

**TEACHERS' RETIREMENT SYSTEM OF OKLAHOMA**  
**Regular Board Meeting**  
**Wednesday, May 20, 2015 – 9:00 AM**  
**TRS Administration Board Room**  
**2500 N. Lincoln Blvd., 5<sup>th</sup> Floor, Oklahoma City, OK**

**AGENDA**

- 1. ROLL CALL FOR QUORUM**
- 2. SWEARING IN OF NEW TRUSTEE**
  - A. Myron Pope**
- 3. DISCUSSION AND POSSIBLE ACTION ON APPROVAL OF MINUTES FOR THE APRIL 22, 2015 BOARD MEETING**
- 4. PRESENTATION BY INVESTMENT MANAGER(S):**
  - A. Cove Street Capital**
  - B. Geneva Capital Management**
- 5. DISCUSSION AND POSSIBLE ACTION ON INVESTMENT CONSULTANT MONTHLY & QUARTERLY REPORTS**
- 6. DISCUSSION AND POSSIBLE ACTION ON MANAGER STATUS SUMMARY REPORT - *The Board of Trustees may elect to make any changes to the status of any manager based on the information available at the Board meeting.***
- 7. DISCUSSION AND POSSIBLE ACTION ON INVESTMENT COMMITTEE REPORT**
  - A. Discussion and possible action on the deficiency in the securities lending program from Lehman positions**
  - B. Discussion and possible action on guidelines for securities lending**
  - C. Discussion and possible action on amendments to the Investment Policy Statement**
  - D. Discussion on Investment Department Report**
- 8. DISCUSSION AND POSSIBLE ACTION ON COMMITTEE REPORTS:**
  - A. Governance Committee**
  - B. Audit Committee**
    - i. Discussion and possible action on Internal Audit Report**
    - ii. Discussion and possible action on Internal Audit Plan (2015 to 2018)**
    - iii. Discussion and possible action to approve renewal of contract with Stinnett and Associates for FY 2016**
    - iv. Discussion and possible action to approve allocation of funds in FY 2016 contract amount to Stinnett and Associates purchase order for FY 2016**
    - v. Discussion and possible action to approve additional allocation of funds to Stinnett and Associates purchase order for FY 2015**
- 9. DISCUSSION AND POSSIBLE ACTION ON ACTUARIAL EXPERIENCE STUDY**
- 10. DISCUSSION AND POSSIBLE ACTION ON FISCAL YEAR 2016 BUDGET WORK PROGRAM**
- 11. DISCUSSION AND POSSIBLE ACTION ON RENEWAL OF ING 403(B) CONTRACT FOR FISCAL YEAR 2016**

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**AGENDA (cont.)**

- 12. DISCUSSION AND POSSIBLE ACTION ON LEGAL SERVICE CONTRACT WITH ATTORNEY GENERAL FOR FISCAL YEAR 2016**
- 13. DISCUSSION AND POSSIBLE ACTION ON RENEWAL OF CONTRACT WITH DOUG PRICE FOR ADMINISTRATIVE LAW JUDGE SERVICES**
- 14. DISCUSSION AND POSSIBLE ACTION ON CONTRACT WITH GAY TUDOR FOR ADMINISTRATIVE LAW JUDGE SERVICES**
- 15. DISCUSSION AND POSSIBLE ACTION ON AGENCY REPORTS:**
  - A. Client Services (70 O.S. 17-105)
  - B. Human Resources
  - C. Finance
  - D. General Counsel
  - E. Executive Director
- 16. QUESTIONS AND COMMENTS FROM TRUSTEES**
- 17. NEW BUSINESS**
- 18. ADJOURNMENT**

*Note: The Board of Trustees may discuss, vote to approve, vote to disapprove, or decide not to discuss any item on the agenda.*

**MEETING MINUTES**  
**APRIL 22, 2015**  
**BOARD OF TRUSTEES**  
**TEACHERS' RETIREMENT SYSTEM OF OKLAHOMA**

The regularly scheduled meeting of the Board of Trustees of the Teachers' Retirement System of Oklahoma was called to order by Bill Peacher, Chairman, at 9:02 a.m., in the Administration Board Room, 5<sup>th</sup> Floor, Oliver Hodge Education Building, 2500 N. Lincoln Blvd., OKC, OK. The meeting notice and agenda were posted in accordance with 25 O.S. Section 311(A)(11).

**TRUSTEES PRESENT:**

Bill Peacher, <i>Chairman</i>	Jill Geiger*
Vernon Florence, <i>Vice Chair</i>	Phil Lewis*
Judie Harris, <i>Secretary</i>	Kevin Moore
Elaine Dodd	Gary Trennepohl
Roger Gaddis	Greg Winters
Myron Pope**	

*\*\*Myron Pope was present at the meeting, but was not voting. He has been appointed by Governor Fallin, but has not yet been confirmed by the Senate.*

**TRUSTEES ABSENT:**

Joy Hofmeister  
Billie Stephenson

**TRS STAFF PRESENT:**

Tom Spencer, *Executive Director*  
Julie Ezell, *General Counsel*  
Dixie Moody, *Director of Client Services*  
Sam Moore, *Director of Finance/CFO*  
Lisa Van Liew, *Assistant Comptroller*  
Kim Bold, *Director of Human Resources*  
Melissa Kempkes, *Investment Analyst*  
Susan Yingling, *Executive Assistant*

**OTHERS PRESENT:**

Wayne Maxwell, *RPOE*  
Norman Cooper, *OREA*  
Steve Massey, *OREA*  
Chancen Flick, *OEA*  
Greg Weaver, *Gregory W. Group*  
Doug Anderson, *Gregory W. Group*

\*Denotes late arrival or early departure.

**ITEM 1 - ROLL CALL FOR QUORUM:** Chairman Peacher called the Board meeting to order at 9:02 a.m. and asked for a poll to determine if a quorum was present. Trustees responding were as follows: Mr. Florence, Mr. Gaddis, Ms. Harris, Dr. Lewis, Mr. Moore, Dr. Trennepohl, Dr. Winters, Chairman Peacher

**ITEM 2 – SWEARING IN OF NEW TRUSTEE**

No action was taken.

**ITEM 3 – MEETING MINUTES:** A motion was made by Dr. Winters with a second made by Dr. Trennepohl to approve the March 25, 2015 Regular Board meeting minutes as presented. The motion carried by a unanimous voice vote. Trustees responding were as follows: Mr. Florence, Mr. Gaddis, Ms. Harris, Dr. Lewis, Mr. Moore, Dr. Trennepohl, Dr. Winters, and Chairman Peacher.

**ITEM 4 – PRESENTATION BY INVESTMENT MANAGERS:** Representatives from Investment Managers MacKay Shields and Wasatch Advisors presented their respective reports to the Board. No action was necessary.

**ITEM 5 – INVESTMENT CONSULTANT MONTHLY REPORT:** Investment Consultants to the Board, Greg Weaver and Doug Anderson of Gregory W. Group, gave their monthly report to the Board. No action was necessary.

*A break was taken from 10:40 a.m. to 10:50 a.m.*

**ITEM 6 - MANAGER STATUS SUMMARY REPORT:** Investment Consultants to the Board, Greg Weaver and Doug Anderson of Gregory W. Group, gave the Board their Manager Status Summary Report. They said Geneva continued to remain “On Alert” until June 30, 2015, but that no action was required.

**ITEM 7 - INVESTMENT COMMITTEE REPORT:** Mr. Florence, Chair of the Investment Committee, presented the Investment Committee Report from the April 21, 2015 meeting. Mr. Florence advised the Board that there were several items up for a vote. He directed the Board to the handout listing the motions made by the Investment Committee members during the Investment Committee meeting.

**7A)** Mr. Florence said the members of the Investment Committee were discussing some processes for considering asset allocation and the related rebalancing policy. He said the Investment Policy continued to be a work in progress. After some discussion, no action was taken.

*Jill Geiger arrived at 10:55 a.m.*

**7B)** Tom Spencer, Executive Director, directed the Board’s attention to a handout discussing some possible options regarding the deficiency in the securities lending program from the Lehman positions. After some discussion, no action was taken.

**7C)** Mr. Florence said the Investment Committee had received an investment policy exception request from investment manager Loomis Sayles. He said the current policy exception had been granted at a previous Board meeting, but that no expiration date for the exception was given. After some discussion, a motion was made by Mr. Gaddis with a second from Mr. Peacher to allow the current policy exception of 15% for a three-year period starting on April 22, 2015. The motion carried by a unanimous voice vote. Trustees responding were as follows: Mr. Florence,

Mr. Gaddis, Ms. Geiger, Ms. Harris, Dr. Lewis, Mr. Moore, Dr. Trennepohl, Dr. Winters, and Chairman Peacher.

**7D)** Melissa Kempkes, Investment Analyst, reviewed the proposed changes to the Investment Policy Statement. A motion was made by Mr. Peacher with a second made by Mr. Gaddis to approve the proposed changes to the Real Estate section of the Investment Policy Statement as presented. The motion passed by unanimous voice vote. Trustees responding were as follows: Mr. Florence, Mr. Gaddis, Ms. Geiger, Ms. Harris, Dr. Lewis, Mr. Moore, Dr. Trennepohl, Dr. Winters, and Chairman Peacher.

**7E)** Melissa Kempkes, Investment Analyst, presented her report to the Board. After a brief discussion, no action was necessary.

**7F)** Mr. Florence reminded the Board that six firms had submitted proposals for the Investment Consultant services. He said that staff and the members of the Investment Committee had thoroughly reviewed all of the submissions and decided to recommend Gregory W. Group. After some discussion, a motion was made by Mr. Peacher with a second made by Mr. Gaddis to accept proposal from Gregory W. Group for a contract of up to six years for the following fee:

Year One:	\$1,062,000
Year Two:	\$1,062,000
Year Three:	\$1,093,860
Year Four:	\$1,126,675.80
Year Five:	\$1,160,476.07
Year Six:	\$1,195,290.36

In addition, Gregory W. Group will be entitled to documented travel expenses of up to \$20,000 each fiscal year for travel associated with due diligence trips and other travel done by the firm at the direction of the Board of Trustees. The staff is directed to negotiate an agreement with the firm subject to the approval by the Chair of the Investment Committee and the Chair of the Board of Trustees.

**ITEM 8 – COMMITTEE REPORTS:**

**8A)** Dr. Trennepohl, Chair of the Governance Committee, said that Kevin Moore had agreed to serve on the committee, but that he still needed one more volunteer. There was no Governance Committee report.

**8B)** Roger Gaddis, Chair of the Audit Committee, said that Stinnett would be coming to present their internal audit findings to the Board at the May meeting. He also thanked Greg Winters and Judie Harris for serving on the committee.

**ITEM 9 – LEGISLATIVE REPORT:** Tom Spencer presented his Legislative Report to the Board. After some discussion, no action was necessary.

