Consolidated Judicial Retirement System
Principal Results of Actuarial Valuation
as of December 31, 2013

Board of Trustees Meeting

Larry Langer and Mike Ribble

October 23, 2014

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Purpose of the Annual Actuarial Valuation

- As of the end of each calendar year:
  - An annual actuarial valuation is performed on CJRS
  - The actuary determines the amount of employer contributions to be made to CJRS during each member's career that, when combined with investment return and member contributions, such contributions will be sufficient to pay for retirement benefits.
- In addition, the annual actuarial valuation is performed to:
  - Determine the progress on funding CJRS,
  - Explore why the results of the current valuation differ from the results of the valuation of the previous year, and
  - Satisfy regulatory and accounting requirements.

The Valuation Process

The following diagram summarizes the inputs and results of the actuarial valuation process.

INPUT

- Member Data
- Asset Data
- Benefit Provisions
- Actuarial Assumptions
- Funding Methodology

RESULTS

- Actuarial Value of Assets
- Actuarial Accrued Liability
- Net Actuarial Gain or Loss
- Funded Ratio
- Employer Contributions

A detailed summary of the valuation process and a glossary of actuarial terms are provided in Appendix A of the actuarial report.

Key Takeaways

Key results of the December 31, 2013 valuation as compared to the December 31, 2012 valuation were:

- Market value returns of 12.19% compared to 7.25% assumed
- Increase in covered payroll of 0.3% compared to 3% assumed increase
- Recent legislation signed into law including:
  - 1% cost-of-living adjustment at July 1, 2014
  - Return to five-year vesting for all active members
  - Return of contributions with interest to all members prior to meeting vesting requirements
- No significant changes in actuarial assumptions or funding methodology from the prior year's valuations

When compared to the December 31, 2012 valuation, the above resulted in:

- Slightly higher funded ratio (92.3% in the December 31, 2013 valuation compared to 91.2% in the December 31, 2012 valuation)
- Lower employer required contribution rate (26.37% for fiscal year ending June 30, 2016 compared to 26.55% for fiscal year ending June 30, 2015)
- Lower projected benefit amounts being accrued by active members

Valuation Input

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Valuation Input

Membership Data

Number as of	December 31, 2013	December 31, 2012
Active members	566	564
Terminated members and survivors of deceased members entitled to benefits but not yet receiving benefits	53	48
Retired members and survivors of deceased members currently receiving benefits	584	559
Total	1,203	1,171

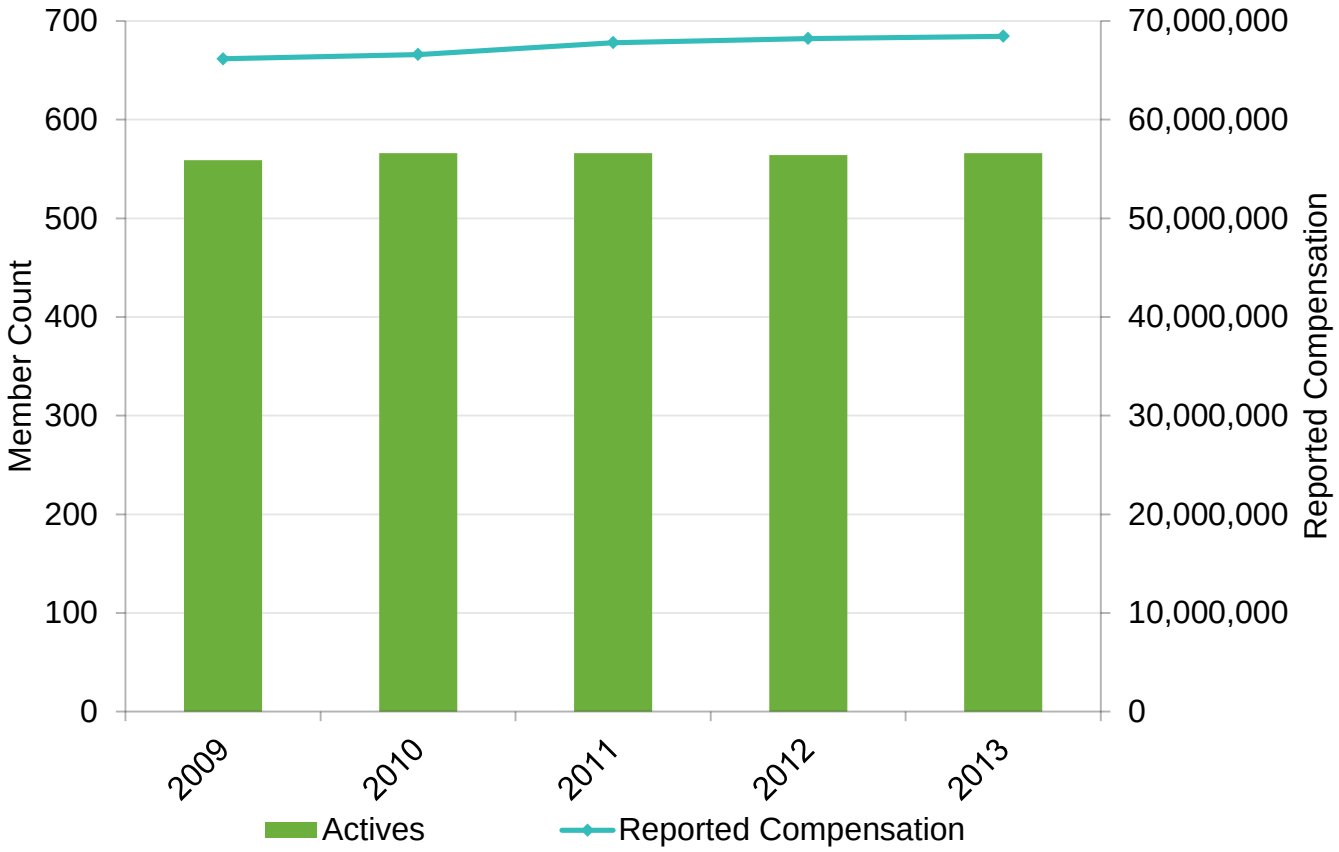
The number of active members increased by 0.4% from the previous valuation date. The increase in the active population results in more benefits accruing, but also more contributions supporting the system.

