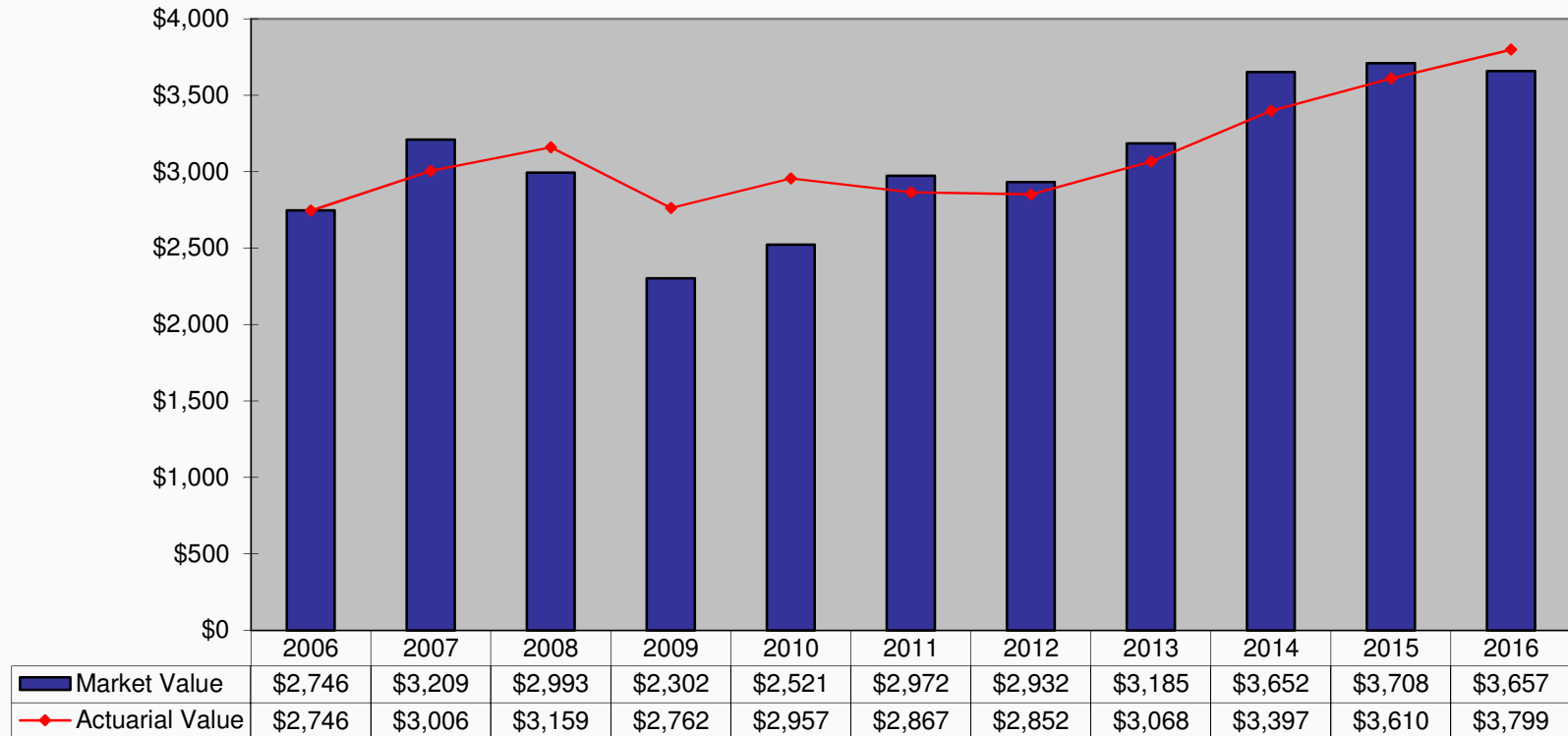


TRS Contribution vs. Normal Rate





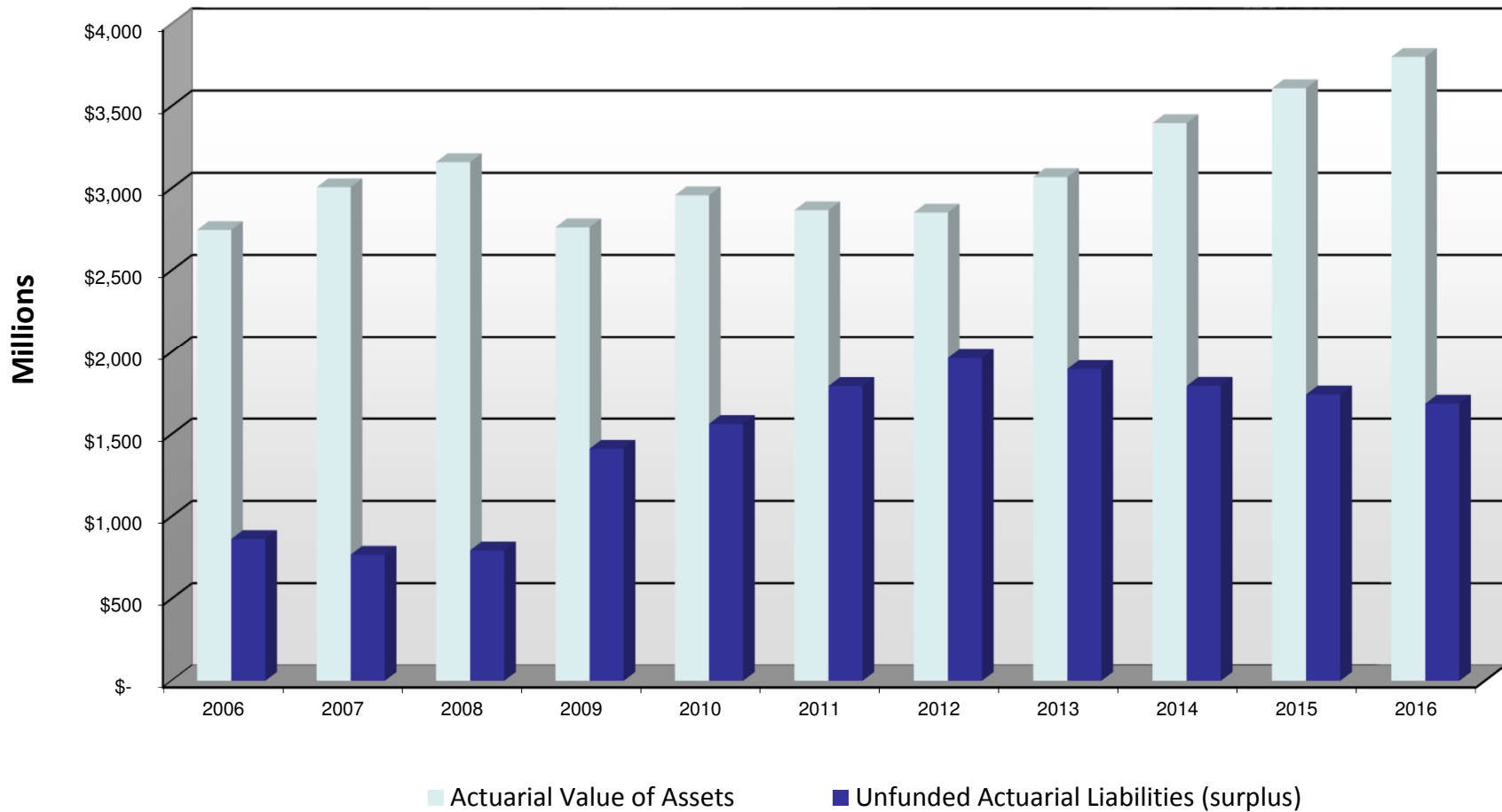
Assets (\$ Millions)



| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|-------------------------|------|-------|--------|---------|-------|--------|------|-------|-------|------|------|
| Market Return | 8.9% | 17.6% | (4.9)% | (20.8)% | 12.9% | 21.7% | 2.2% | 12.9% | 17.1% | 4.6% | 2.1% |
| Actuarial Return | 8.5% | 10.2% | 7.2% | (10.3)% | 9.8% | (0.1)% | 3.2% | 12.0% | 13.2% | 9.6% | 8.8% |