*Dr. Lewis left at 11:35 a.m.  
A break for lunch was taken from 11:35 a.m. to 11:57 a.m.*

**ITEM 10 - DISCUSSION AND POSSIBLE ACTION ON AGENCY REPORTS:**

10A) Dixie Moody, Director of Client Services, gave a brief presentation to the Board. After some discussion, a motion was made by Mr. Gaddis with a second made by Ms. Geiger to approve the monthly retirement report. The motion carried by unanimous voice vote. Trustees responding were as follows: Mr. Florence, Mr. Gaddis, Ms. Geiger, Ms. Harris, Mr. Moore, Dr. Trennepohl, Dr. Winters, and Chairman Peacher.

10B) Kim Bold, Director of Human Resources, gave her report to the Board. No action was necessary.

10C) Sam Moore, Director of Finance/CFO, presented the Employer Reporting and Finance Report to the Board. No action was necessary.

10D) Julie Ezell, General Counsel, presented the legal report to the Board. No action was necessary.

10E) Tom Spencer, Executive Director, presented his report to the Board. After a brief discussion, no action was necessary.

**ITEM 11 - QUESTIONS AND COMMENTS FROM TRUSTEES:** There were no questions or comments from the Board.

**ITEM 12 - NEW BUSINESS:** There was no new business from the Board.

**ITEM 13 – ADJOURNMENT:** There being no further business, a motion was made by Dr. Winters with a second made by Ms. Geiger to adjourn the meeting. The motion carried by a unanimous voice vote. Trustees responding were as follows: Mr. Florence, Mr. Gaddis, Ms. Geiger, Ms. Harris, Mr. Moore, Dr. Trennepohl, Dr. Winters, and Chairman Peacher. The meeting was adjourned at 12:27 p.m.

**BOARD OF TRUSTEES, TEACHERS’ RETIREMENT SYSTEM OF OKLAHOMA**

**BY:** \_\_\_\_\_  
**Bill Peacher, Chairman**

**ATTEST:**

**BY:** \_\_\_\_\_  
**Judie Harris, Secretary**

Certified correct minutes, subject to approval of the Board of Trustees of the Teachers’ Retirement System of Oklahoma, will be available at its next regularly scheduled meeting on May 20, 2015.

**BY:** \_\_\_\_\_  
**Susan Yingling, Executive Assistant**



# OKLAHOMA TEACHERS RETIREMENT SYSTEM

**executive summary report  
first quarter, 2015**



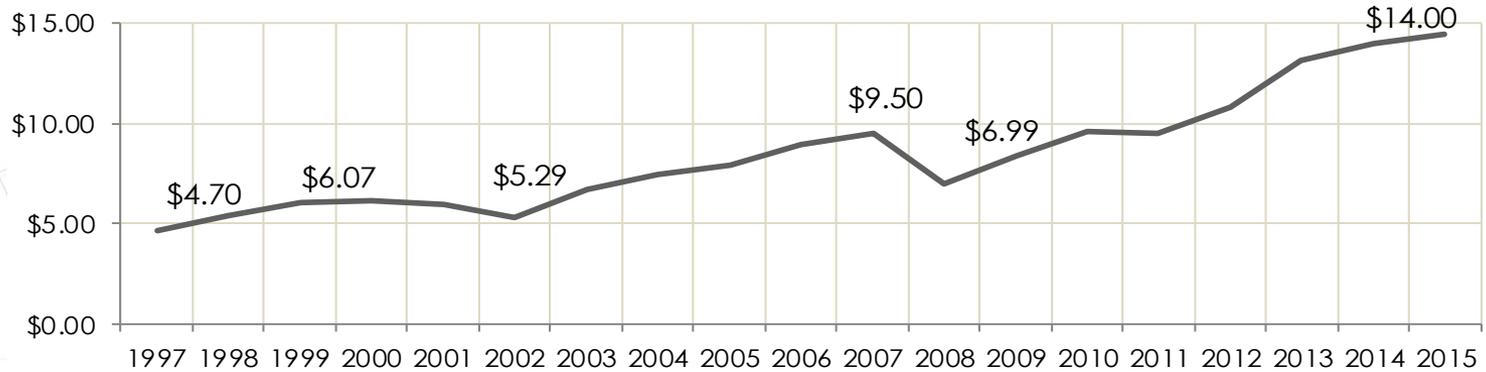
## Trailing Year Total Fund Return

+8.2%

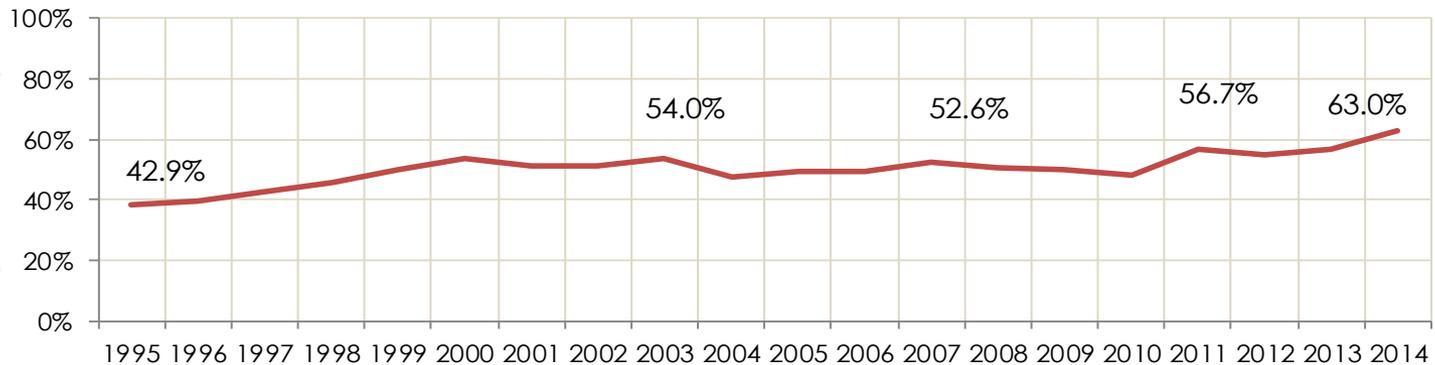
first quarter, 2015

# Plan History

## Market Value History (\$Billions)



## Funded Status History



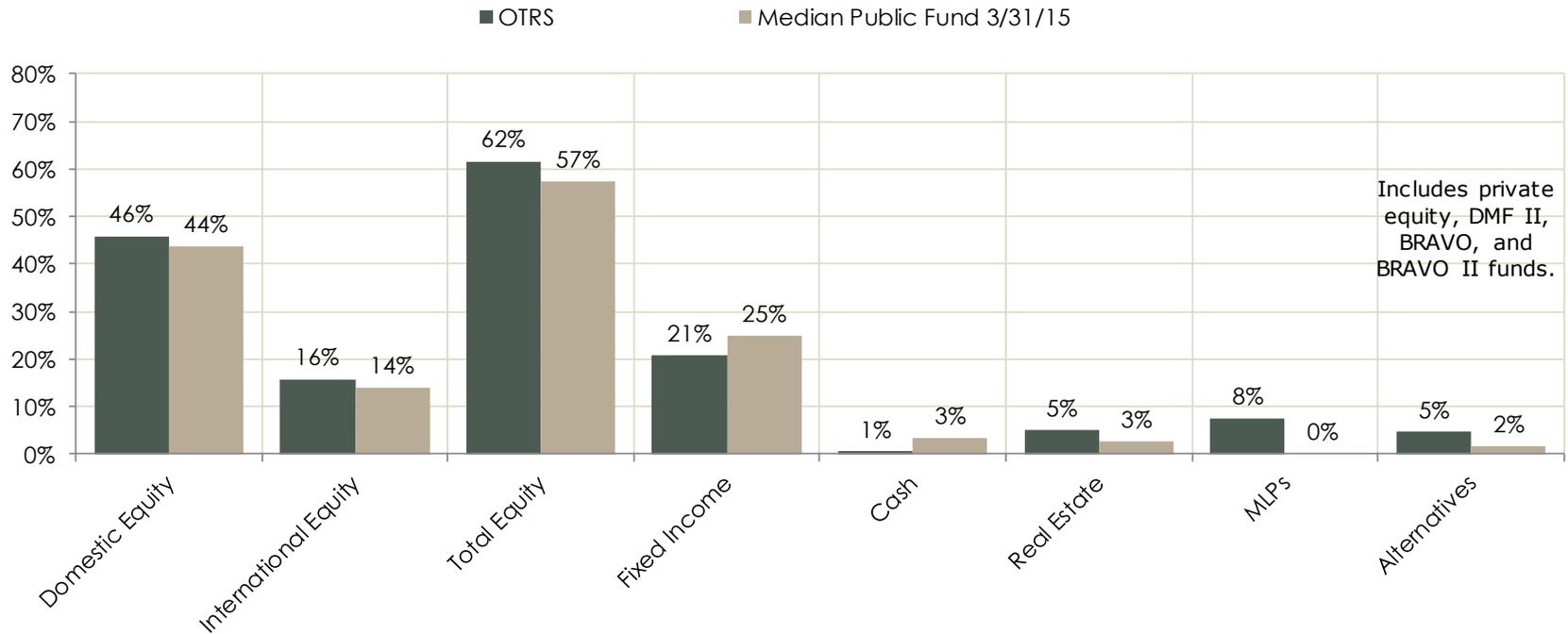
## Observations – first quarter, 2015

- **INVESTMENT PERFORMANCE:** Total fund return was positive during the quarter. The total fund posted a 2.8% return. International equity results were strong. Core fixed income results were modest while High Yield returns were positive. The total fund's trailing returns were positive. The trailing year return was slightly above the actuarial assumption, above the allocation index and ranked in the top quartile among peer Pension Funds. **The total fund ranked in the top percentile of public funds for the three and five year observation periods.**
- **INVESTMENT MANAGEMENT:** Two large cap index fund portfolios were added in 2012. The new international small cap equity allocation added returns during the quarter. The MLP allocation continues to perform above expectation. Five new domestic small cap managers were funded during the second quarter of 2013. An international equity index fund was added during early 2013. It was increased during late 2014. An International RFP was released in late April of 2015.
- **ASSET ALLOCATION:** The total fund's aggregate asset allocations are in the process of moving to new long-term targets. No additional allocations were made to the Opportunistic Portfolio although several investments are under consideration. The private equity portfolio called significantly more capital over the past year compared to previous years. The three core real estate managers are fully invested, at their previous target level. Six non-core real estate portfolios were recently selected during late 2014. They are calling capital at an acceptable pace.