The number of retired members and survivors of deceased members currently receiving benefits increased by 4.5% from the previous valuation date. The increase in retiree population is consistent with expectations.

A detailed summary of the membership data used in this valuation is provided in Section 3 and Appendix B of the actuarial report.

Valuation Input

Membership Data: Active Members

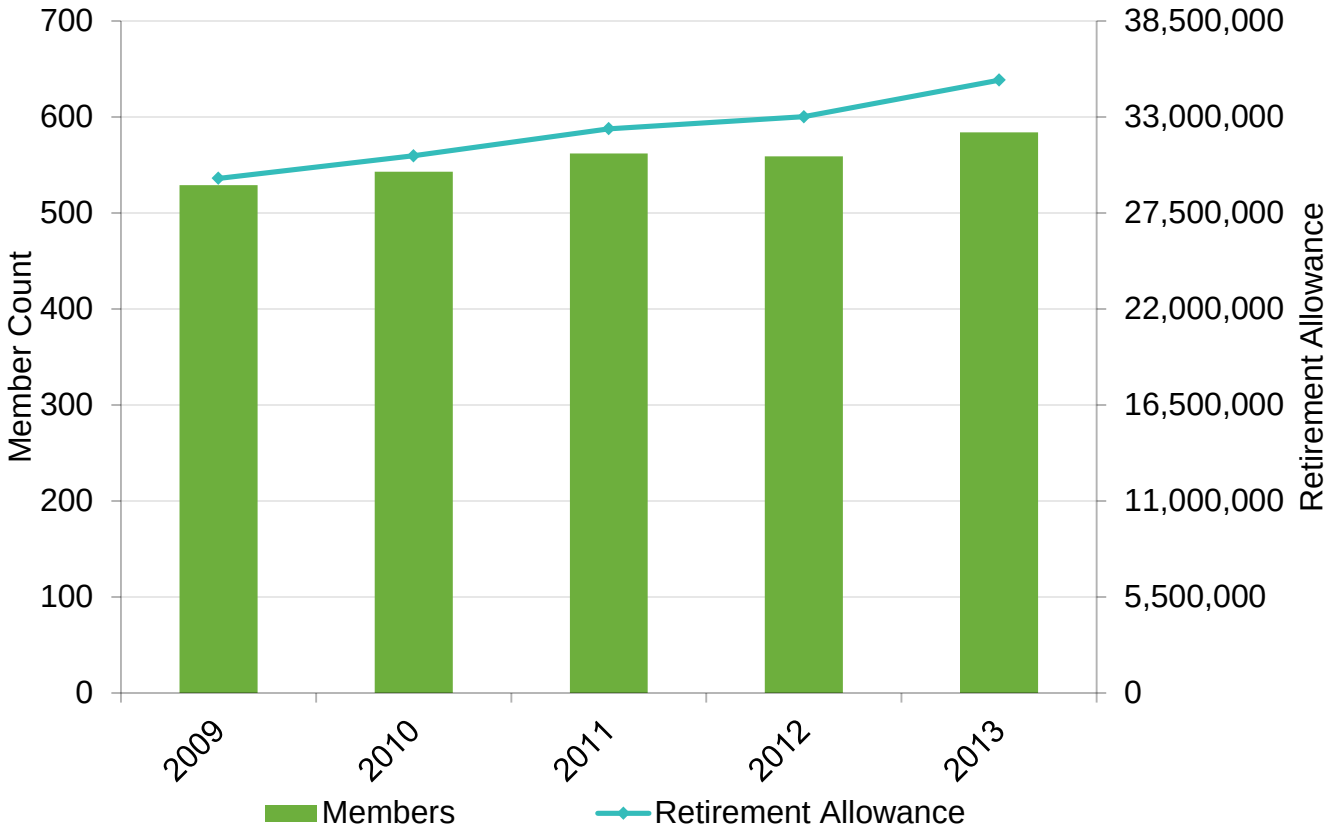


Reported compensation has increased slightly. The valuation assumes covered payroll will increase by 3% annually in the future.

Payroll that is not increasing as fast as we assume results in less benefits accruing than we anticipate, but also fewer contributions supporting the system.

A detailed summary of the membership data used in this valuation is provided in Section 3 and Appendix B of the actuarial report.

Membership Data: Retired Members and Survivors of Deceased Members



The number of retired members and survivors of deceased members and the benefits paid to these members has been increasing steadily, as expected based on plan assumptions.

A detailed summary of the membership data used in this valuation is provided in Section 3 and Appendix B of the actuarial report.

Valuation Input

Asset Data: Market Value of Assets

Asset Data as of	December 31, 2013	December 31, 2012
Beginning of Year Market Value of Assets	$466,099,097	$425,132,791
Contributions	24,646,461	24,602,853
Benefit Payments	(34,958,833)	(33,251,265)
Investment Income	56,182,295	49,614,718
Net Increase/(Decrease)	45,869,923	40,966,306
End of Year Market Value of Assets	$511,969,020	$466,099,097
Estimated Net Investment Return on Market Value	12.19%	11.79%

The Market Value of Assets is $512 million as of December 31, 2013 and $466 million as of December 31, 2012. The investment return for the market value of assets for calendar year 2013 was 12.19%.

The market value of assets is provided in Section 4 of the actuarial report.

