



North Carolina Retirement Systems

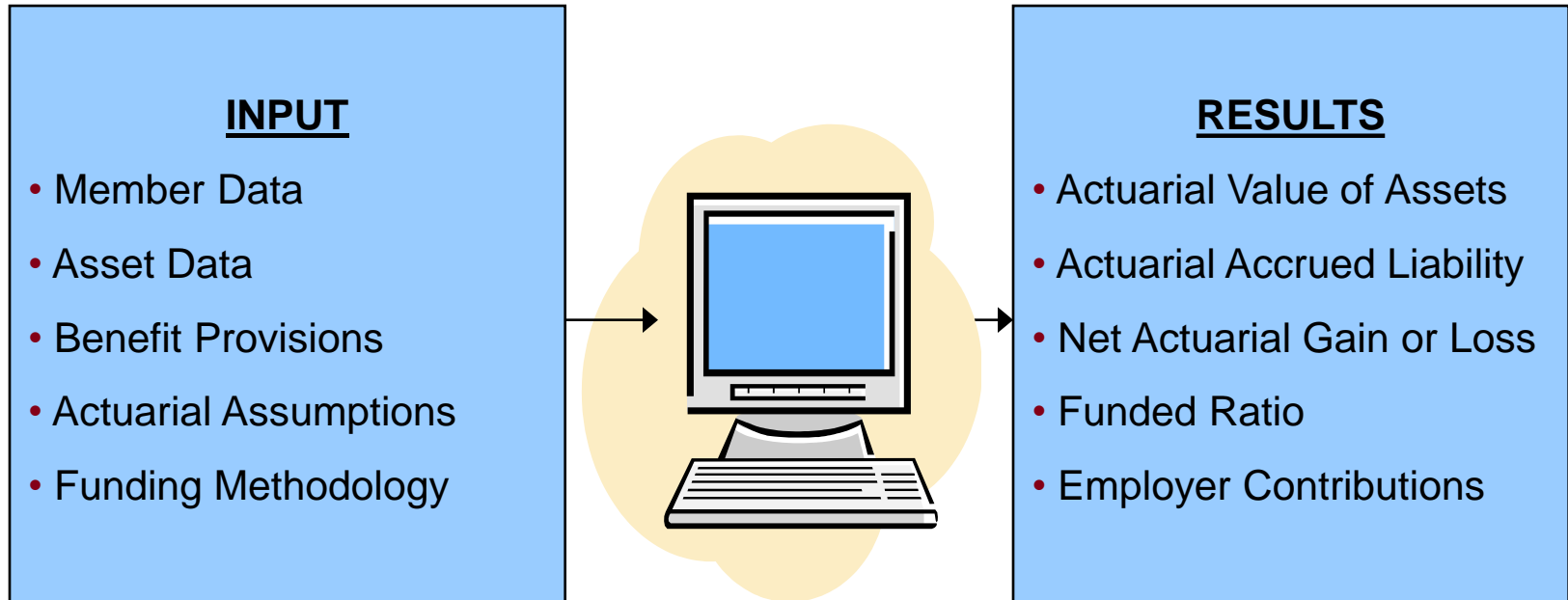
Firefighters' and Rescue Squad Workers' Pension Fund Principal Results of Actuarial Valuation as of June 30, 2012

October 17, 2013
Board of Trustees Meeting
Larry Langer and Mike Ribble

Purpose of the Annual Actuarial Valuation

- Each year, the actuary determines the amount of contributions to be made to the Retirement System during each member's career that, when combined with investment return, will be sufficient to pay for retiree benefits.
- This contribution is determined through the annual actuarial valuation, which is summarized in the annual actuarial valuation report.
- In addition, the annual actuarial valuation is performed to:
 - Determine progress on funding the Retirement Systems
 - Explore why the results of the current valuation differ from the results of the valuation of the previous year
 - Satisfy regulatory and accounting requirements

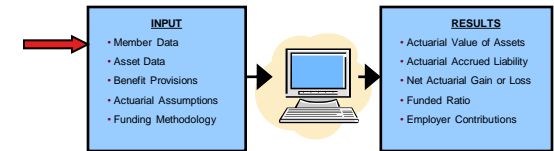
The Valuation Process



Events During Year Ending June 30, 2012 Which Impacted the June 30, 2012 Actuarial Valuation Results

- Results of this valuation deviated from last year's valuation due to several causes:
 - Market value returns of 2.2% compared to 7.25% assumed resulted in lower assets than anticipated
 - In aggregate, other assumptions were close to target resulting in net actuarial accrued liability slightly higher than anticipated
- When compared to the prior valuation, actual asset return and liability growth resulted in:
 - Higher unfunded liability than expected as of June 30, 2012
 - Higher employer required contributions for fiscal year ending June 30, 2014