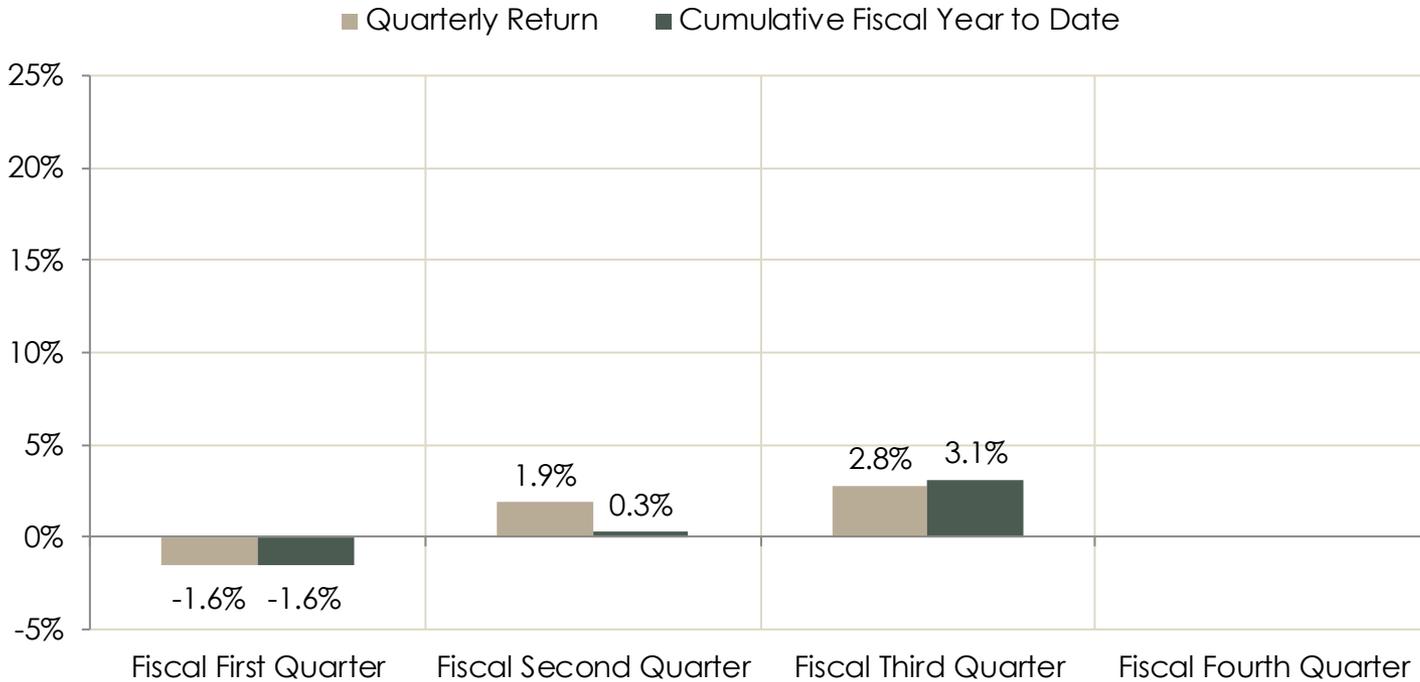
# Asset Allocation Summary – Total Fund

	Current Allocation	New Target Allocation	Difference
Domestic Equity	45.83%	40.00%	5.83%
<b>International Equity</b>	<b>15.72%</b>	<b>17.50%</b>	<b>-1.78%</b>
Core Fixed Income	15.32%	17.50%	-2.18%
<b>Opportunistic Assets</b>	<b>1.15%</b>	<b>0.00%</b>	<b>1.15%</b>
High Yield Fixed Income	5.43%	6.00%	-0.57%
<b>Real Estate</b>	<b>5.00%</b>	<b>7.00%</b>	<b>-2.00%</b>
Private Equity	3.42%	5.00%	-1.58%
<b>MLPs</b>	<b>7.58%</b>	<b>7.00%</b>	<b>0.58%</b>
Cash	0.54%	0.00%	0.54%
<b>Total</b>	<b>100.00%</b>	<b>100.00%</b>	<b>0.00%</b>

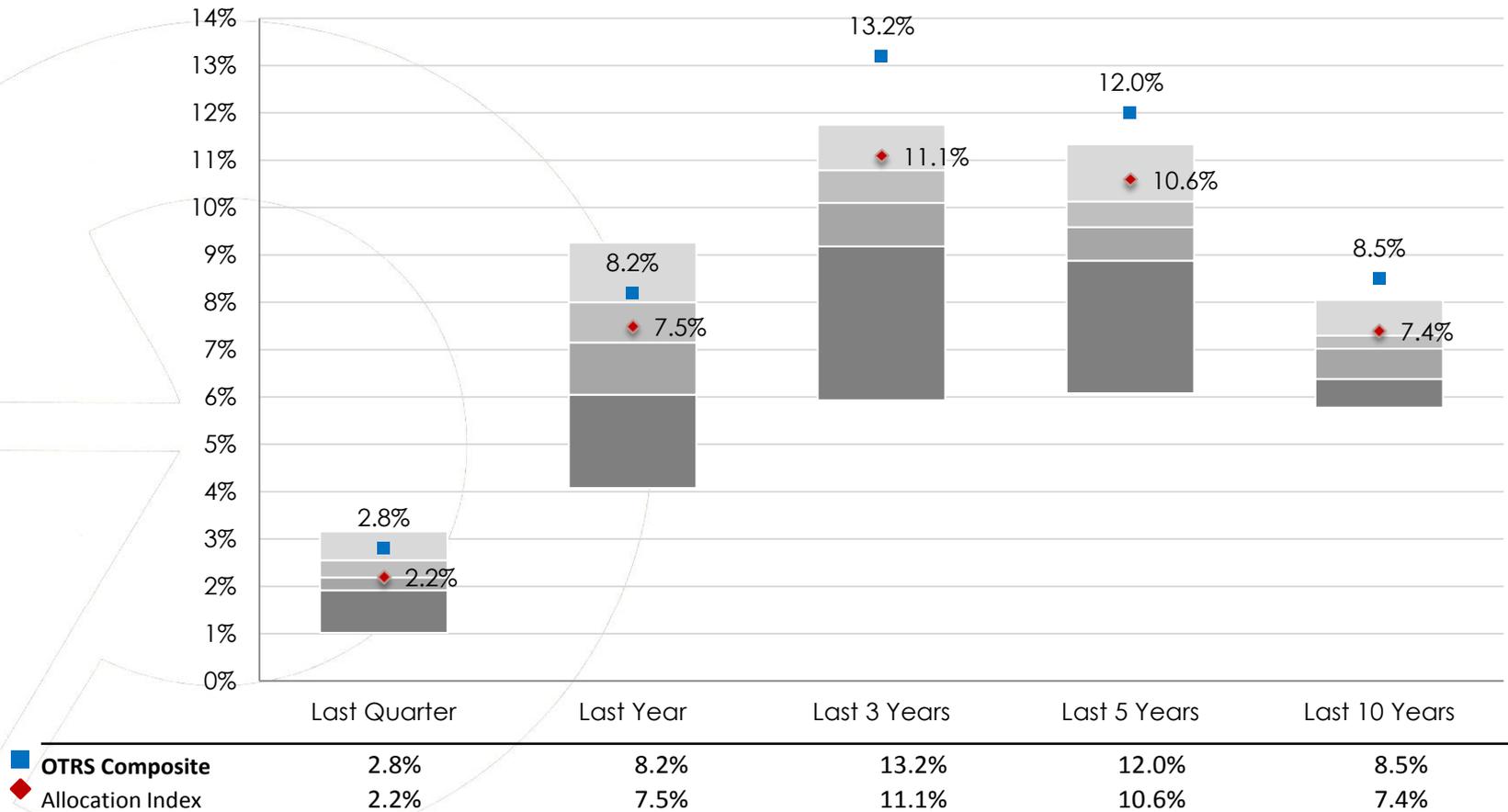
# Total Fund Allocation vs. Median Public Fund



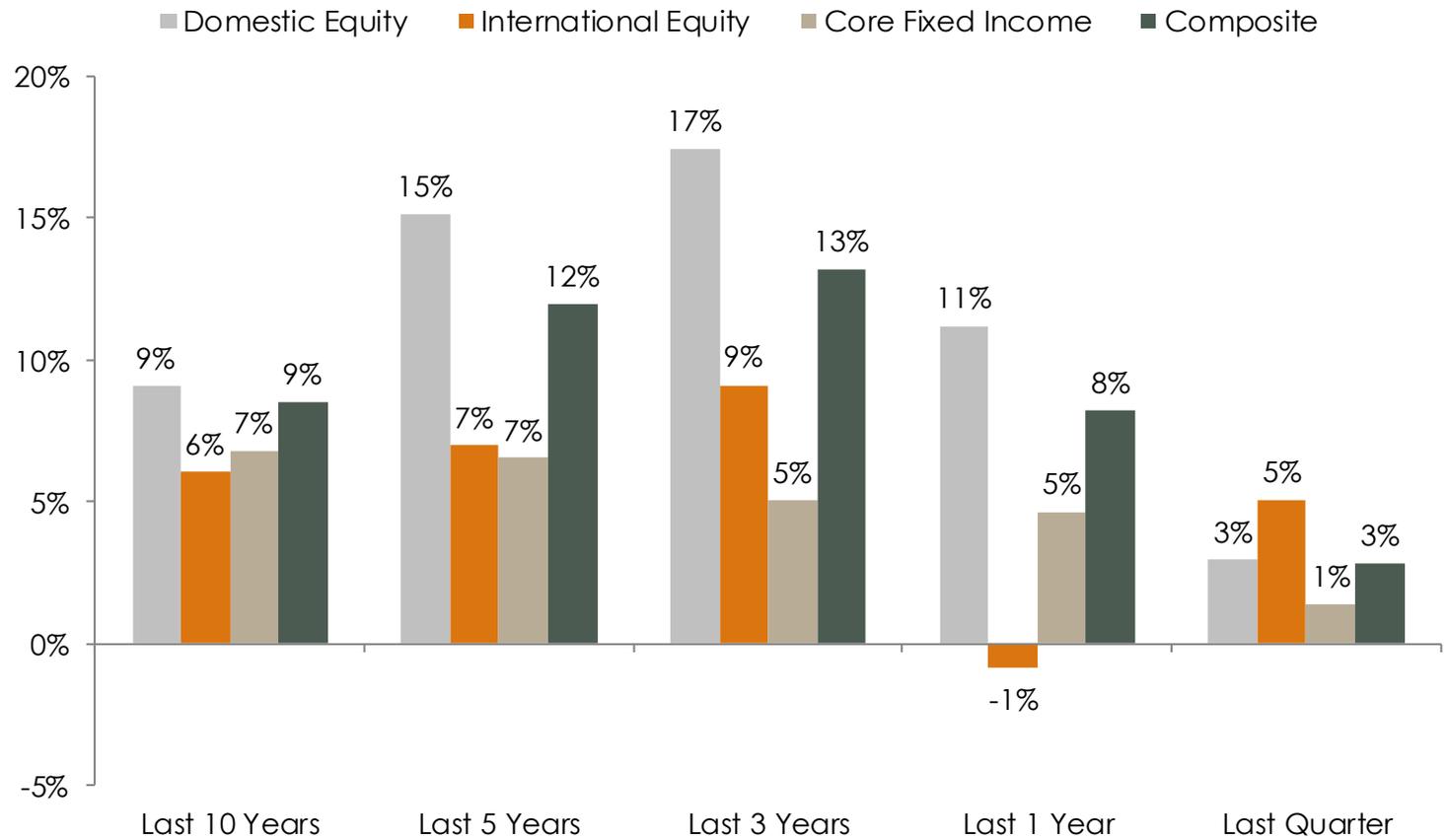
# Composite Performance Summary as of **March 31, 2015**