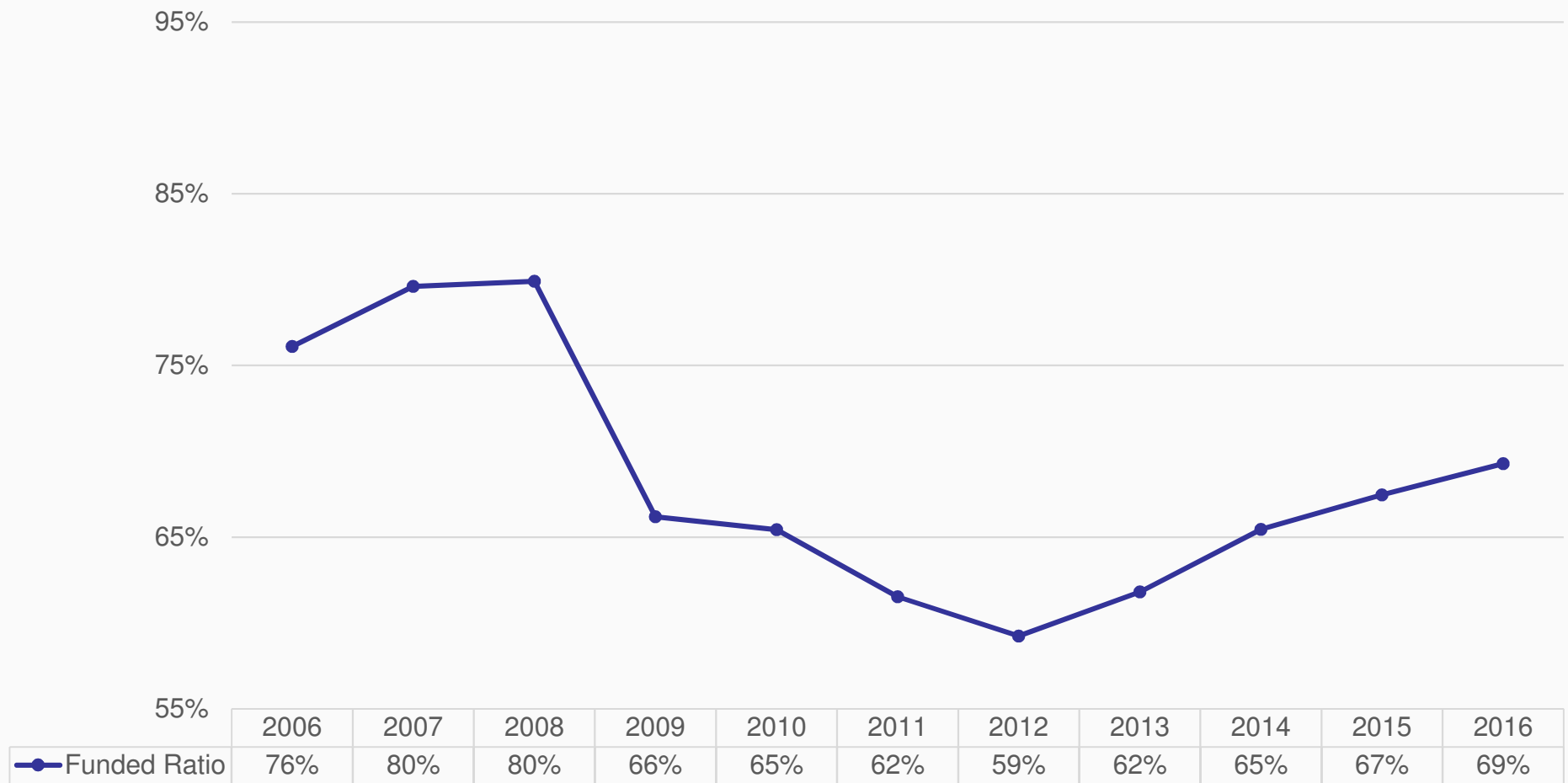


Actuarial Assets vs. UAAL



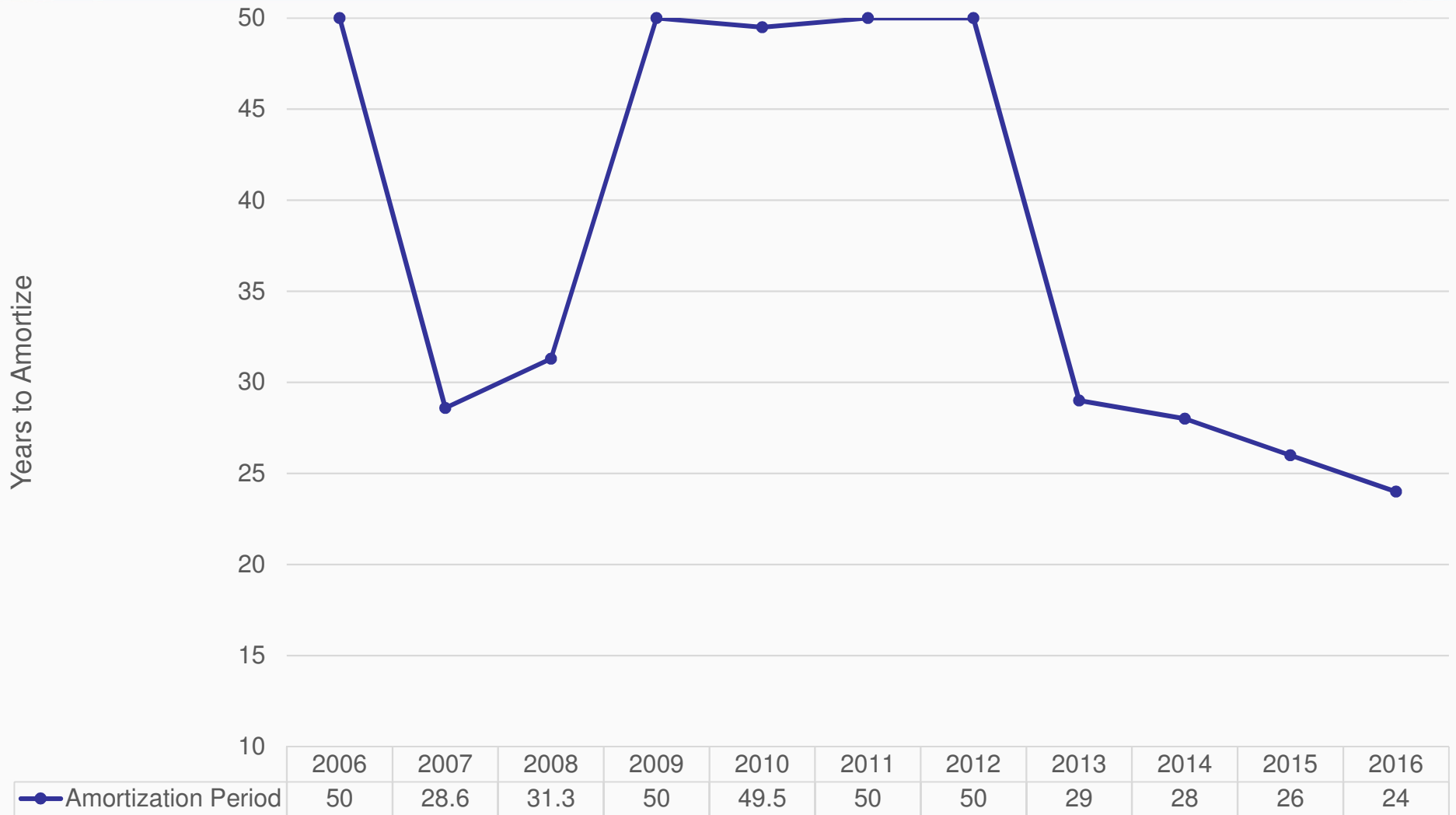


TRS Funded Ratio





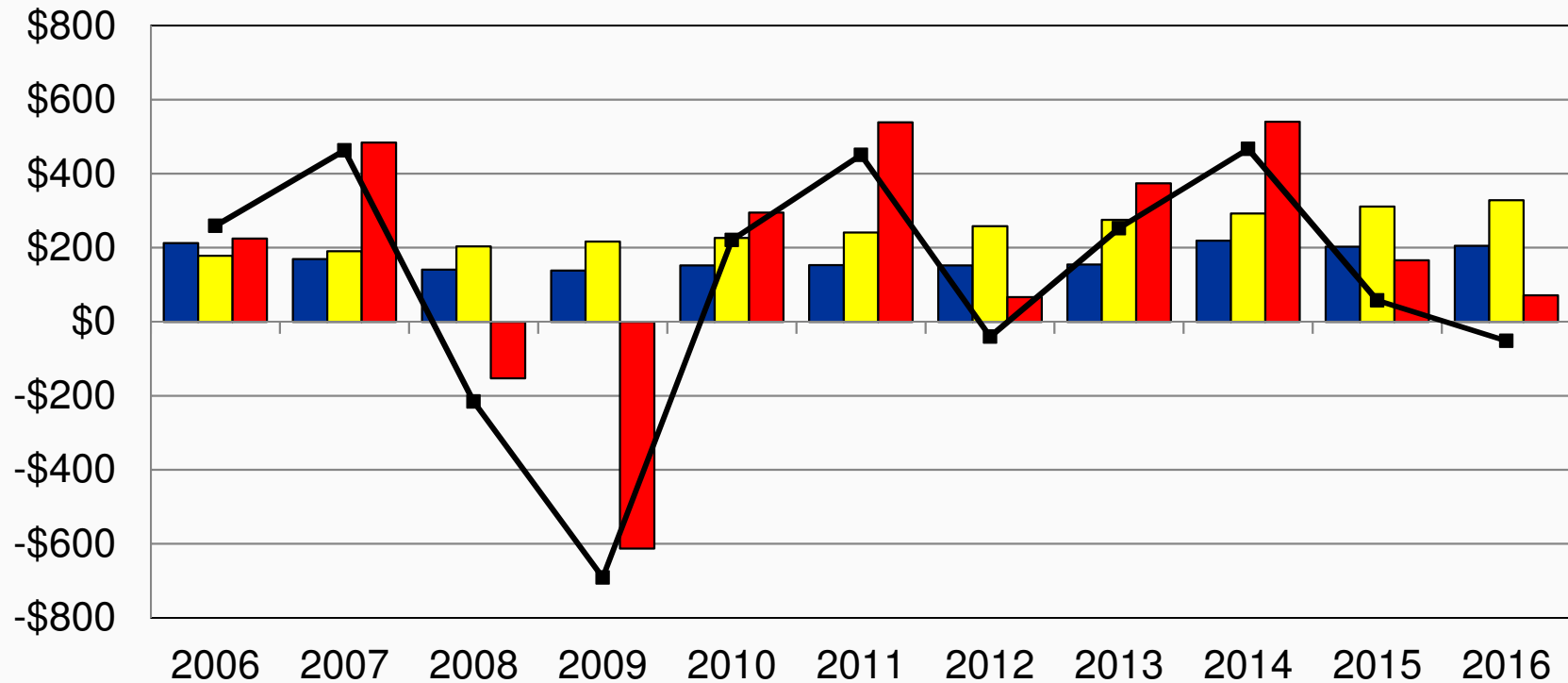
Amortization Period



50 years = Does Not Amortize

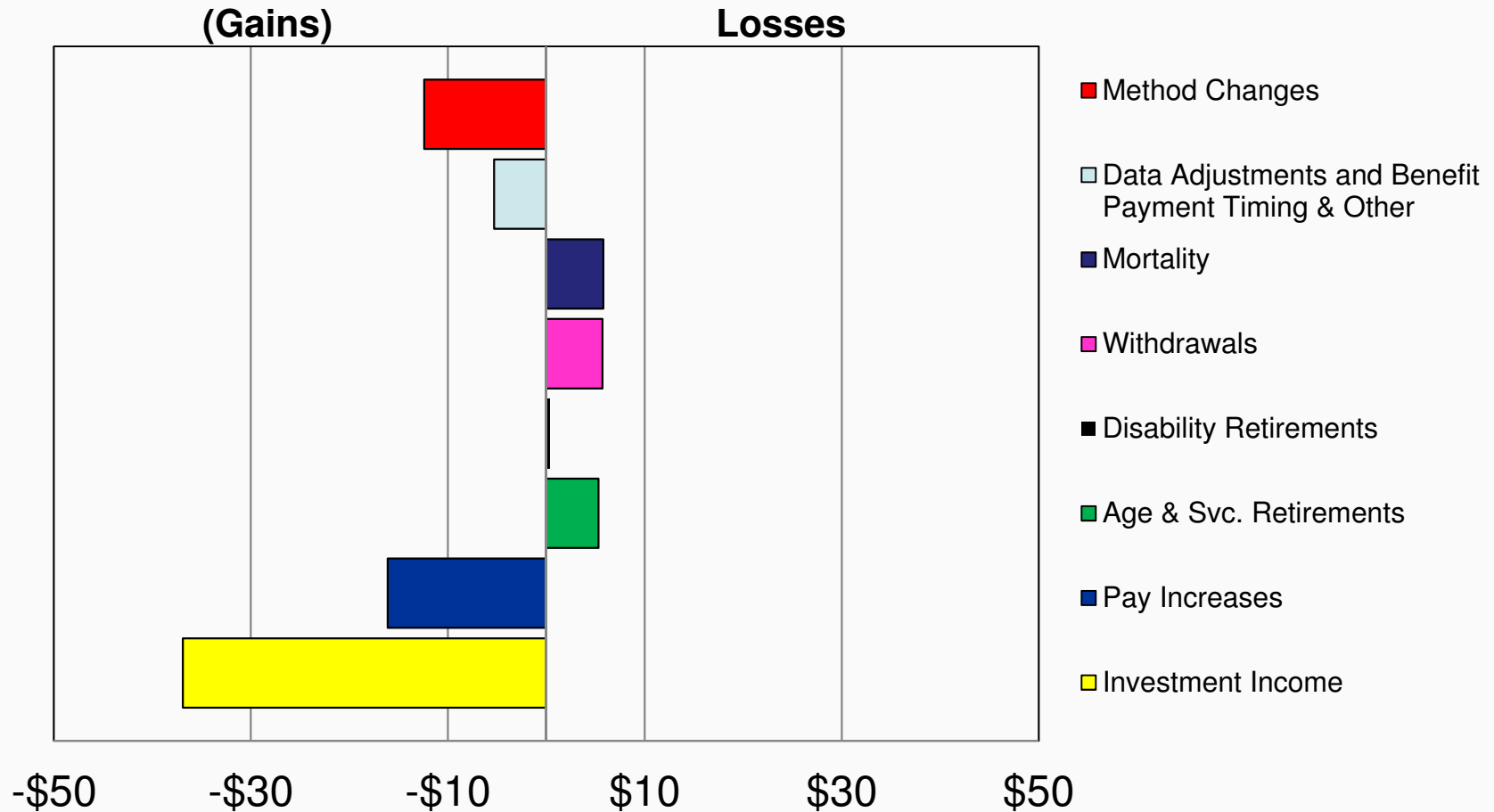


Historical Cash Flow (in Millions)





2016 (Gain)/Loss Analysis (in Millions)





Funding Results

| | July 1, 2016 Valuation | July 1, 2015 Valuation |
|-------------------------------|------------------------|------------------------|
| Total Normal Cost Rate | 9.87% | 9.21% |
| Less Member Rate | <u>8.15%</u> | <u>8.15%</u> |
| Employer Normal Cost Rate | 1.72% | 1.06% |
| Administrative Expense Load | 0.31% | 0.28% |
| Rate to Amortize UAL | <u>9.23%</u> | <u>9.82%</u> |
| Total Employer Statutory Rate | 11.26% | 11.16% |
| | | |
| Actuarial Accrued Liability | \$5,483.7 million | \$5,351.4 million |
| Actuarial Value of Assets | \$3,798.9 million | \$3,609.8 million |
| Unfunded Accrued Liability | \$1,684.8 million | \$1,741.6 million |
| Funded Ratio | 69.28% | 67.46% |
| Amortization Period* | 24 Years | 26 Years |

* Reflects anticipated increase in employer supplemental contribution rate



Progress Toward 100% Funding