Member Data



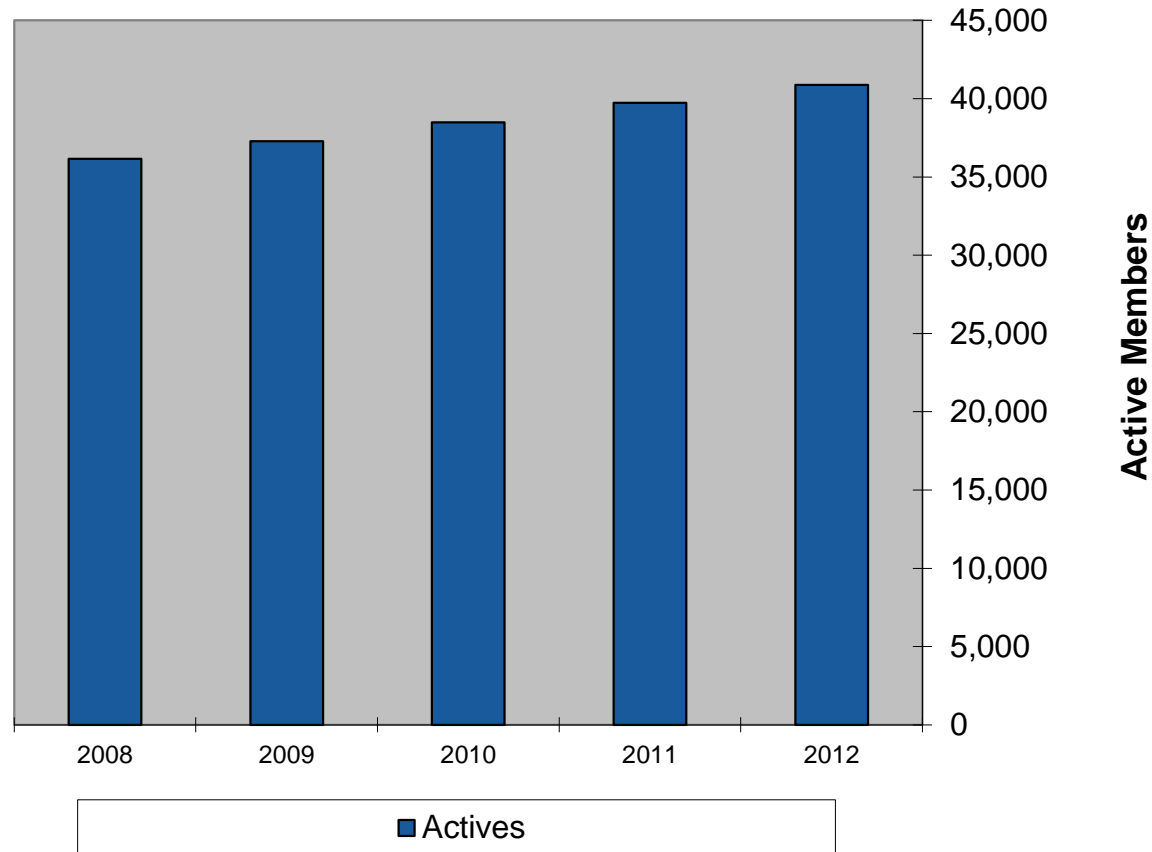
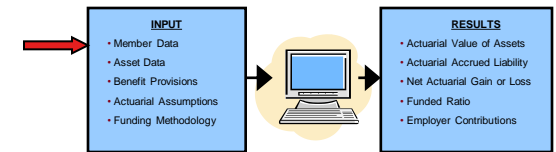
GROUP	NUMBER As of 6/30/12	NUMBER As of 6/30/11
Retired members and survivors of deceased members currently receiving benefits	11,912	11,520
Terminated members and survivors of deceased members entitled to benefits but not yet receiving benefits	154	159
Active members	<u>40,870</u>	<u>39,734</u>
Total	52,936	51,413

The increase in retiree population is consistent with expectations.

The increase in active population means more benefits accruing, but also more member contributions supporting the System.

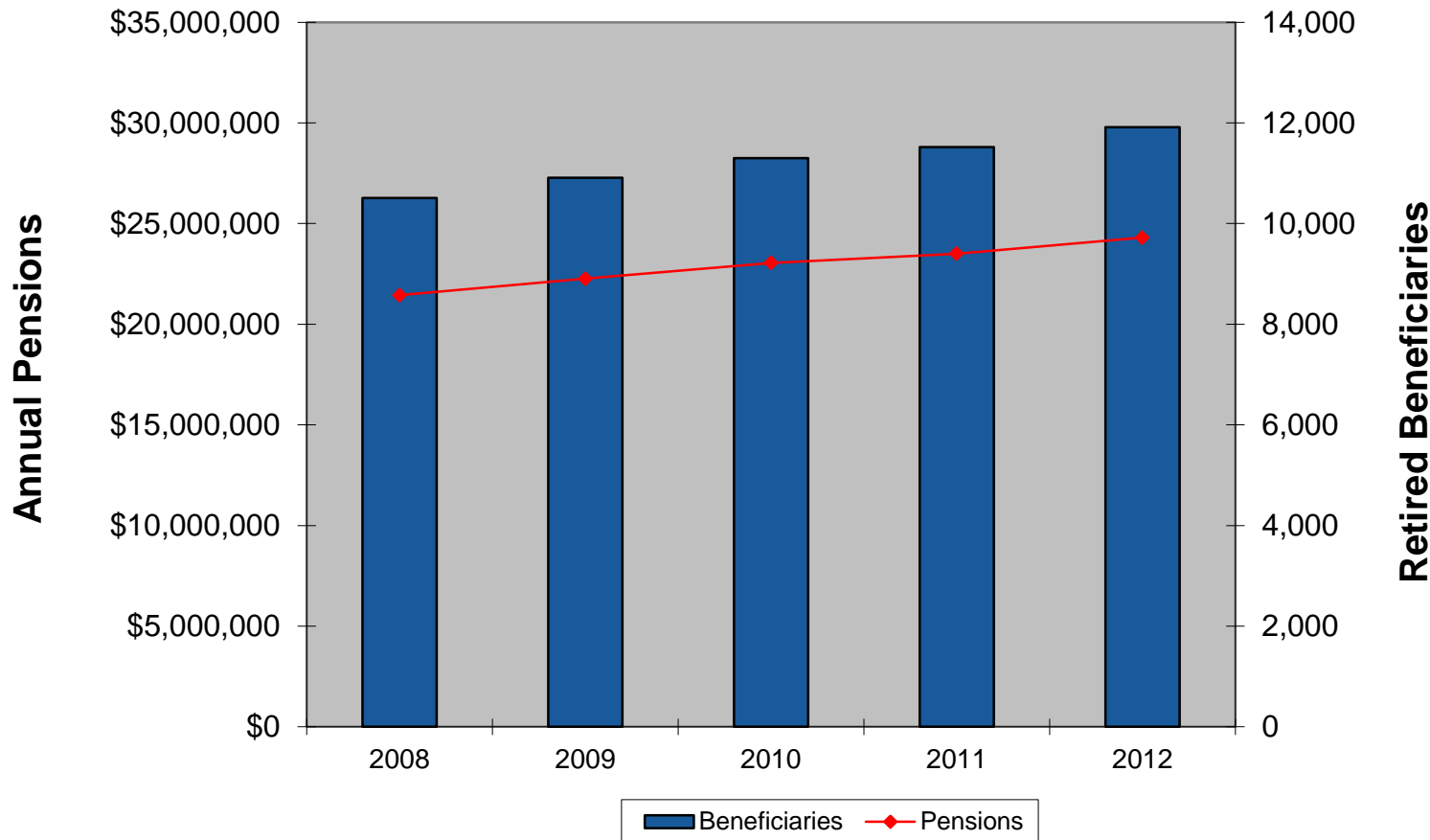
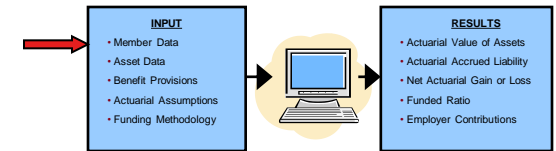
Refer to Tables on pages 3 and 4 of the actuarial valuation report for more information on the member data submitted for the valuation.