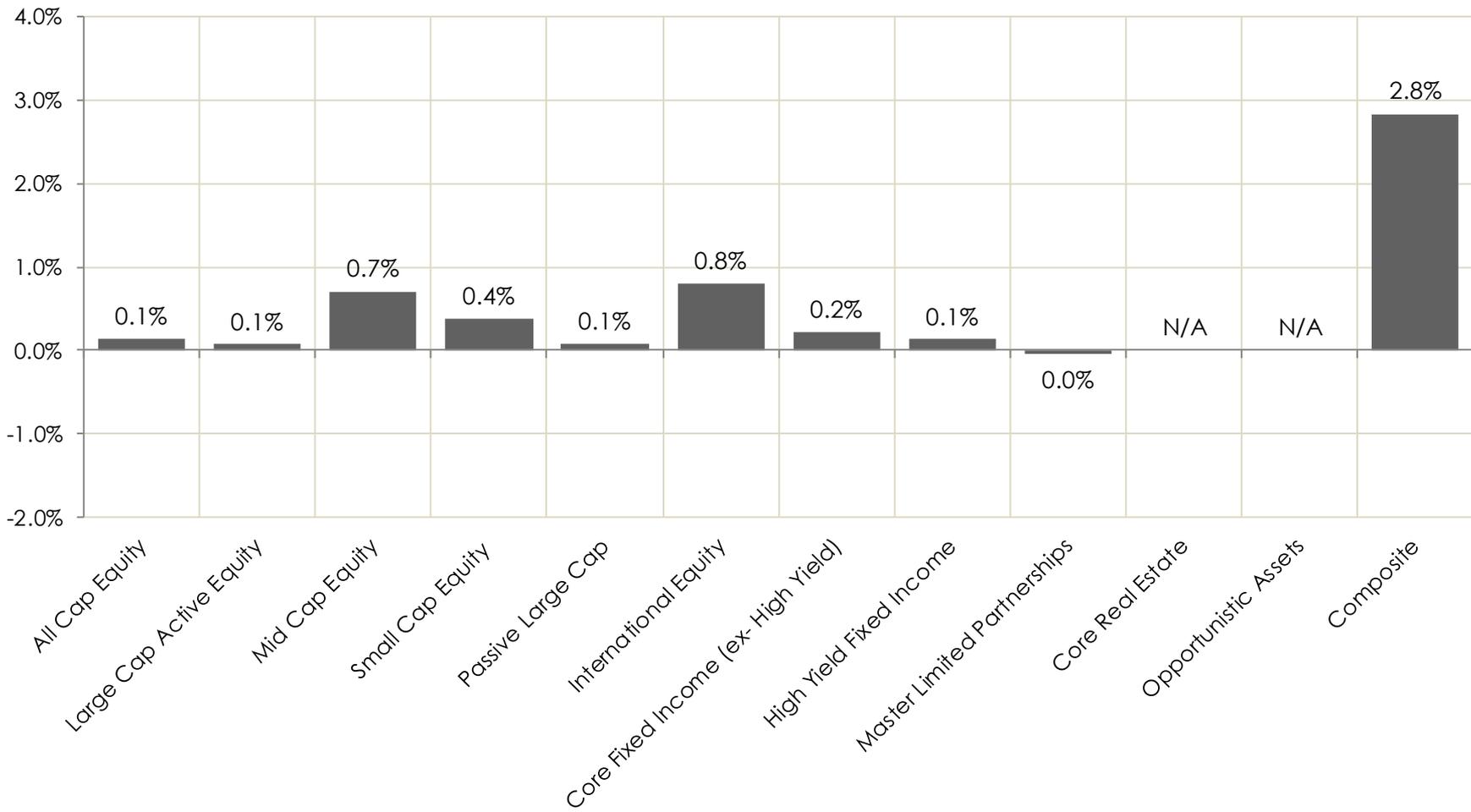
# Total Fund vs. Public Fund Peer Universe



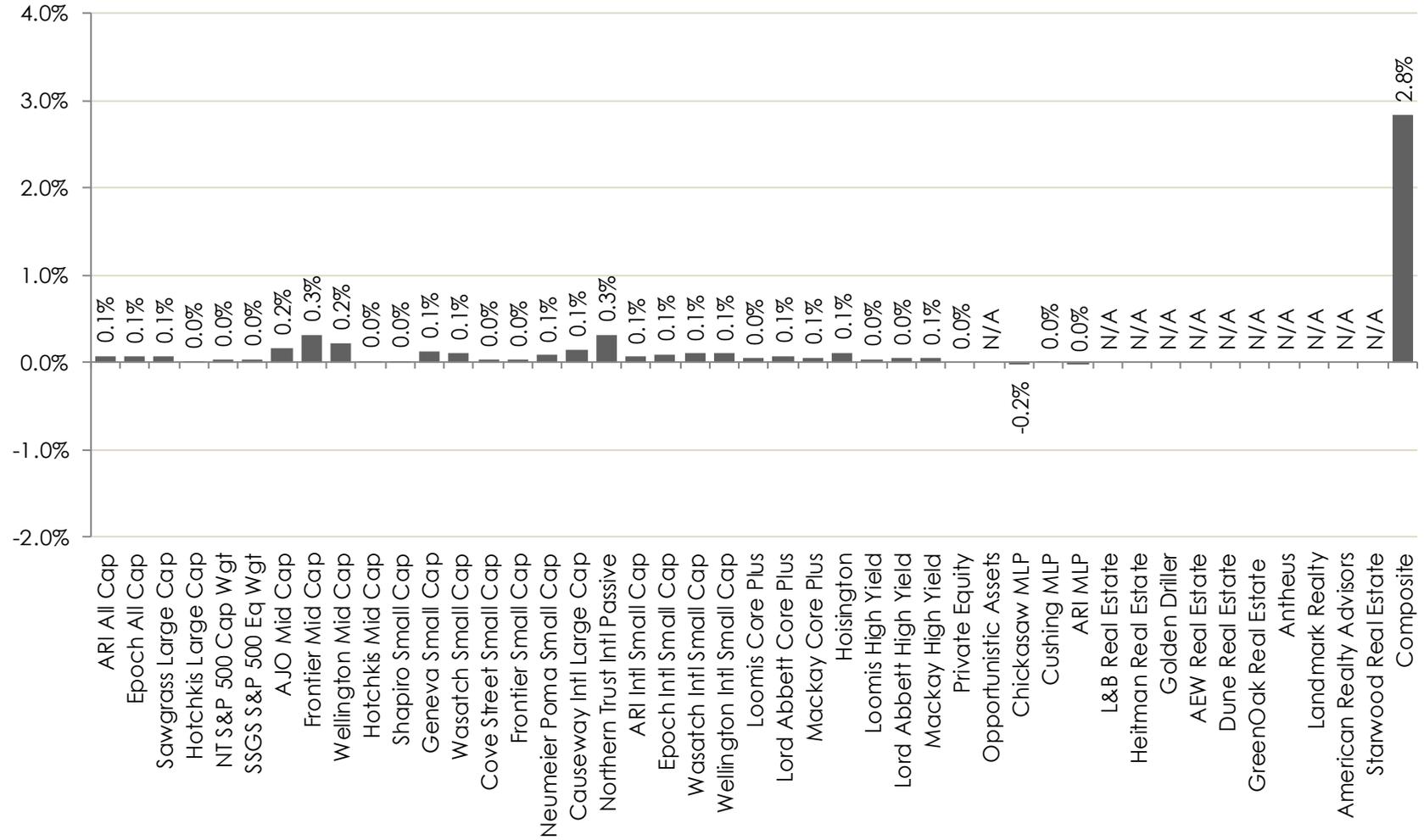
# Composite Performance Summary as of March 31, 2015



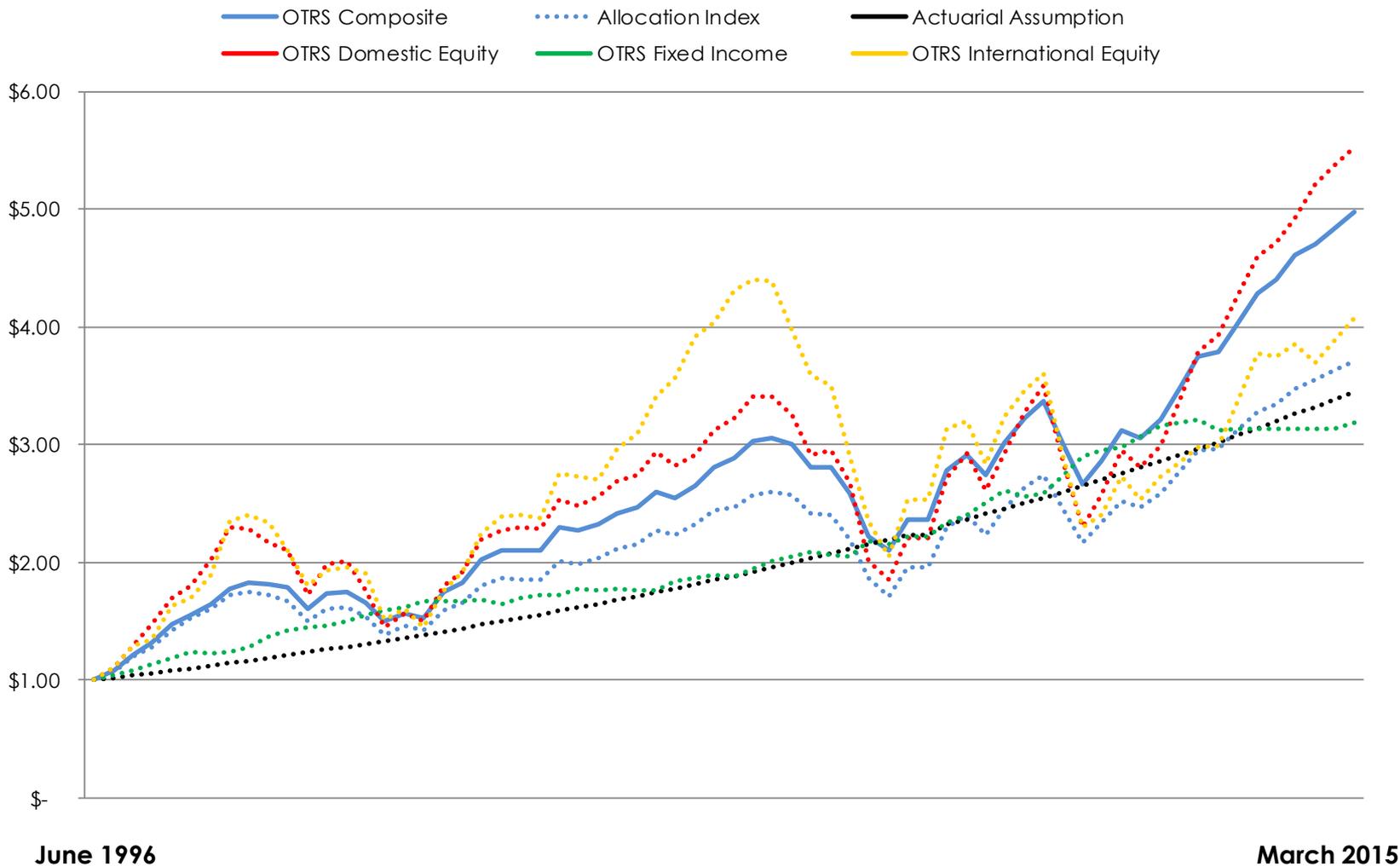
# Composition of Quarterly Return by Asset Class