Valuation Input

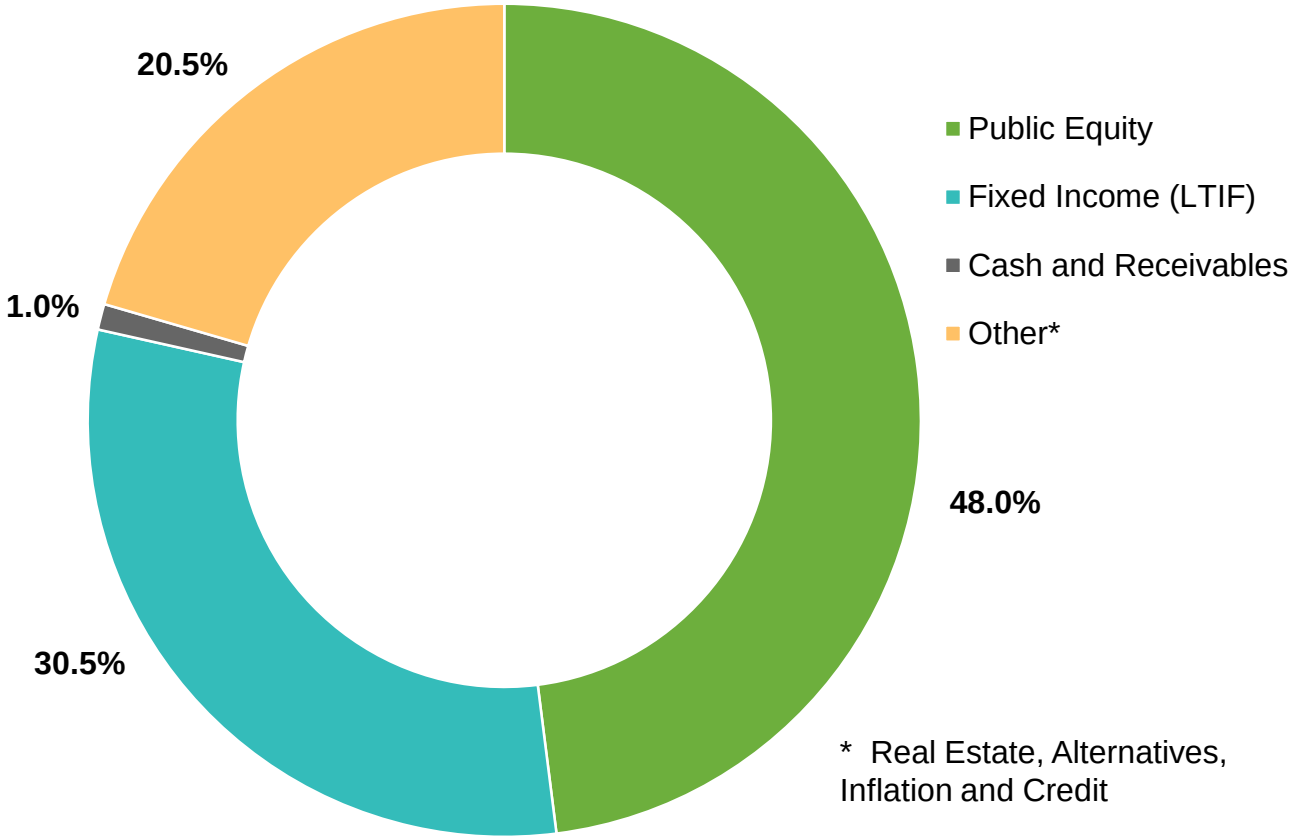
Asset Data: Market Value of Assets and Asset Returns

Returns were more than the 7.25% assumed rate of return, resulting in lower contributions and higher funded ratio than anticipated.

A detailed summary of the market value of assets is provided in Section 4 of the actuarial report.

Valuation Input

Asset Data: Allocation of Investments by Category



* Real Estate, Alternatives, Inflation and Credit

Based on historical market returns, the current asset allocation, the current investment policy, and the expectation of future asset returns, as reviewed in the last experience study, the 7.25% discount rate used in this valuation is reasonable and appropriate.

The discount rate will be reviewed at the next experience study to be presented to the Board in October 2015.

A detailed summary of the market value of assets is provided in Section 4 of the actuarial report.

Valuation Input

Benefit Provisions

Benefit provisions are described in North Carolina General Statues, Chapter 135.

Significant changes to the benefit provisions from the prior year's valuation were:

- 1% cost-of-living adjustment at July 1, 2014
- Return to five-year vesting for all active members
- Return of contributions with interest to all members prior to meeting vesting requirements

Most Public Sector Retirement Systems in the United States have undergone pension reform where the benefits of members (current retirees and active or future members) have been reduced.

Because of the well-funded status of CJRS due to the legislature contributing the actuarially required contribution, benefit cuts have not been needed in North Carolina. Instead, we have seen a modest expansion of benefits this past year based on sound plan design.

A detailed summary of the benefit provisions is provided in Appendix C of the actuarial report.

Valuation Input

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
  - Salary increase (individual, varies by service)
  - Inflation – 3.00%
  - Real wage growth – 0.50%
- There were no significant changes in actuarial assumptions from the prior year's valuation.

The latest assumptions were adopted for use with the December 31, 2009 actuarial valuation, based on the experience study prepared as of December 31, 2009 and adopted by the Board of Trustees on October 21, 2010.

The next experience study will be prepared as of December 31, 2014 and presented to the Board in October 2015. This policy of reviewing assumptions every five years is a best practice.

A detailed summary of the actuarial assumptions and methods is provided in Appendix D of the actuarial report.

Valuation Input

Funding Methodology

The Funding Methodology is the payment plan for CJRS and is composed of the following three components:

- Actuarial Cost Methods allocate costs to the actuarial accrued liability (i.e. the amount of money that should be in the fund) for past service and normal cost (i.e. the cost of benefits accruing during the year) for current service.
  - The Board of Trustees has adopted Projected Unit Credit 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 the expected actuarial value
  - Assets corridor: not greater than 120% of market value and not less than 80% of market value

A detailed summary of the actuarial assumptions and methods is provided in Appendix D of the actuarial report.

Valuation Input

Funding Methodology (continued)

- Amortization Methods determine the payment schedule for unfunded actuarial accrued liability (i.e. the difference between the actuarial accrued liability and actuarial value of assets)
  - 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 fiscal year ending 2012. A new amortization base is created each year based on the prior years' experience.
- There were no significant changes in funding methodology from the previous valuation.

When compared to other Public Sector Retirement Systems in the United States, the funding policy for CJRS is quite aggressive in that the policy pays down the pension debt over a much shorter period of time (12 years) compared to the national average of around 24 years. As such it is a best practice in the industry.

A detailed summary of the actuarial assumptions and methods is provided in Appendix D of the actuarial report.