Active Members



Refer to pages 1 and 2 of the actuarial valuation report for a side-by-side comparison from the past two valuations.

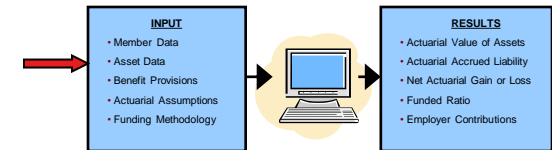
Retired Beneficiaries and Pensions



Steady increase in amount of benefits paid out of fund, increasing as expected based on plan assumptions.

Refer to pages 1 and 2 of the actuarial valuation report for a side-by-side comparison from the past two valuations.

Asset Data



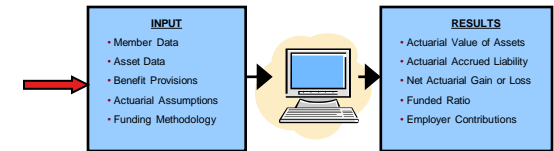
Transactions	June 30, 2012	June 30, 2011
Additions		
Contributions	12,853,249	13,064,402
Net Investment Income	7,128,234	51,326,662
Total	19,981,483	64,391,064
Deductions		
Benefits Payments	25,428,329	24,843,279
Net Increase / (Decrease)	(5,446,846)	39,547,785
Net Assets Held in Trust for Pension Benefits		
Beginning of Year	323,354,190	283,806,405
End of Year	317,907,344*	323,354,190
Actual net investment return	2.25%	18.47%

Returns for FYE 2012 were less than the 7.25% assumed rate of return, resulting in higher contributions requirements for FYE 2014.

*Excludes employer contributions receivable of \$4,318,042 as appropriated for fiscal year ending 6/30/2012 but received after such date.

Refer to Schedule A on page 15 of the actuarial valuation report, for more information on the plan assets submitted for the valuation.

Benefit Provisions

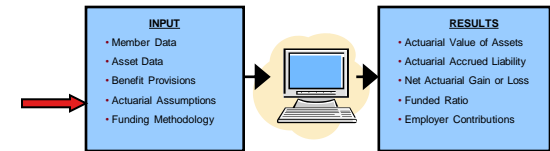


- Benefit provisions are described in North Carolina General Statutes, Chapter 58, Article 86
- There were no significant changes from the prior year's valuation.

Provision changes for new hires will impact contributions and liabilities in the future.

Refer to Schedule D of the actuarial valuation report, beginning on page 20, for a summary of the benefit provisions submitted for the valuation.

Actuarial Assumptions

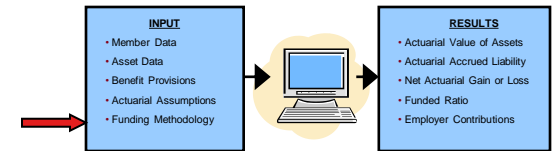


- Demographic (future events that relate to people)
 - Retirement
 - Termination
 - Disability
 - Death
- Economic (future events that relate to money)
 - Interest rate - 7.25% per year
 - Real return – 4.25%

The latest assumptions were adopted for use with the June 30, 2010 actuarial valuation, based on the experience study prepared as of June 30, 2010.

Refer to Schedule C of the actuarial valuation report, beginning on page 17, for more information on the actuarial assumptions used for the valuation.

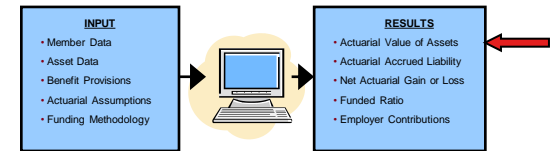
Funding Methodology



- The Funding Methodology is the payment plan for the Retirement System and is composed of the three following components:
 - Actuarial Cost Methods allocate costs to the actuarial accrued liability for past service and normal cost for current service
 - Board has adopted Entry Age Normal as its actuarial cost method
 - Asset Valuation Methods smooth or average the market value returns over time to alleviate contribution volatility that results from market returns
 - 20% of market value plus 80% of expected actuarial value
 - Asset corridor: not greater than 120% of market value and not less than 80% of market value
 - Amortization Methods determine the payment schedule for unfunded actuarial accrued liability
 - Payment level: the payment is determined as a level dollar amount, similar to a mortgage payment
 - Payment period: a 12-year closed amortization period was adopted for FYE 2012. A new amortization base is created each year based on the prior year's experience

Schedule C of the actuarial valuation report, beginning on page 17, provides more information on the funding methodology. Schedule B on page 16 shows the amortization schedule for the unfunded actuarial accrued liability.

Actuarial Value of Assets



1.	Actuarial Value of Assets as of June 30, 2011	\$ 327,984,054
2.	2011/2012 Net Cash Flow	
a.	Contributions	12,853,249
b.	Disbursements	25,428,339
c.	Net Cash Flow: (a) - (b)	(12,575,080)
3.	Expected Investment Return: [(1) x .0725] + [(2)c x .03625]	23,322,997
4.	Expected Actuarial Value of Assets as of June 30, 2012: (1) + (2)c + (3)	338,731,971
5.	Market Value of Assets as of June 30, 2012	317,907,344
6.	Excess of Market Value over Expected Actuarial Value of Assets: (5) - (4)	(20,824,627)
7.	20% Adjustment towards Market Value: (6)* x .20	(4,164,926)
8.	Preliminary Actuarial Value of Assets as of June 30, 2012: (4) + (7)	334,567,045
9.	Receivable Employer Contributions	4,318,042
10.	Final Actuarial Value of Assets as of June 30, 2012 [(8) not less than 80% of (5) and not greater than 120% of (5)]	338,885,087*
11.	Rate of investment return on actuarial value	5.96%
12.	Rate of investment return on market value	2.25%

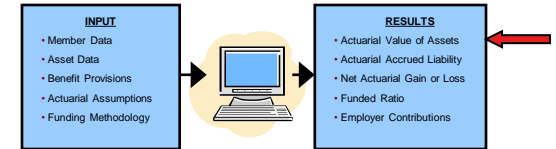
Historical returns		
YE 6/30	AVA	MVA
2006	8.63%	7.24%
2007	9.98%	14.85%
2008	7.43%	(1.92)%
2009	3.09%	(14.15)%
2010	4.47%	12.09%
2011	6.88%	18.47%
2012	5.96%	2.25%
average	6.61%	5.01%
range	6.89%	32.62%

The actuarial value of assets smooths investment gains/losses, resulting in less volatility in the employer contribution. However, low returns in 2008, 2009 and 2012 result in \$4.2 million asset loss recognition this year.