# Composition of Quarterly Return by Portfolio



# Growth of a Dollar Over Time: Period Ended **March 31, 2015**



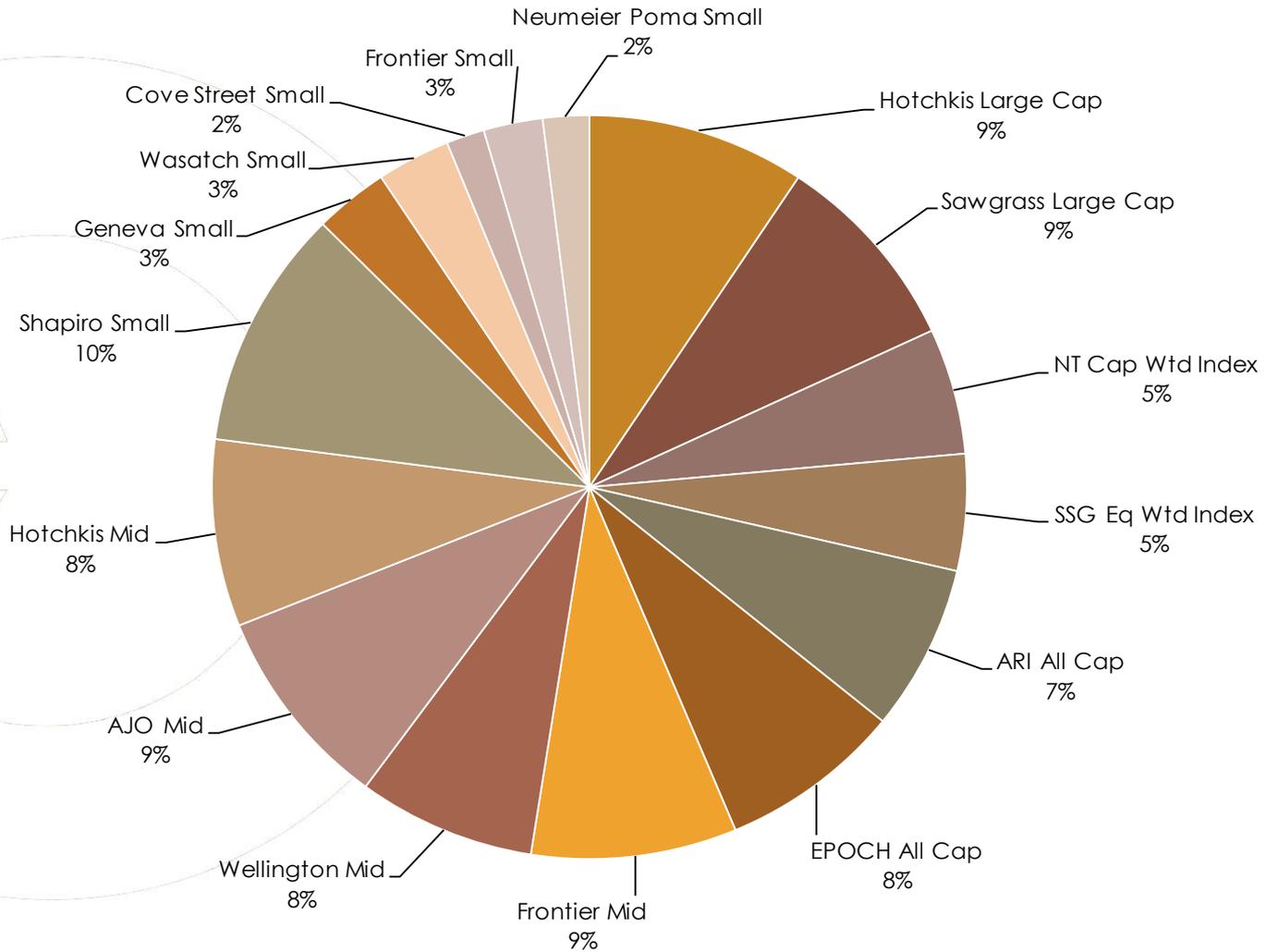
# Performance – Total Fund

	Last 10 Years	% Rank	Last 5 Years	% Rank	Last 3 Years	% Rank	Last 1 Years	% Rank	Last Quarter	% Rank
<b>Total Fund</b>	<b>8.5</b>	<b>1</b>	<b>12.0</b>	<b>1</b>	<b>13.2</b>	<b>3</b>	<b>8.2</b>	<b>22</b>	<b>2.8</b>	<b>16</b>
<i>Allocation Index</i>	7.4		10.6		11.1		7.5		2.2	
<i>Actuarial Assumption</i>	8.0		8.0		8.0		8.0		1.9	
<b>Total Domestic Equity</b>	<b>9.1</b>	<b>4</b>	<b>15.1</b>	<b>23</b>	<b>17.4</b>	<b>7</b>	<b>11.2</b>	<b>52</b>	<b>2.9</b>	<b>20</b>
<i>S&amp;P 500</i>	8.0		14.5		16.1		12.7		1.0	
<b>Core Fixed Income</b>	<b>6.8</b>	<b>2</b>	<b>6.5</b>	<b>17</b>	<b>5.0</b>	<b>25</b>	<b>4.7</b>	<b>43</b>	<b>1.4</b>	<b>60</b>
<i>Barclays Aggregate</i>	4.9		4.4		3.1		5.7		1.6	

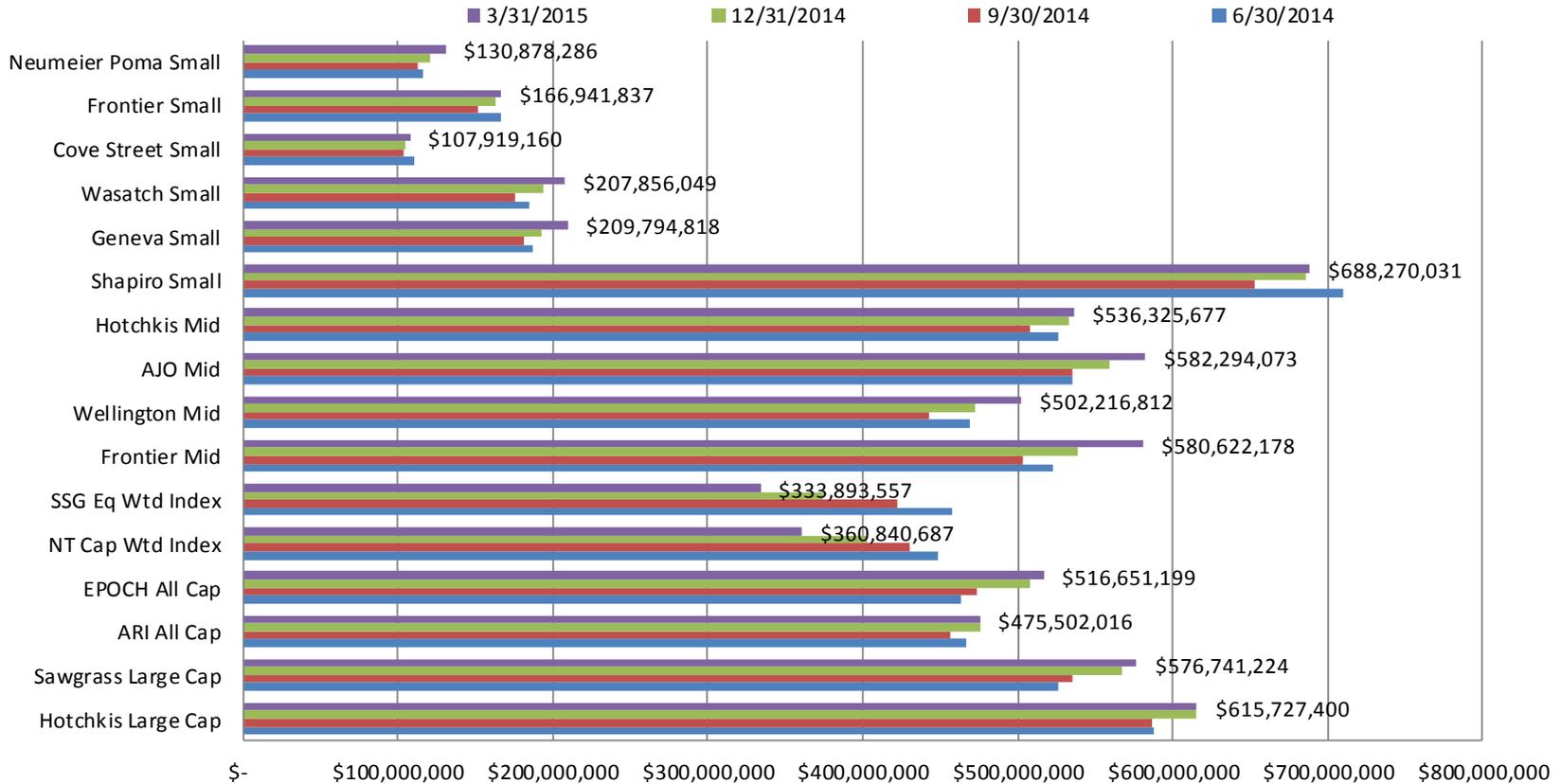
# Composite Peer Ranking History

Periods Ended	Trailing 5 Years	Trailing 3 Years	Trailing Year	Last Quarter
1q2015	1	3	22	16
4q2014	1	1	18	51
3q2014	1	1	4	75
2q2014	1	1	1	1
1q2014	3	1	1	7
4q2013	1	1	1	2
3q2013	2	3	1	14
2q2013	1	3	1	11
1q2013	3	4	4	3
4q2012	15	3	11	24
3q2012	21	13	8	10
2q2012	24	4	33	75
1q2012	22	13	25	14
4q2011	36	14	52	8
3q2011	31	23	95	89
2q2011	20	13	23	93
1q2011	9	21	5	17
4q2010	21	29	15	29
3q2010	30	38	10	18
2q2010	35	46	11	62
1q2010	24	25	70	44
4q2009	36	43	15	25
3q2009	26	42	32	13
2q2009	46	50	44	28
1q2009	23	24	18	28
4q2008	47	61	62	64
3q2008	24	59	67	48
2q2008	25	52	83	17
1q2008	19	49	83	79
4q2007	19	46	62	78
3q2007	18	36	37	87
2q 2007	10	29	18	34
1q 2007	15	27	38	19
4q 2006	23	44	59	36
3q 2006	15	24	69	57
<b>Average Rank</b>	<b>19</b>	<b>24</b>	<b>31</b>	<b>36</b>
<b>% of Observations in Top Quartile</b>	<b>77%</b>	<b>57%</b>	<b>57%</b>	<b>49%</b>
<b>% of Observations Above Median</b>	<b>100%</b>	<b>91%</b>	<b>71%</b>	<b>69%</b>