Valuation Results

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Valuation Results

Actuarial Value of Assets

Asset Data as of	December 31, 2013
(a) Beginning of Year Actuarial Value of Assets	$481,285,608
(b) Contributions	24,646,461
(c) Benefit Payments	(34,958,833)
(d) Net Cash Flow: (b) + (c)	(10,312,372)
(e) Expected Investment Return: [(a) x 7.25%] + [(d) x 3.625%]	34,519,383
(f) Expected End of Year Actuarial Value of Assets: (a) + (d) + (e)	505,492,619
(g) End of Year Market Value of Assets	511,969,020
(h) Excess of Market Value over Expected Actuarial Value of Assets: (g) – (f)	6,476,401
(i) 20% Adjustment toward Market Value of Assets: (h) x 20%	1,295,280
(j) Preliminary End of Year Actuarial Value of Assets: (f) + (i)	506,787,899
(k) Final End of Year Actuarial Value of Assets: (j) not less than 80% of (g) and not greater than 120% of (g)	506,787,899
(l) Estimated Net Investment Return on Actuarial Value	7.52%

The actuarial value of assets smooths investment gains/losses, resulting in less volatility in the employer contribution.

Higher than expected returns in 2009, 2010, 2012 and 2013 resulted in a $1.3 million asset gain recognition this year (item (i)).

The Actuarial Value of Assets is provided in Section 4 of the actuarial report.

Historical Asset Returns

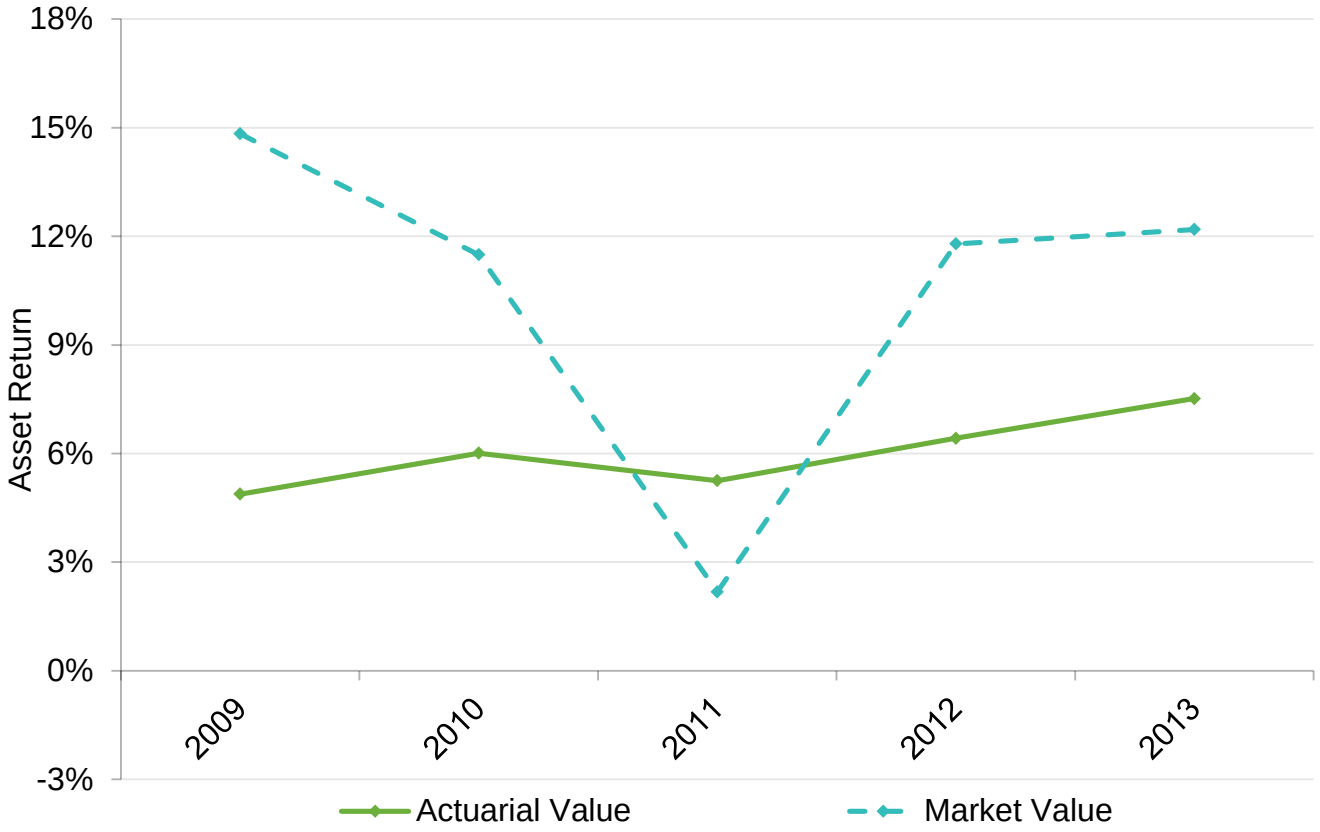
Calendar Year	Actuarial Value of Asset Return	Market Value of Asset Return
2006	9.17%	11.35%
2007	9.04%	8.35%
2008	3.01%	(19.39)%
2009	4.88%	14.83%
2010	6.01%	11.49%
2011	5.25%	2.18%
2012	6.42%	11.79%
2013	7.52%	12.19%
Average	6.39%	6.01%
Range	6.16%	34.22%

The average investment return recognized for purposes of determining the annual change in contribution each year is the actuarial value of assets return.

Currently, the average actuarial return of 6.39% tracks average market return of 6.01% rather well. But the range of returns is markedly less – 6.16% versus 34.22%. This results in much lower employer contribution volatility using the actuarial value of assets versus market, while ensuring that the actuarial needs of CJRS are met.

The valuation assumes that the funds will earn a 7.25% asset return. This table provides a history of the Actuarial Value and Market Value of Asset returns.