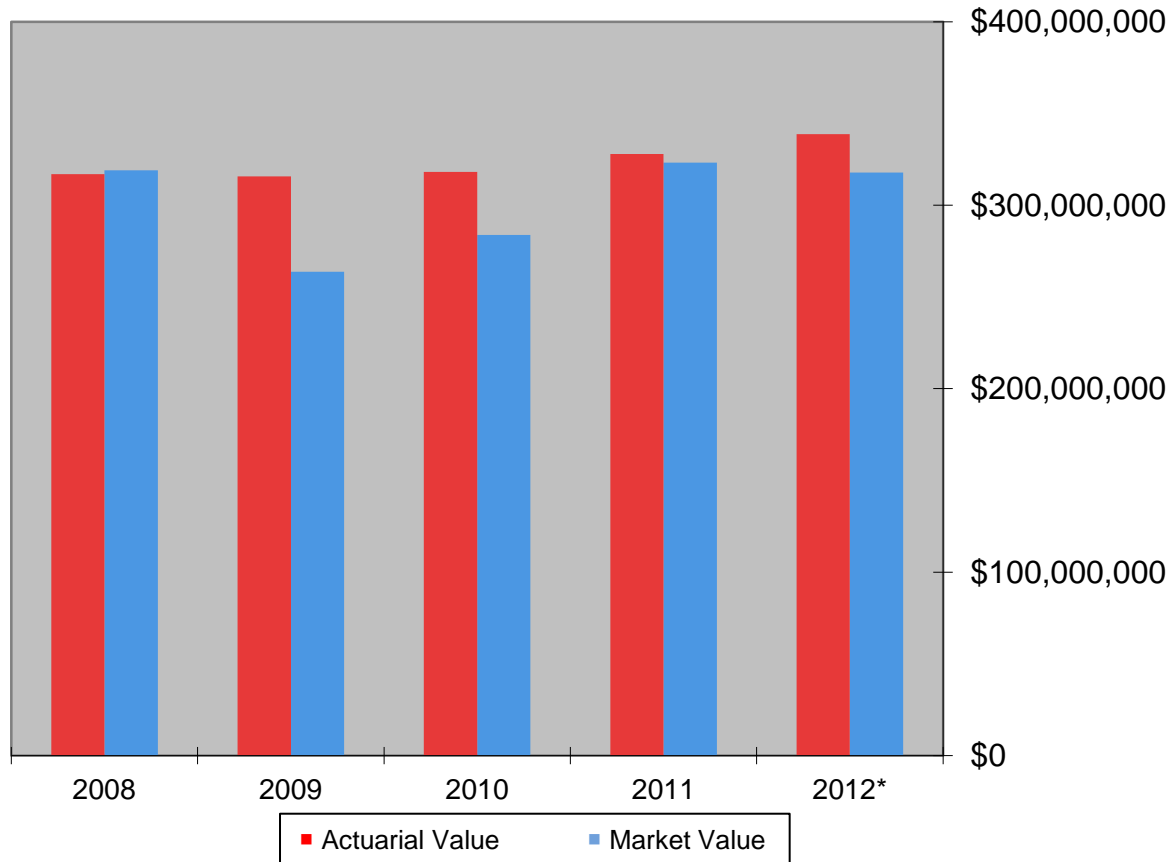
* Includes employer contributions receivable of \$4,318,042 as appropriated for fiscal year ending 6/30/2012, but received after such date. The amount was included in the Plan's financial statements in the state's CAFR for fiscal year end 6/30/2012.

Refer to Schedule A on page 15 of the actuarial valuation report.