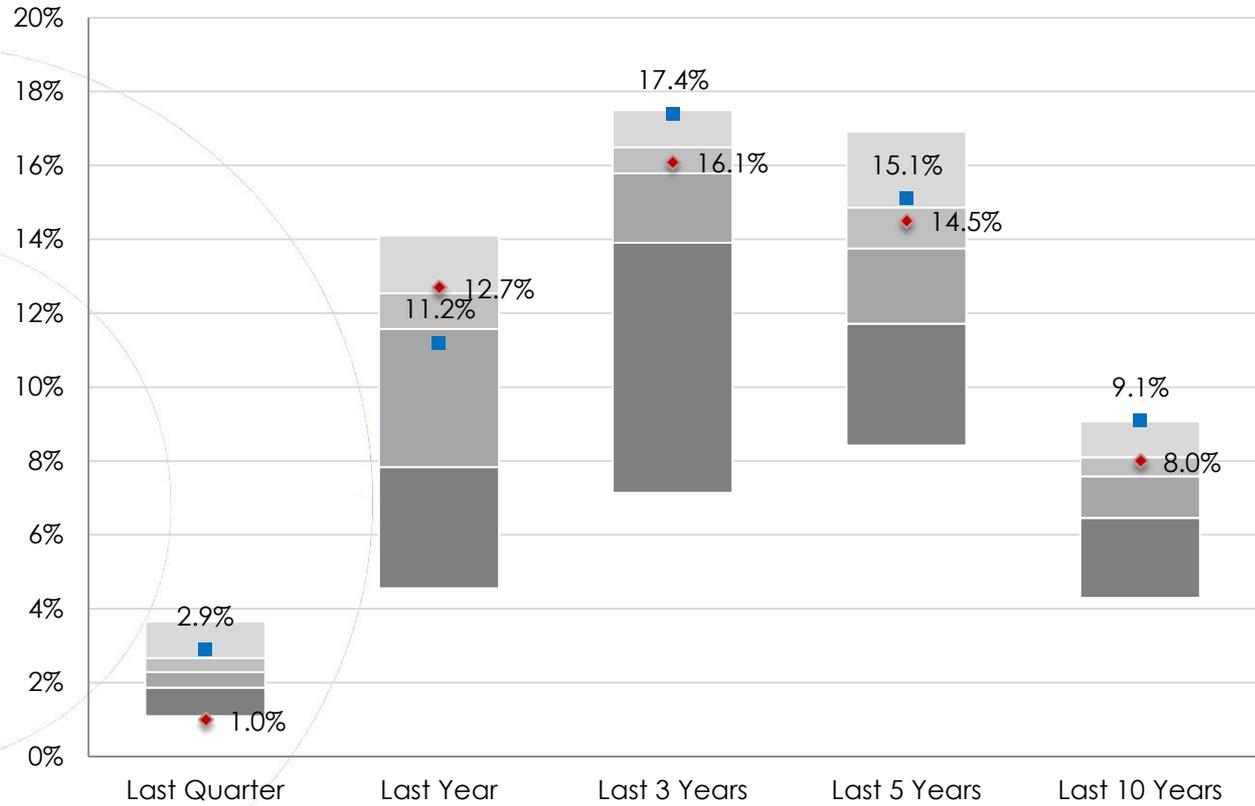
# Asset Allocation Summary – Domestic Equity Allocation



# Asset Allocation Summary – Domestic Equity Allocation



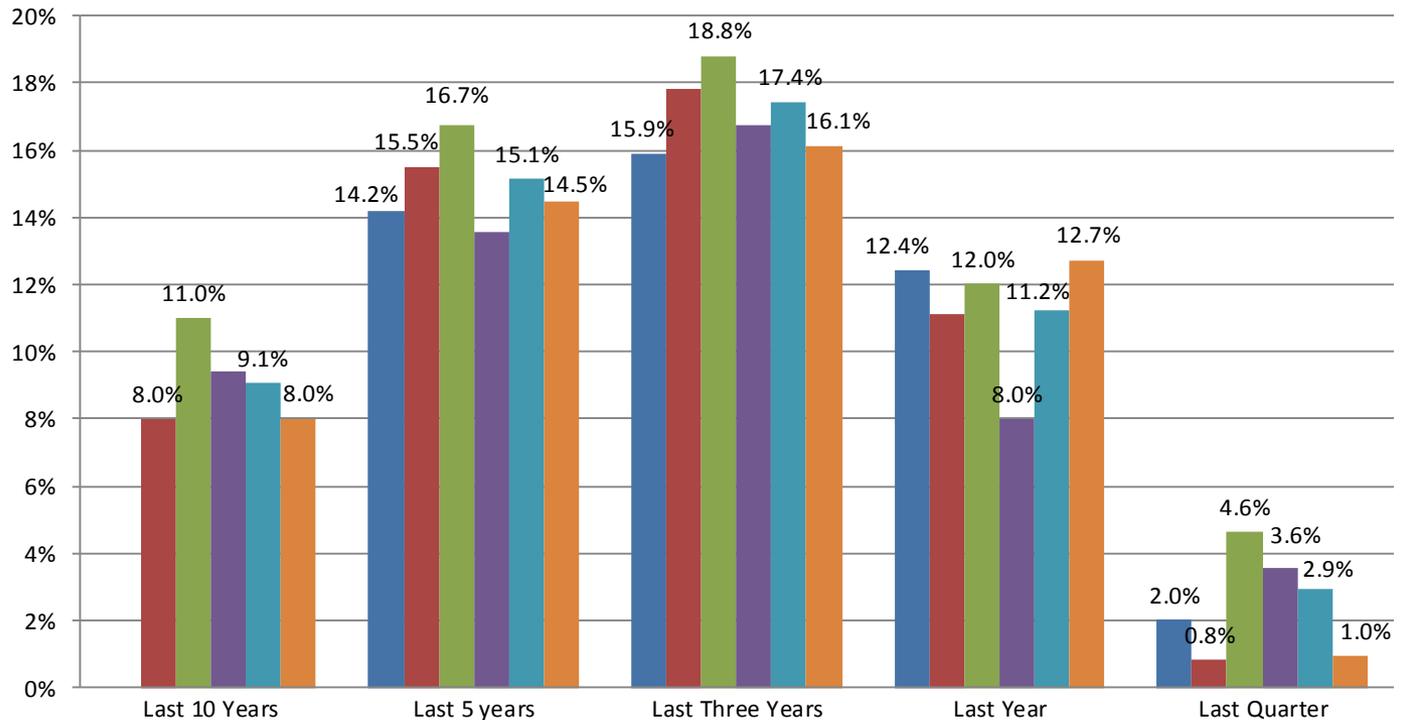
# Domestic Equity Composite vs. U.S. Equity Allocation Peer Universe



■ OTRS Equity Composite  
◆ S&P 500

2.9%	11.2%	17.4%	15.1%	9.1%
1.0%	12.7%	16.1%	14.5%	8.0%

# Domestic Equity Performance: Capitalization Composites



All Cap		14.2%	15.9%	12.4%	2.0%
Large Cap Active	8.0%	15.5%	17.8%	11.1%	0.8%
Mid Cap	11.0%	16.7%	18.8%	12.0%	4.6%
Small Cap	9.4%	13.5%	16.8%	8.0%	3.6%
All Domestic Equity	9.1%	15.1%	17.4%	11.2%	2.9%
S&P 500 (Cap Weighted)	8.0%	14.5%	16.1%	12.7%	1.0%

## Performance – All Cap and Large Cap Equity Managers

	Last 10 Years	% Rank	Last 5 Year	% Rank	Last 3 Years	% Rank	Last 1 Year	% Rank	Last Quarter	% Rank
<b>Advisory Research<sup>1</sup></b>	-	-	<b>13.4</b>	<b>76</b>	<b>14.8</b>	<b>80</b>	<b>9.2</b>	<b>77</b>	<b>2.2</b>	<b>31</b>
<b>EPOCH<sup>1</sup></b>	-	-	<b>14.9</b>	<b>39</b>	<b>16.9</b>	<b>39</b>	<b>15.7</b>	<b>10</b>	<b>1.8</b>	<b>44</b>
<i>Russell 3000 Value</i>	7.2		14.7		16.4		12.4		1.8	
<i>Russell 3000</i>	8.4		14.7		16.1		12.4		1.8	
<b>Hotchkis LCV</b>	<b>6.8</b>	<b>N/A</b>	<b>15.4</b>	<b>14</b>	<b>18.9</b>	<b>16</b>	<b>8.8</b>	<b>55</b>	<b>0.1</b>	<b>45</b>
<b>Sawgrass LCG</b>	-		<b>15.9</b>	<b>35</b>	<b>16.7</b>	<b>44</b>	<b>13.7</b>	<b>58</b>	<b>1.6</b>	<b>81</b>
<i>S&amp;P 500</i>	8.0		14.5		16.1		12.7		1.0	
<i>Russell 1000 Value</i>	7.2		13.8		16.4		9.3		-0.7	
<i>Russell 1000 Growth</i>	9.4		15.6		16.3		16.1		3.8	
<b>NT Cap Weighted</b>	-	-	-	-	<b>16.5</b>	<b>47</b>	<b>13.0</b>	<b>33</b>	<b>1.3</b>	<b>60</b>
<b>SSGA Equal Weighted</b>	-	-	-	-	<b>18.8</b>	<b>12</b>	<b>13.0</b>	<b>33</b>	<b>1.7</b>	<b>47</b>
<i>S&amp;P 500 Cap Weighted</i>	8.0		14.5		16.1		12.7		1.0	
<i>S&amp;P 500 Equal Weighted</i>	10.1		16.0		16.1		11.1		1.3	