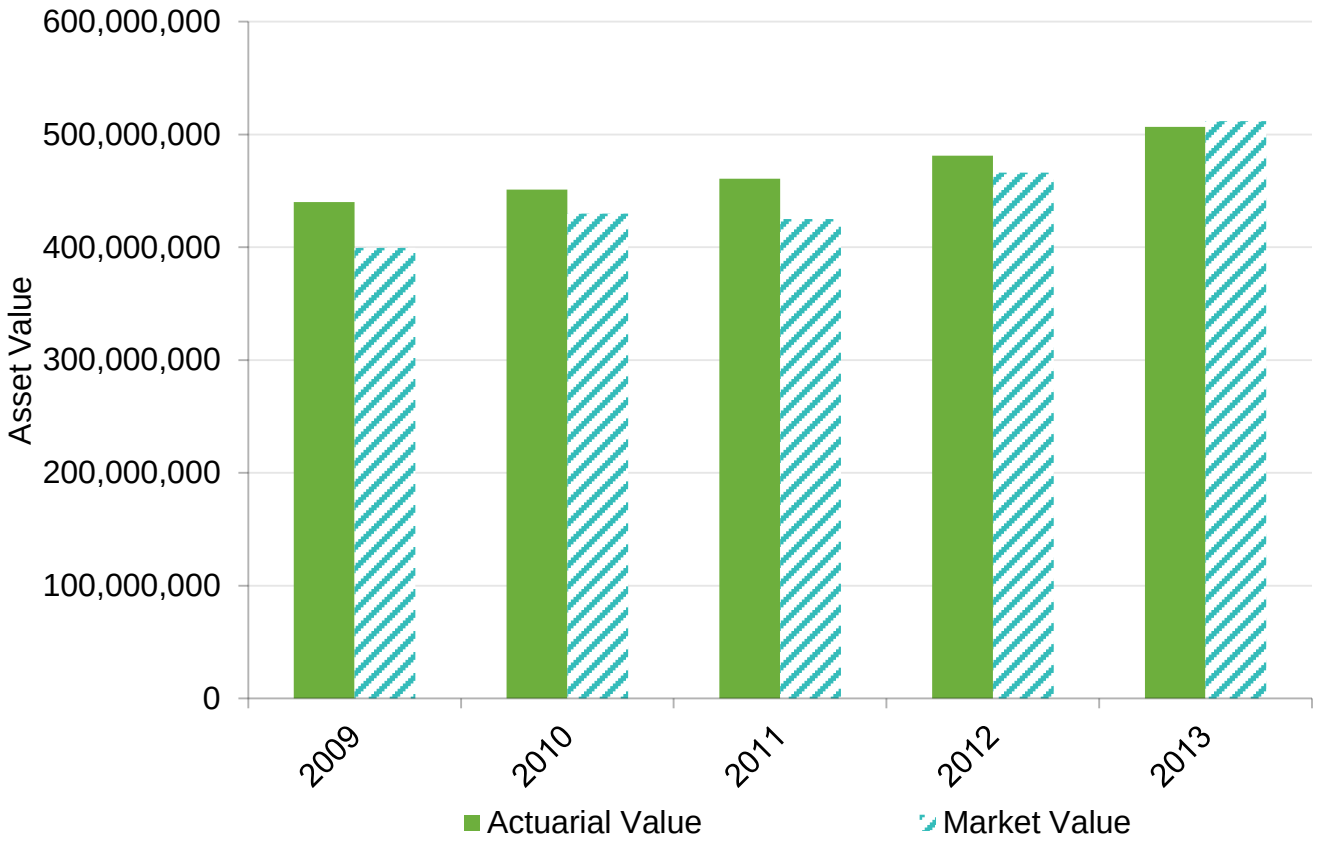
Asset Returns: Actuarial Value and Market Value



The actuarial value of assets smooths investment gains and losses.

A detailed summary of the Actuarial Value of Assets is provided in Section 4 of the actuarial report.

Actuarial Value of Assets: Compared to Market Value



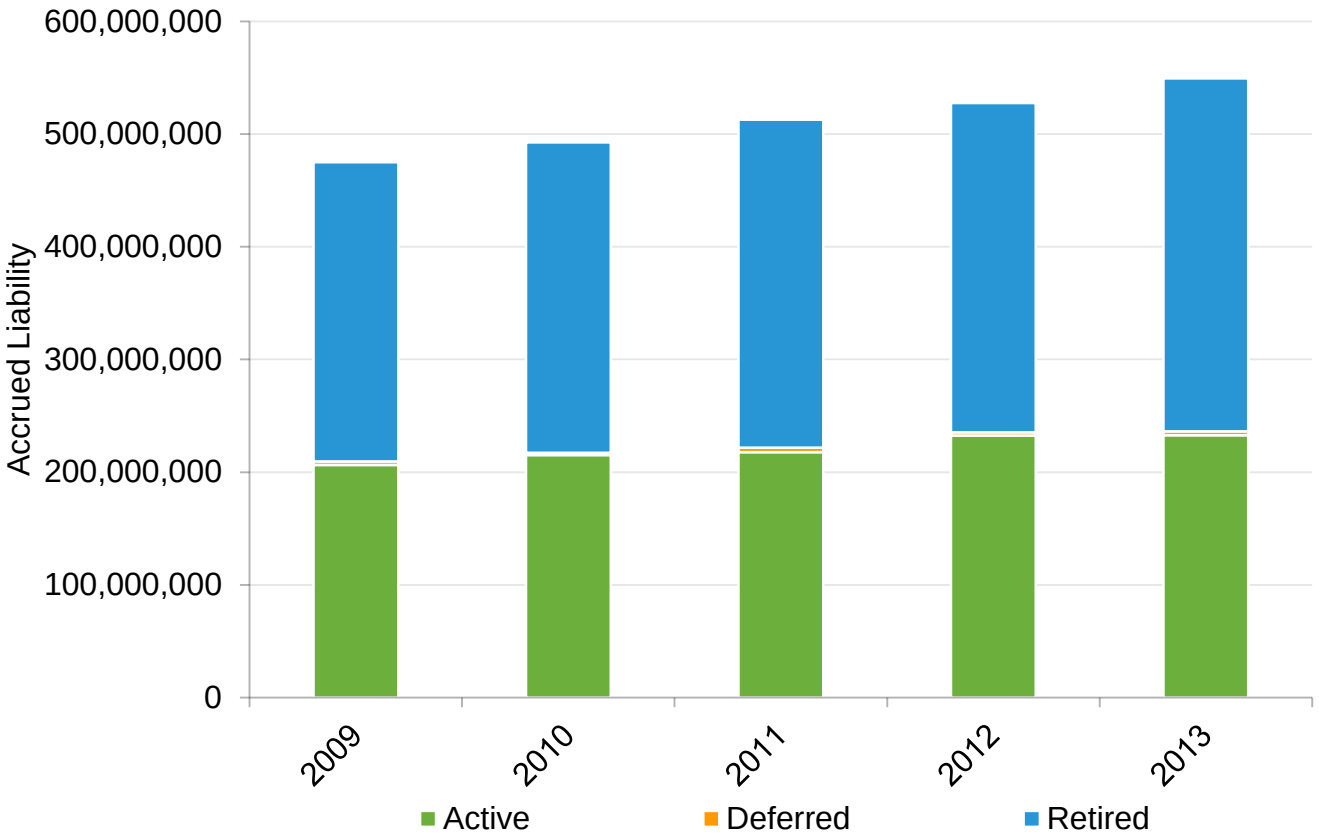
For the first time in several years, the market value of assets is higher than the actuarial value of assets, which is used to determine employer contributions. This indicates that there are unrecognized asset returns to be recognized in future valuations, which will mitigate the impact of asset returns that are less than the assumed return of 7.25%.