Assets



Actuarial Value Compared to Market Value



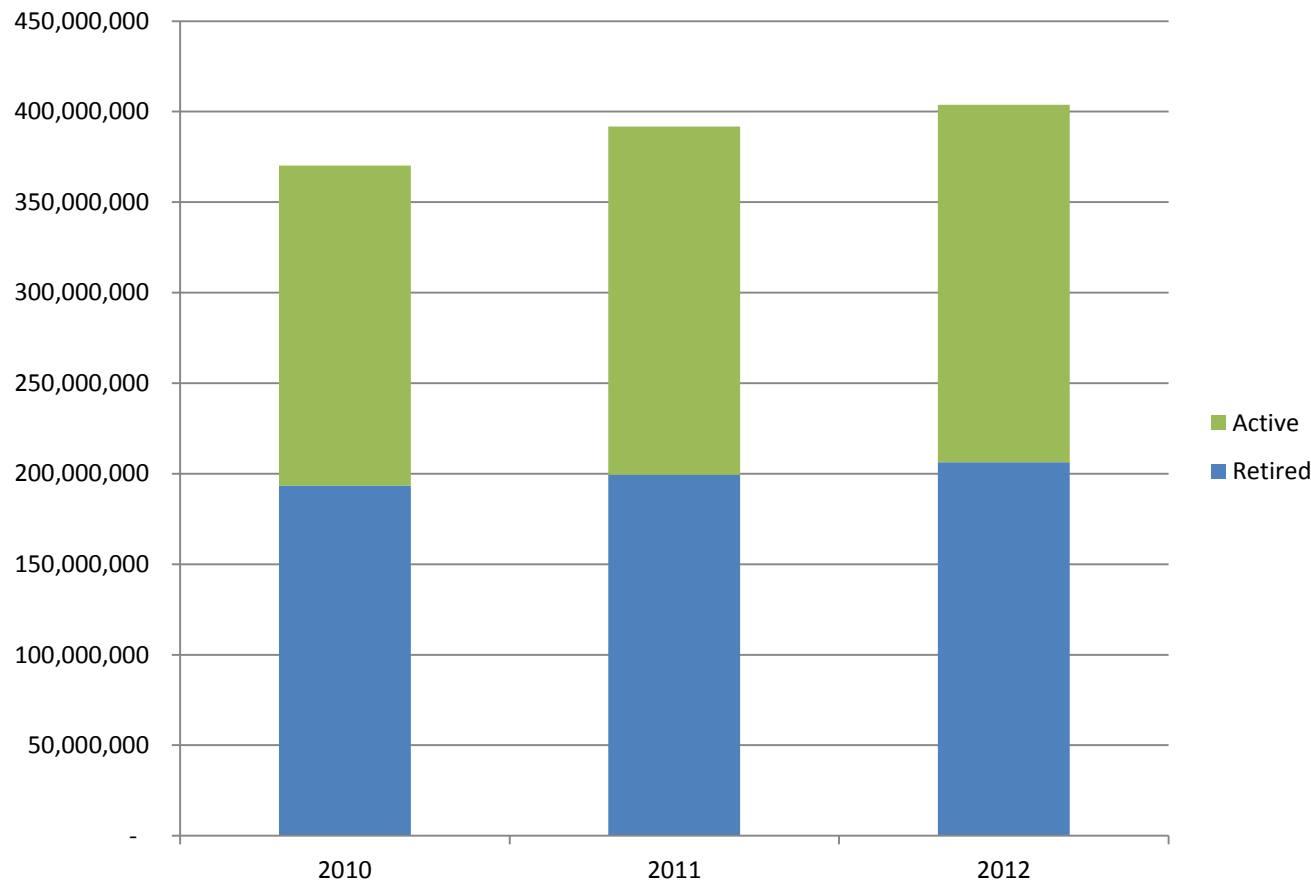
Value of Assets

The actuarial value of assets compared to the market value was much less volatile over the last five years. Use of the actuarial value is standard for the purpose of dampening contribution volatility.

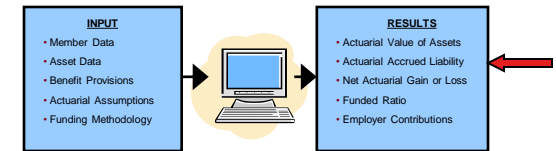
* Actuarial value includes employer contributions receivable of \$4,318,042 as appropriated for fiscal year ending 6/30/2012, but received after such date. The amount was included in the Plan's financial statements in the state's CAFR for fiscal year end 6/30/2012.

Refer to page 15 of the actuarial valuation report.

Actuarial Accrued Liability

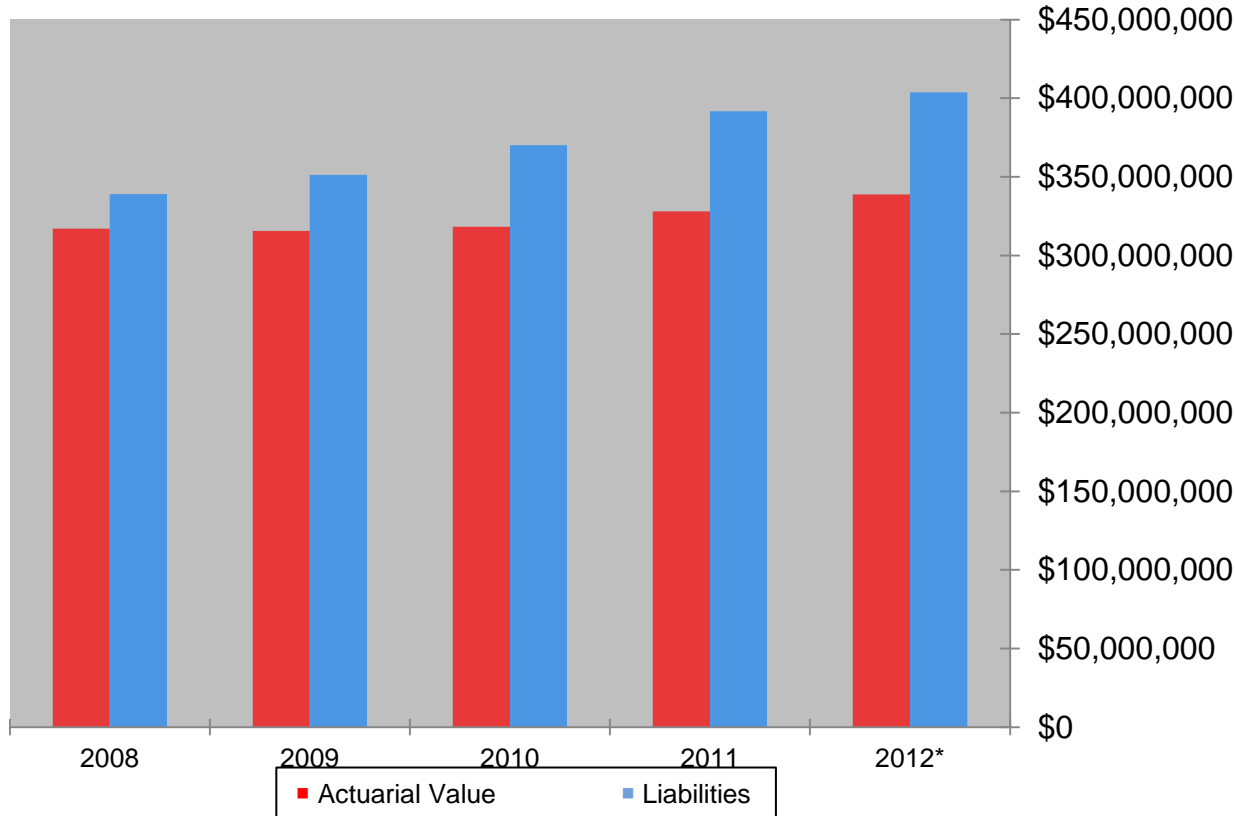
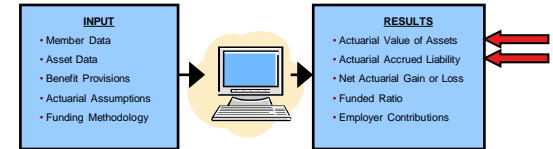


The actuarial accrued liability increased from \$391.8 million to \$403.8 million during the past year. In an open plan such as this, liabilities are expected to grow from one year to the next as more benefits accrue and the membership approaches retirement.



Refer to Section VII, Schedule of Funding Progress, on page 12 of the actuarial valuation report for more information.

Accrued Liabilities and Actuarial Value of Assets

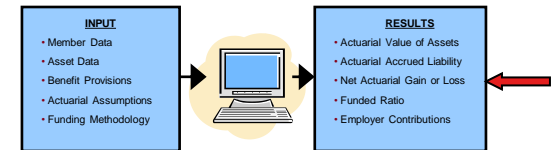


The ratio of assets to liabilities shows the health of the plan on an accrued basis.