<sup>1</sup>Ranked in Large Cap Core Equity Manager Universe

## Performance – Mid Cap and Small Cap Equity Managers

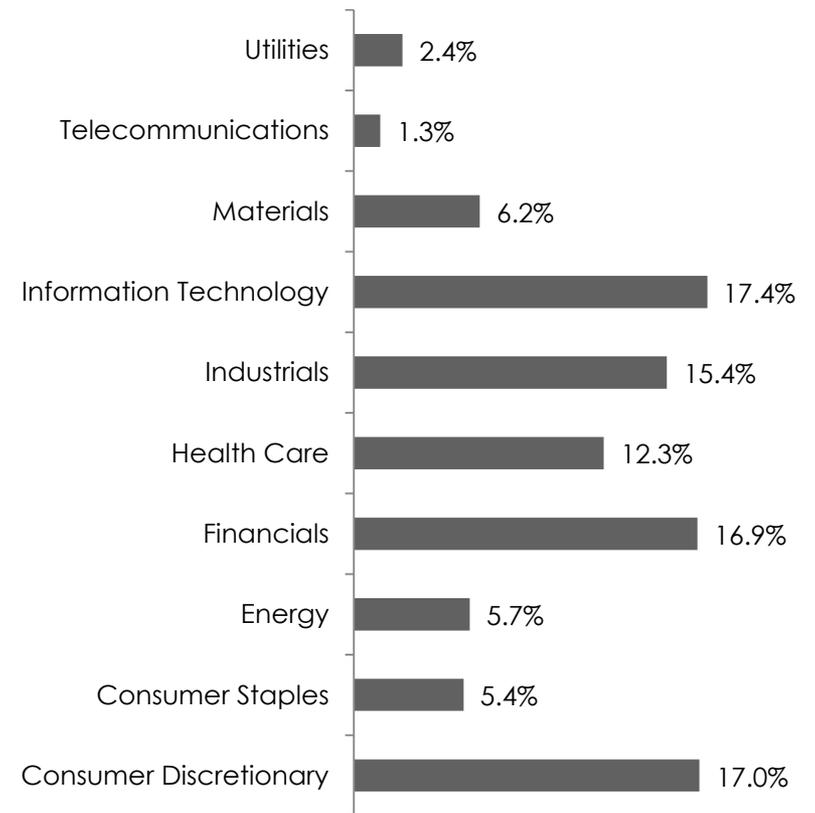
	Last 10 Years	% Rank	Last 5 Years	% Rank	Last 3 Years	% Rank	Last 1 Year	% Rank	Last Quarter	% Rank
<b>AJO MCC</b>	<b>10.4</b>	<b>49</b>	<b>17.9</b>	<b>15</b>	<b>20.0</b>	<b>11</b>	<b>14.3</b>	<b>10</b>	<b>4.1</b>	<b>51</b>
<b>Frontier MCG</b>	<b>12.7</b>	<b>N/A</b>	<b>16.3</b>	<b>N/A</b>	<b>18.6</b>	<b>36</b>	<b>15.4</b>	<b>20</b>	<b>7.9</b>	<b>1</b>
<b>Hotchkis MCV</b>	<b>10.8</b>	<b>N/A</b>	<b>18.5</b>	<b>1</b>	<b>20.9</b>	<b>3</b>	<b>7.6</b>	<b>44</b>	<b>0.5</b>	<b>63</b>
<b>Wellington MCG</b>	<b>10.0</b>	<b>N/A</b>	<b>14.0</b>	<b>N/A</b>	<b>15.3</b>	<b>86</b>	<b>10.5</b>	<b>61</b>	<b>6.2</b>	<b>27</b>
<i>Russell MC</i>	<i>10.0</i>		<i>16.2</i>		<i>18.1</i>		<i>13.7</i>		<i>4.0</i>	
<i>Russell MC Growth</i>	<i>10.2</i>		<i>16.4</i>		<i>17.4</i>		<i>15.6</i>		<i>5.4</i>	
<i>Russell MC Value</i>	<i>9.6</i>		<i>15.8</i>		<i>18.6</i>		<i>11.7</i>		<i>2.4</i>	
<b>Shapiro SCC</b>	<b>11.3</b>	<b>22</b>	<b>15.3</b>	<b>14</b>	<b>17.7</b>	<b>33</b>	<b>6.3</b>	<b>62</b>	<b>0.4</b>	<b>87</b>
<b>Geneva SCG</b>	-	-	-	-	-	-	<b>9.9</b>	<b>43</b>	<b>8.6</b>	<b>12</b>
<b>Wasatch SCG</b>	-	-	-	-	-	-	<b>13.4</b>	<b>17</b>	<b>7.6</b>	<b>22</b>
<b>Cove Street SCV</b>	-	-	-	-	-	-	<b>2.4</b>	<b>76</b>	<b>3.3</b>	<b>33</b>
<b>Frontier SCV</b>	-	-	-	-	-	-	<b>4.7</b>	<b>65</b>	<b>2.7</b>	<b>44</b>
<b>Neumeier Poma SCV</b>	-	-	-	-	-	-	<b>15.6</b>	<b>1</b>	<b>8.7</b>	<b>1</b>
<i>Russell 2000</i>	<i>8.8</i>		<i>14.6</i>		<i>16.3</i>		<i>8.2</i>		<i>4.3</i>	
<i>Russell 2000 Value</i>	<i>7.5</i>		<i>12.5</i>		<i>7.5</i>		<i>4.4</i>		<i>2.0</i>	

# Total Equity Portfolio Holdings Review

## Largest Equity Positions

Position	% of Total Equity Allocation
ADT	0.59%
Axiall	0.55%
Cabela's	0.48%
PerkinElmer	0.48%
Cablevision System	0.48%
Entegris	0.48%
Knowles	0.44%
Aaron's	0.44%
Mosaic	0.44%
WPX Energy	0.44%
<b>Top Ten Total Weight</b>	<b>4.82%</b>

## Sector Weightings



## Composite Equity Portfolio Characteristics – Trailing Five Years

	Average Market Cap	Dividend Yield	Tracking Error	Alpha	R <sup>2</sup>	Sharpe Ratio	Standard Deviation
Active Large Cap Equity	\$83.19 billion	1.76%	3.58%	1.62	0.95	1.19	13.25
Mid Cap Equity	\$9.46 billion	0.93%	4.93%	-1.54	0.94	1.00	17.25
Small Cap Equity	\$10.76 billion	0.82%	2.61%	1.05	0.41	0.42	7.62
International Equity	\$34.51 billion	2.26%	0.01%	-0.01	0.00	0.12	4.23
<b>Total Equity</b>	<b>\$33.37 billion</b>	<b>1.36%</b>	<b>2.74%</b>	<b>-0.05</b>	<b>0.60</b>	<b>0.70</b>	<b>11.12</b>

## Active Domestic Equity Characteristics – Trailing Five Years

	<b>Asset Class</b>	<b>Upside Capture Ratio %</b>	<b>Downside Capture Ratio %</b>	<b>Trailing Five Year Return</b>	<b>Correlation vs. S&amp;P 500</b>
Hotchkis & Wiley	Large Cap Value	111.2	116.3	15.4%	0.94
Sawgrass	Large Cap Growth	92.6	74.6	15.9%	0.95
Advisory Research	All Cap	96.9	72.3	9.7%	0.95
EPOCH	All Cap	104.6	107.1	14.8%	0.96
AJO	Mid Cap Core	116.4	108.9	18.0%	0.92
Frontier	Mid Cap Growth	105.3	97.2	16.4%	0.84
Hotchkis & Wiley	Mid Cap Value	133.8	139.7	18.6%	0.87
Wellington	Mid Cap Growth	123.7	151.3	14.0%	0.85
Shapiro	Small Cap Value/Core	118.8	129.3	15.8%	0.81
Cove Street	Small Cap Value	112.2	117.0	20.0%	0.80
Neumeier Poma	Small Cap Value	113.2	89.9	19.8%	0.79
Frontier	Small Cap Value	125.5	117.5	19.4%	0.82
Geneva	Small Cap Growth	106.1	98.6	16.5%	0.66
Wasatch	Small Cap Growth	99.8	79.3	17.3%	0.71

Upside and downside capture ratios measured against the S&P 500 index.