As a result, the upward pressure on contributions that we have seen since the Great Recession has been reversed, as seen in the projections of potentially higher funded ratios and lower employer contributions later in this report.

A detailed summary of the Actuarial Value of Assets is provided in Section 4 of the actuarial report.

Valuation Results

Actuarial Accrued Liability (AAL)

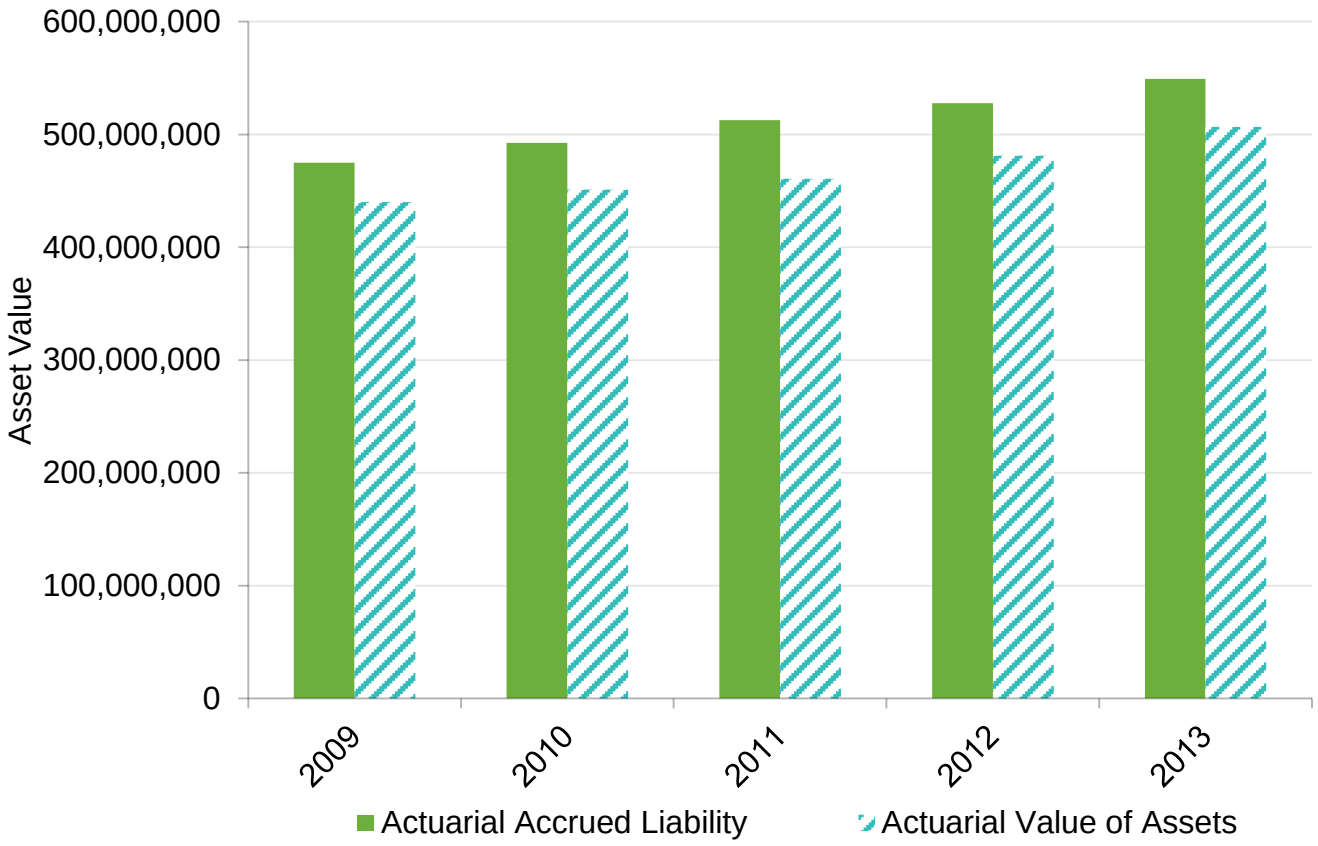


The AAL increased from $528 million to $549 million during 2013. CJRS is an open plan, which means that new members enter the plan each year. In an open plan, liabilities are expected to grow from one year to next as more benefits accrue and the membership approaches retirement.

The AAL prior to legislative changes was $1.3 million lower than expected, which resulted in a demographic gain of $1.3 million during 2013. Legislation increased the AAL by $3.1 million.

A detailed summary of the AAL is provided in Section 5 of the actuarial report.