* Actuarial value includes employer contributions receivable of \$4,318,042 as appropriated for fiscal year ending 6/30/2012, but received after such date. The amount was included in the Plan's financial statements in the state's CAFR for fiscal year end 6/30/2012.

Refer Section VII, Schedule of Funding Progress, on page 12 of the actuarial valuation report for more information.

Net Actuarial Gain or Loss



Reconciliation of Change in Unfunded Actuarial Accrued Liability Since the Prior Valuation (in Millions)

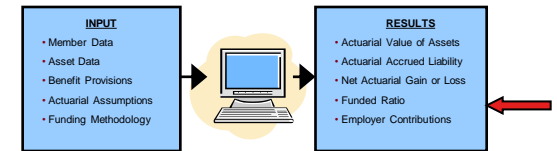
Unfunded accrued liability as of 6/30/11	\$ 63.9
Normal cost	8.9
Reduction due to actual contributions and member contributions	(17.2)
Interest on unfunded accrued liability, normal cost and contributions	4.7
Asset (gain)/loss	4.2
Accrued liability (gain)/loss	<u>0.4</u>
Unfunded accrued liability as of 6/30/12	\$ 64.9

The accrued liability loss of \$0.4 million means that the unfunded actuarial accrued liability was \$0.4 million higher than we would have expected based on the assumptions.

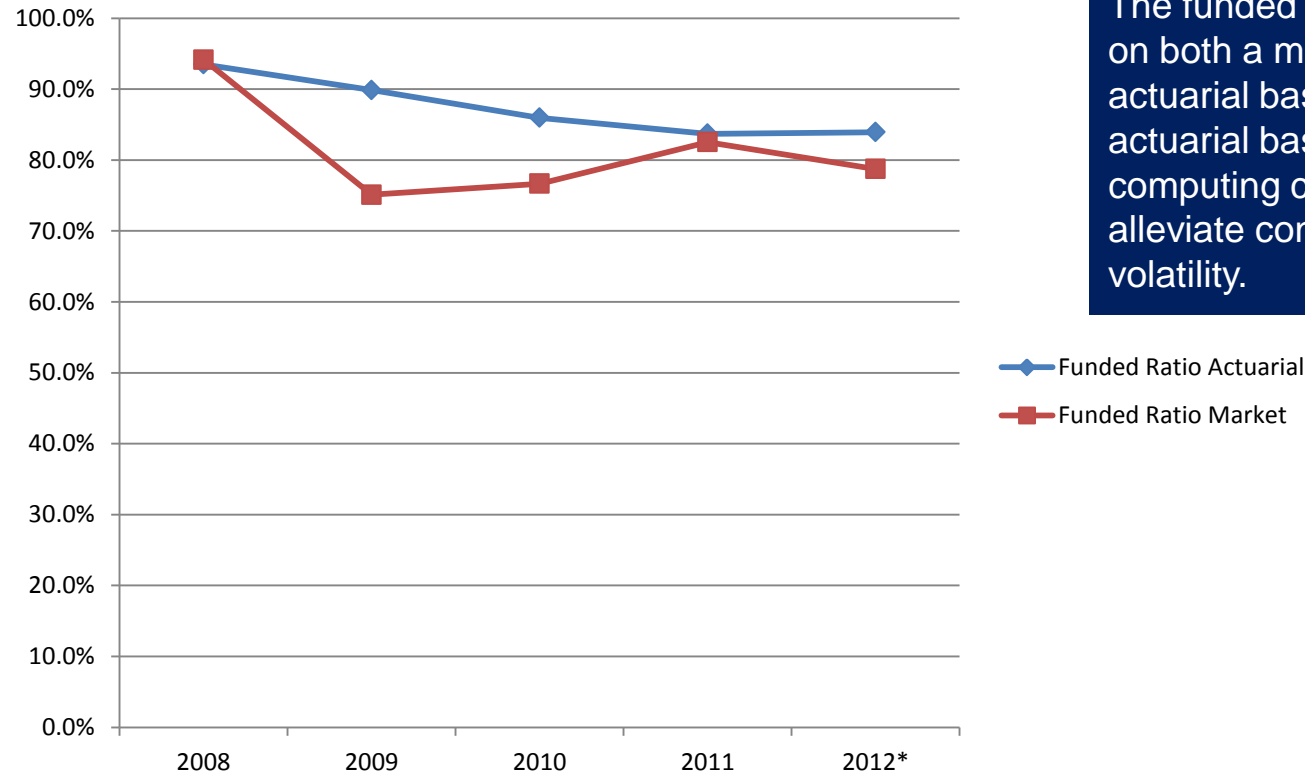
The asset loss of \$4.2 million means that the asset valuation method resulted in a recognition of \$4.2 million of deferred asset losses from 2008, 2009 and 2012.

See Section VI on page 11 of the actuarial valuation report.

Funded Ratio



Actuarial and Market Funded Ratio

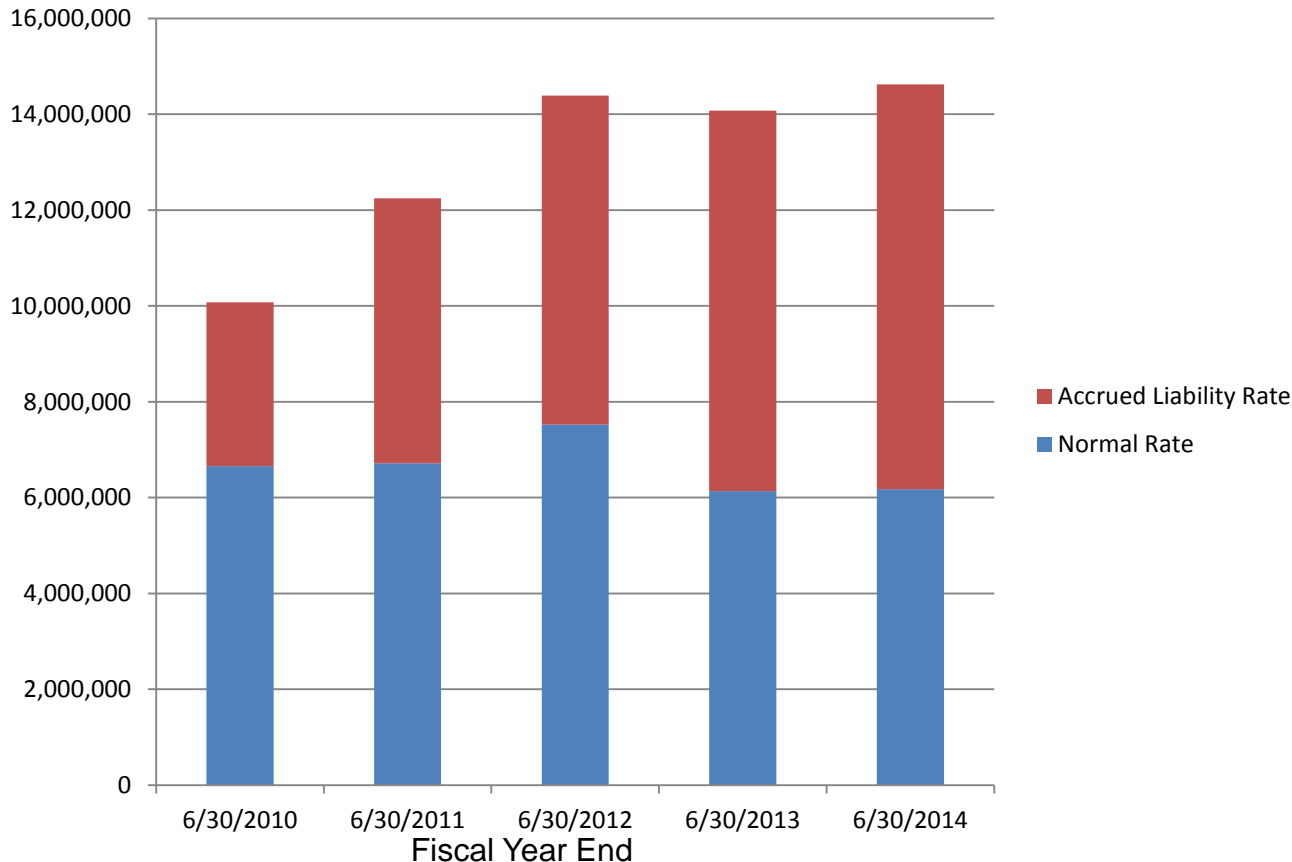
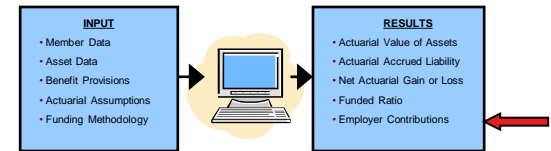


The funded ratio is shown on both a market and actuarial basis. The actuarial basis is used for computing contributions to alleviate contribution volatility.

* Funded ratio using actuarial value reflects employer contributions receivable of \$4,318,042 as appropriated for fiscal year ending 6/30/2012, but received after such date. The amount was included in the Plan's financial statements in the state's CAFR for fiscal year end 6/30/2012.

Refer to Section VII on page 12 of the actuarial valuation report for more information on the Funded Ratio and Schedule of Funding Progress.

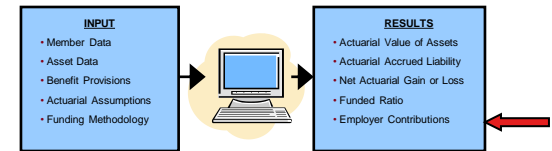
Employer Required Contributions



The amortization payment for unfunded actuarial accrued liability increased as the unfunded actuarial accrued liability increased from \$63.9 million to \$64.9 million.

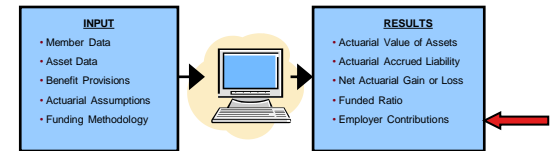
Refer to pages 1 and 2 of the actuarial valuation report for comparison of the past two valuations.

Employer Required Contributions



Valuation Date	Fiscal Year Ending	Normal Contribution	Accrued Liability Contribution	Total Annual Required Contribution	Fiscal Year Appropriation
6/30/12	6/30/14	6,177,501	8,442,861	14,620,362	14,626,599
6/30/11	6/30/13	6,135,326	7,939,045	14,074,371	15,446,599
6/30/10	6/30/12	7,522,852	6,865,854	14,388,706	14,397,713
6/30/09	6/30/11	6,716,315	5,526,611	12,242,926	10,109,671
6/30/08	6/30/10	6,654,164	3,420,280	10,074,444	10,079,671

Employer Required Contributions



Reconciliation of Change in Annual Required Contribution

Fiscal Year Ending June 30, 2013 Preliminary ARC (based on 6/30/11 valuation)	\$ 14,074,371
Impact of Legislative Changes	<u>0</u>
Fiscal Year Ending June 30, 2014 Final ARC	14,074,371
Change Due to Demographic (Gain)/Loss	(3,083)
Change Due to Investment (Gain)/Loss	550,306
Change Due to Contributions Less Than ARC	<u>(1,232)</u>
Fiscal Year Ending June 30, 2014 Preliminary ARC (based on 6/30/12 valuation)	\$ 14,620,362