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



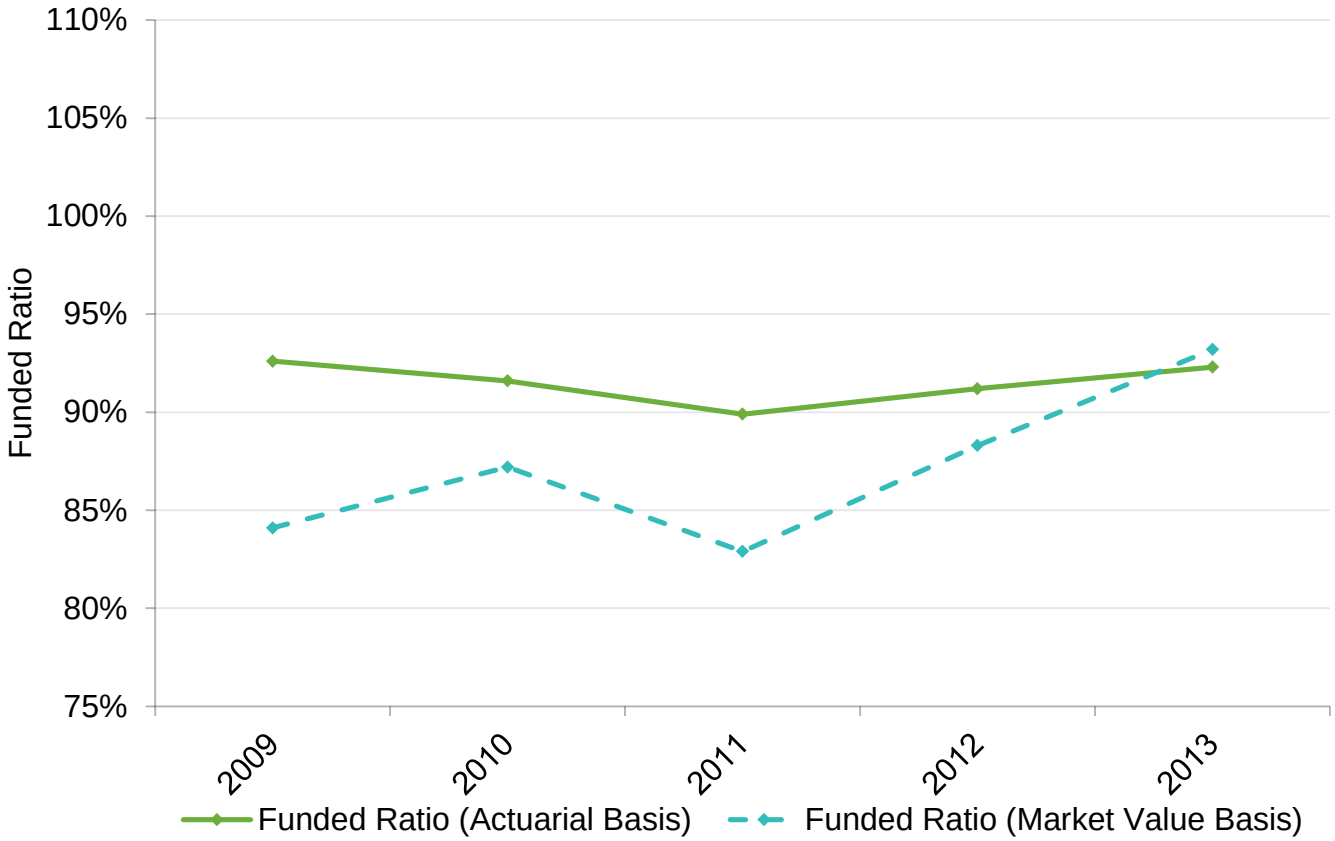
AVA is the basis used for computing contributions to alleviate contribution volatility.

The difference in the AAL and the AVA is the amount of pension debt (to be paid off in 12 years).

A detailed summary of the AVA is provided in Section 4 of the actuarial report, and a detailed summary of the AAL is provided in Section 5 of the actuarial report.

Valuation Results

Funded Ratio: AAL Divided by AVA



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

The funded ratio on an actuarial basis increased from 91.2% at December 31, 2012 to 92.3% at December 31, 2013.

Valuation Results

Net Actuarial Gain or Loss

Reconciliation of Unfunded Actuarial Accrued Liability Since the Prior Valuation

(in Millions)

Unfunded Actuarial Accrued Liability (UAAL) as of 12/31/2012	$ 46.3
Normal Cost during 2013	16.7
Reduction due to Actual Contributions during 2013	(24.6)
Interest on UAAL, Normal Cost, and Contributions	3.7
Asset (Gain)/Loss	(1.3)
Actuarial Accrued Liability (Gain)/Loss	(1.3)
Impact of Legislative Changes	3.1
Unfunded Actuarial Accrued Liability (UAAL) as of 12/31/2013	$ 42.6