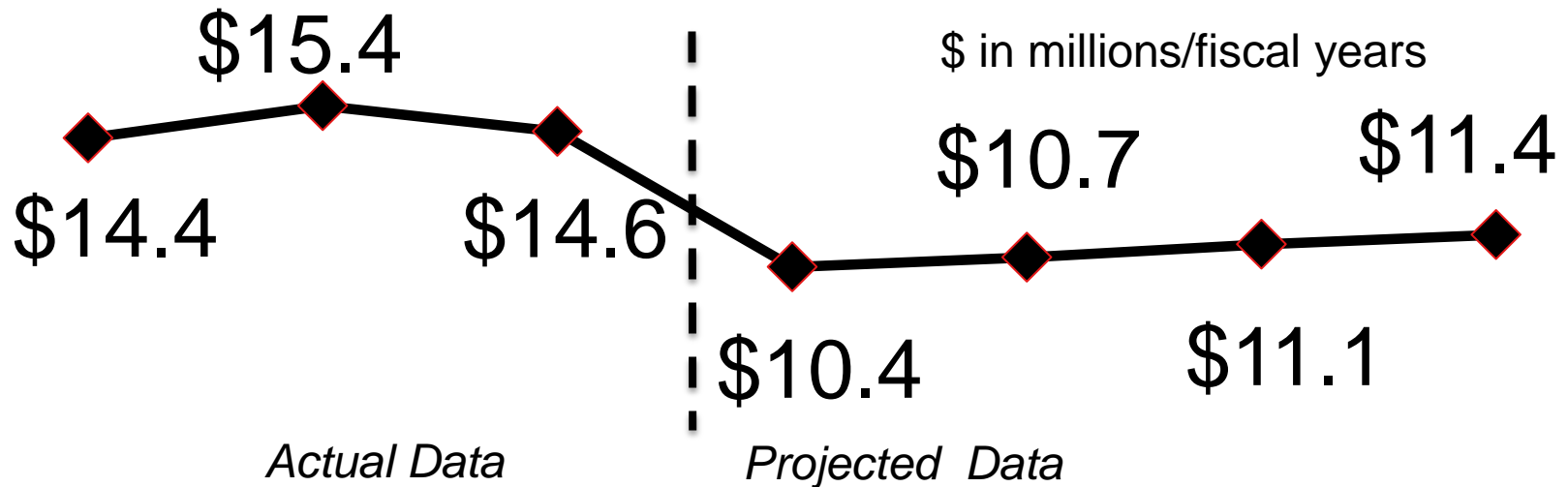
Investment Loss is an accumulation of asset losses since 2008, including the 2.2% return for FYE 2012. As seen above, assets, even on the smoothed basis used for the actuarial valuation, contribute greatly to changes in contribution from year to year.

Refer to page 2 of the actuarial valuation report.

Forecast of Annual Required Contribution - State

Five Year Forecast

\$ in millions/fiscal years

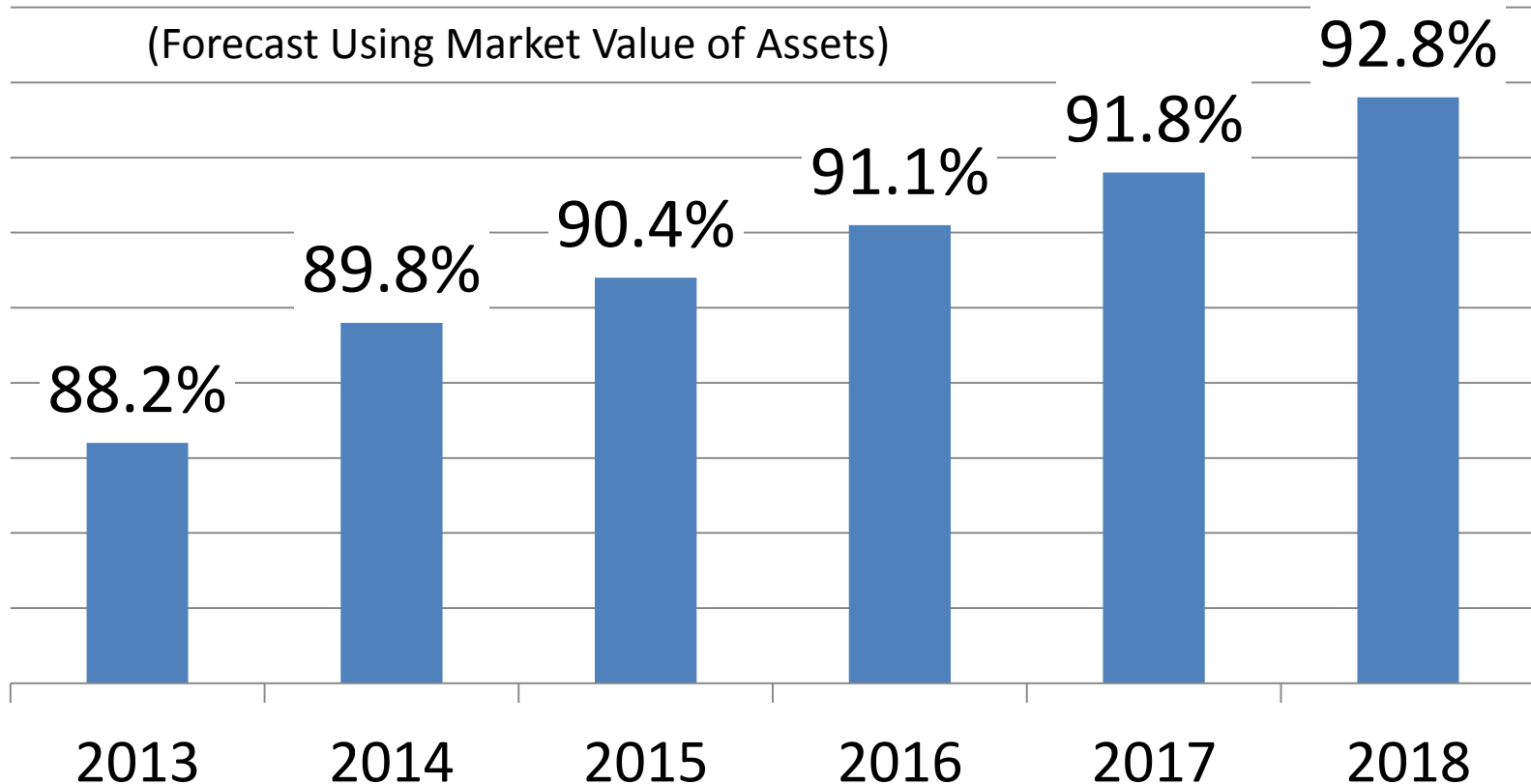


The projections on slides 20 and 21 were presented by Steve Toole at the April 2013 Board meeting.

The contribution projection above shows one reasonable outcome of the combined effects of a review of the census data currently underway and subsequent review of valuation assumptions and methods.

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Forecast of Funded Status



The funded status projection above shows one reasonable outcome of the combined effects of a review of the census data currently underway and subsequent review of valuation assumptions and methods.

Key Takeaways

- Market value returns of 2.2%
 - Compared to 7.25% assumed
 - Increased the ARC
- In aggregate, other assumptions were realized resulting in net actuarial accrued liability slightly higher than expected
 - Slightly increased the ARC
- Overall, the ARC increased from 14,074,371 (FYE 2013) to 14,620,362 (FYE 2014)
- Overall, the Funded Ratio increased from 83.7% (6/30/2011) to 83.9% (6/30/2012)
- Pending review of census data, assumptions and methods, we could see a decrease in the ARC in the future

Questions?

THANK YOU