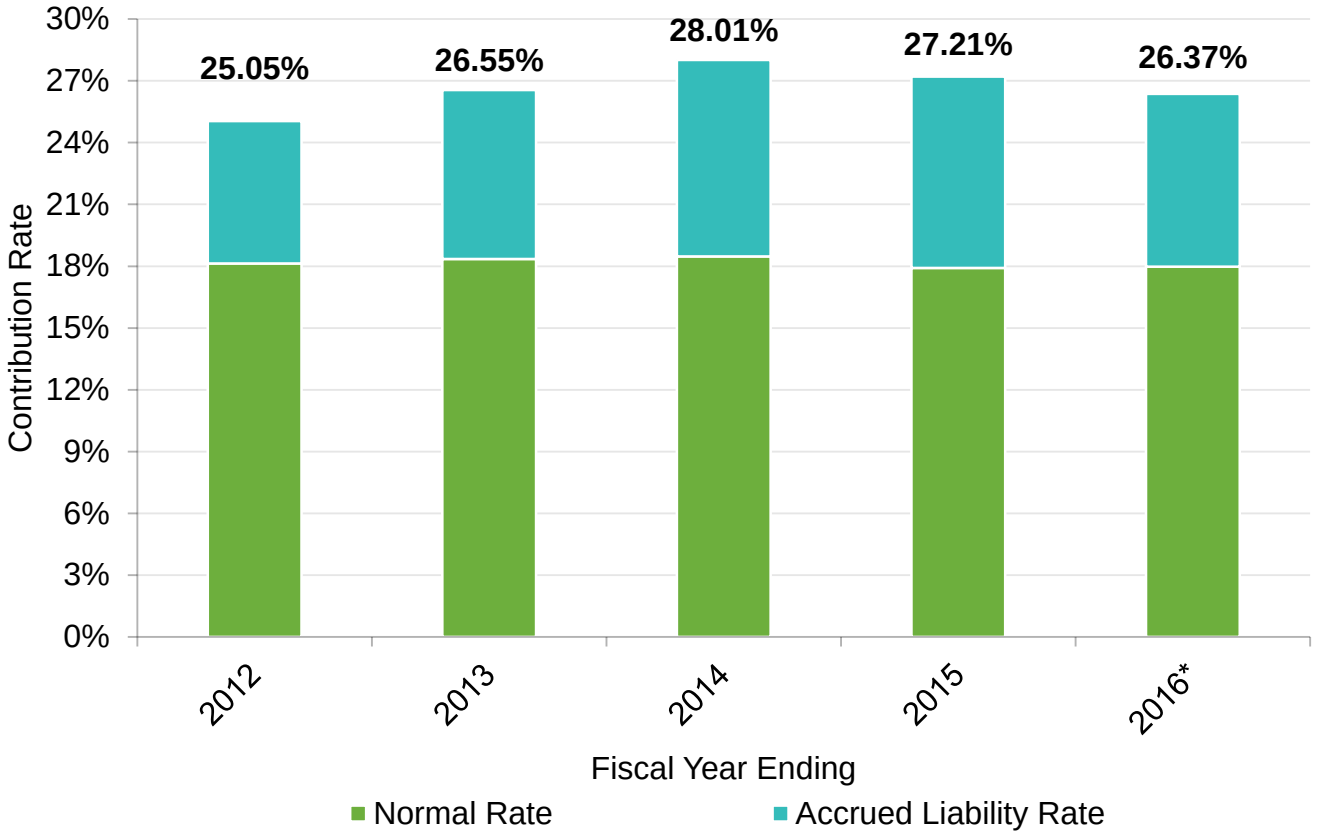
The accrued liability gain of $1.3 million means that the unfunded actuarial accrued liability was $1.3 million lower than we would have expected based on the assumptions.

The primary source of the accrued liability gain was lower reported compensation than assumed based on the prior valuation.

The asset gain of $1.3 million means that the asset valuation method resulted in a recognition of $1.3 million of deferred asset gains from 2009, 2010, 2012 and 2013.

The net actuarial gain/(loss) is provided in Section 5 of the actuarial report.

Employer Required Contributions



* Subject to the impact of future legislative changes effective during that fiscal year.

The employer required contribution rate is the amount needed to pay for the cost of the benefits accruing and to pay off the pension debt over 12 years, offset for the 6% of pay contribution the members make.

The 12-year period is a short period for Public Sector Retirement Systems in the United States, with most Systems using a period of 30 years or more to pay off the pension debt. The shorter period results in higher contributions and more benefit security.

A detailed summary of the employer required contribution rates is provided in Section 6 of the actuarial report.

Valuation Results

Employer Required Contribution Rates

Valuation Date	Fiscal Year Ending	Normal Rate*	Accrued Liability Rate	Change Due to Legislation	Final ARC	Appropriated Rate*
12/31/13	6/30/16	17.97%	8.40%	N/A	N/A	N/A
12/31/12	6/30/15	17.91%	8.64%	0.66%	27.21%	27.21%
12/31/11	6/30/14	18.48%	9.53%	0.00%	28.01%	28.01%
12/31/10	6/30/13	18.35%	7.62%	0.58%	26.55%	26.55%
12/31/09	6/30/12	18.13%	8.41%	(1.49)%	25.05%	25.05%

* Includes Death Benefit rate

The current appropriation rate for fiscal year ending 2015 is 27.21%. This rate would result in an undistributed gain/(loss) of 0.84%.

Each 1% COLA is equivalent to 0.64% of payroll.

The employer required contribution rates are provided in Section 6 of the actuarial report.

Reconciliation of the Change in the Annual Required Contribution

Fiscal year ending June 30, 2015 Preliminary ARC (based on December 31, 2012 valuation)	26.55%
Impact of Legislative Changes	0.66%
Fiscal year ending June 30, 2015 Final ARC	27.21%
Change Due to Demographic (Gain)/Loss	(0.33)%
Change Due to Investment (Gain)/Loss	(0.25)%
Change Due to Contributions Greater than ARC	(0.26)%
Fiscal year ending June 30, 2016 Preliminary ARC (based on December 31, 2013 valuation)	26.37%

Demographic gain primarily due to salary increases less than assumed

Investment gain is a recognition of deferred asset gains from 2009, 2010, 2012 and 2013.

A detailed summary of the employer required contribution rates is provided in Section 6 of the actuarial report.

Key Takeaways

Key results of the December 31, 2013 valuation as compared to the December 31, 2012 valuation were:

- Market value returns of 12.19% compared to 7.25% assumed
- Increase in covered payroll of 0.3% compared to 3% assumed increase
- Recent legislation signed into law including:
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  - Return of contributions with interest to all members prior to meeting vesting requirements
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When compared to the December 31, 2012 valuation, the above resulted in:

- Slightly higher funded ratio (92.3% in the December 31, 2013 valuation compared to 91.2% in the December 31, 2012 valuation)
- Lower employer required contribution rate (26.37% for fiscal year ending June 30, 2016 compared to 26.55% for fiscal year ending June 30, 2015)
- Lower projected benefit amounts being accrued by active members

Key Takeaways

CJRS is well funded compared to its peers. This is due to:

- Stakeholders working together to keep CJRS well-funded since inception
- A history of appropriating and contributing the recommended contribution requirements
- Assumptions that in aggregate are more conservative than peers
- A funding policy that aggressively pays down unfunded liability over a 12-year period
- An ad hoc cost-of-living adjustment that supports the health of the system
- Modest changes in benefits when compared to peers

Continued focus on these measures will be needed to maintain the solid status of CJRS well into the future.

Certification

The results were prepared under the direction of Michael Ribble and Larry Langer who meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. These results have been prepared in accordance with all applicable Actuarial Standards of Practice, and we are available to answer questions about them.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law.

Michael A. Ribble, FSA, EA, MAAA
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Questions?

THANK YOU