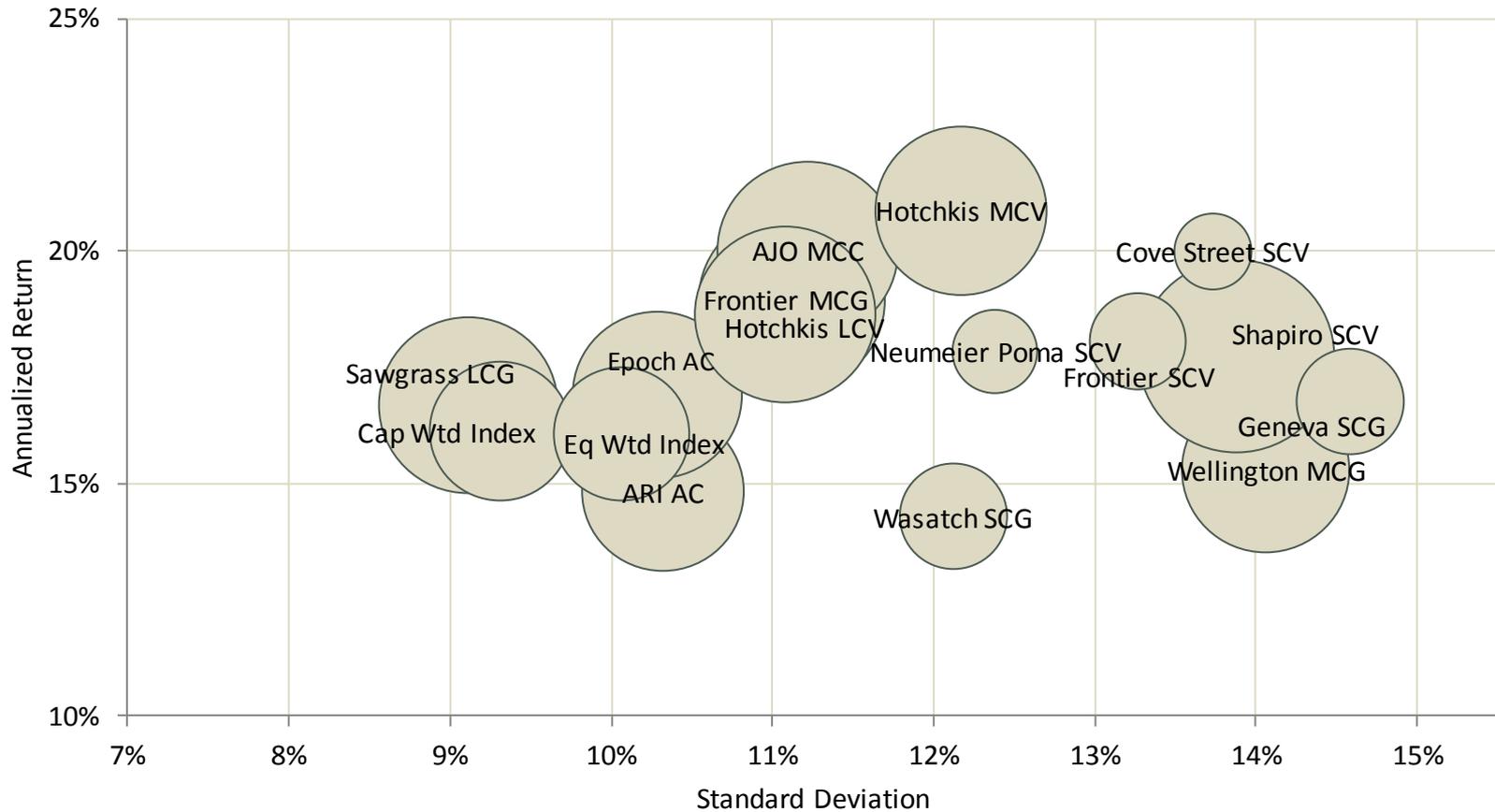
first quarter, 2015

# Domestic Equity Portfolios: 5 Year Correlation Matrix

Trailing Five Years	ARI AC	AJO MC	Cove Street SCV	Epoch AC	Frontier MCG	Frontier SCV	Geneva SCG	Hotchkis LCV	Hotchkis MCV	Neumeier Poma SCV	Sawgrass LCG	Shapiro SCC	Wasatch SCG	Wellington MCG
ARI AC	-													
AJO MC	0.96	-												
Cove Street SCV	0.91	0.91	-											
Epoch AC	0.96	0.97	0.89	-										
Frontier MCG	0.92	0.95	0.89	0.93	-									
Frontier SCV	0.93	0.95	0.94	0.91	0.93	-								
Geneva SCG	0.85	0.88	0.84	0.85	0.90	0.86	-							
Hotchkis LCV	0.96	0.94	0.88	0.96	0.90	0.91	0.78	-						
Hotchkis MCV	0.92	0.94	0.89	0.93	0.90	0.94	0.80	0.94	-					
Neumeier Poma SCV	0.92	0.93	0.90	0.90	0.91	0.94	0.89	0.87	0.89	-				
Sawgrass LCG	0.94	0.95	0.86	0.96	0.92	0.87	0.83	0.93	0.88	0.86	-			
Shapiro SCC	0.93	0.95	0.91	0.91	0.93	0.93	0.86	0.90	0.91	0.92	0.87	-		
Wasatch SCG	0.87	0.90	0.87	0.86	0.92	0.92	0.90	0.82	0.86	0.90	0.83	0.89	-	
Wellington MCG	0.93	0.97	0.90	0.94	0.94	0.94	0.88	0.91	0.94	0.94	0.90	0.95	0.90	-

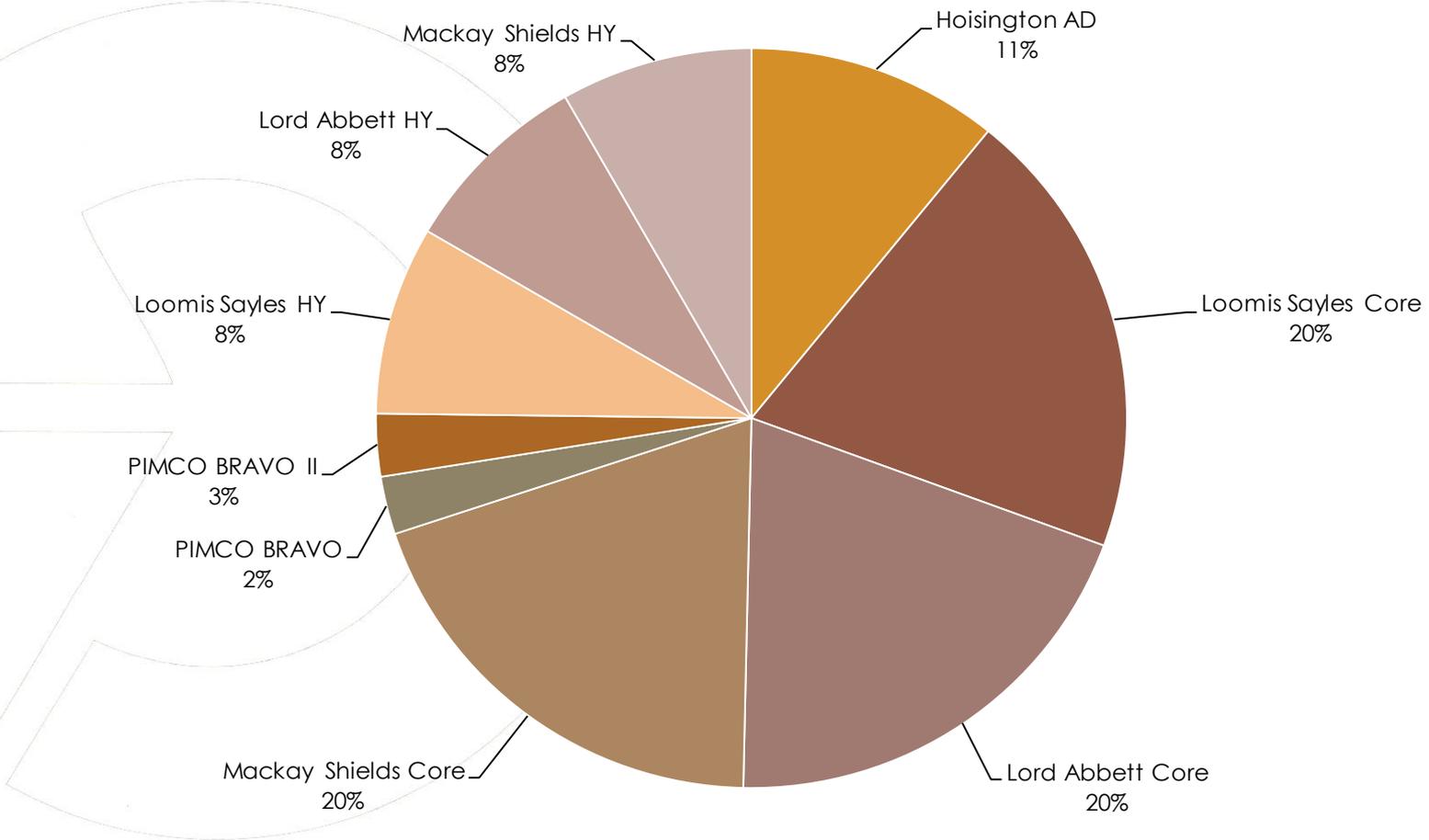
# Domestic Equity Risk Return Comparison

Composite Data Used – Three Years Ended March 31, 2015

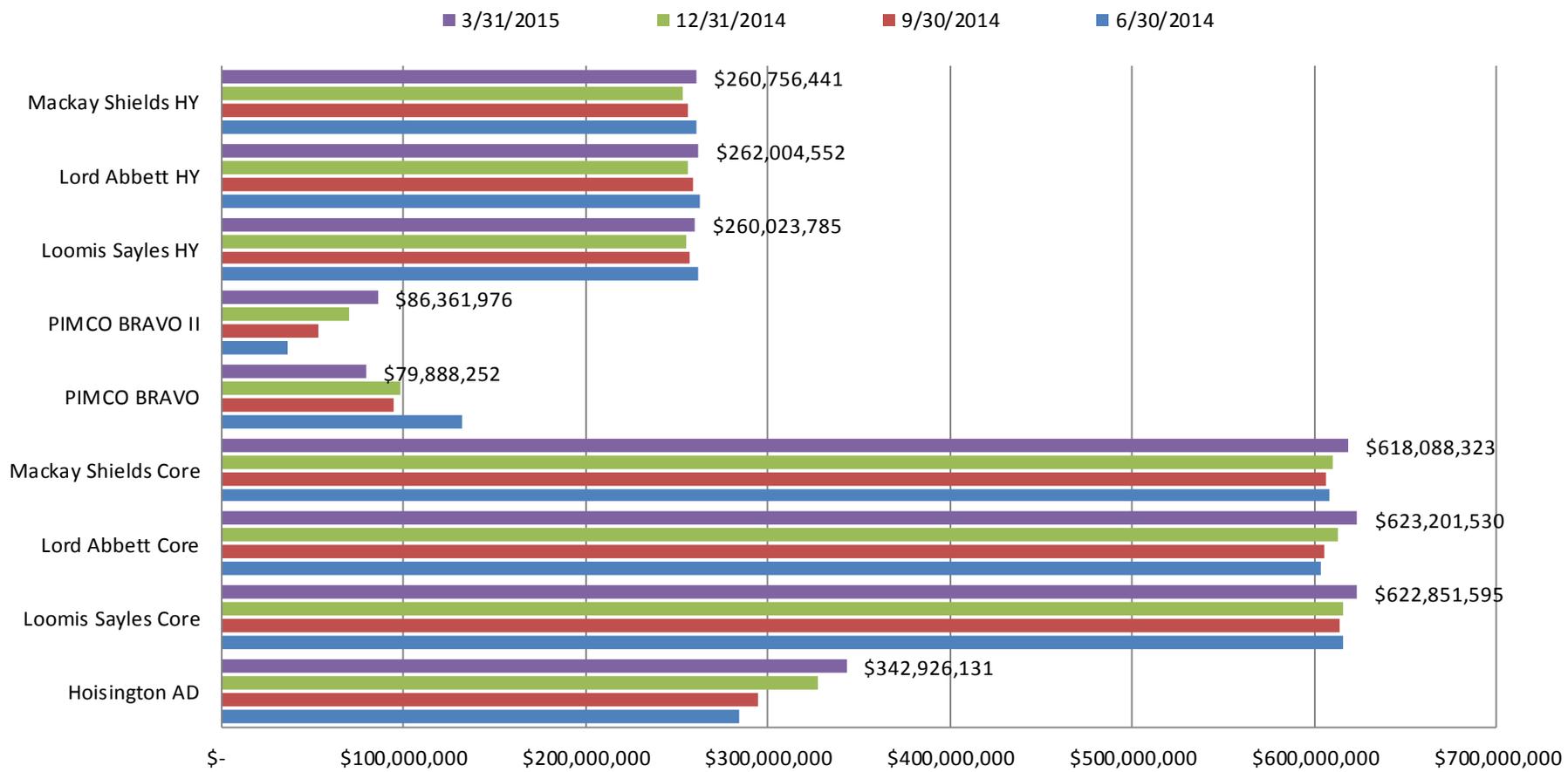


\*Composite performance used when necessary.

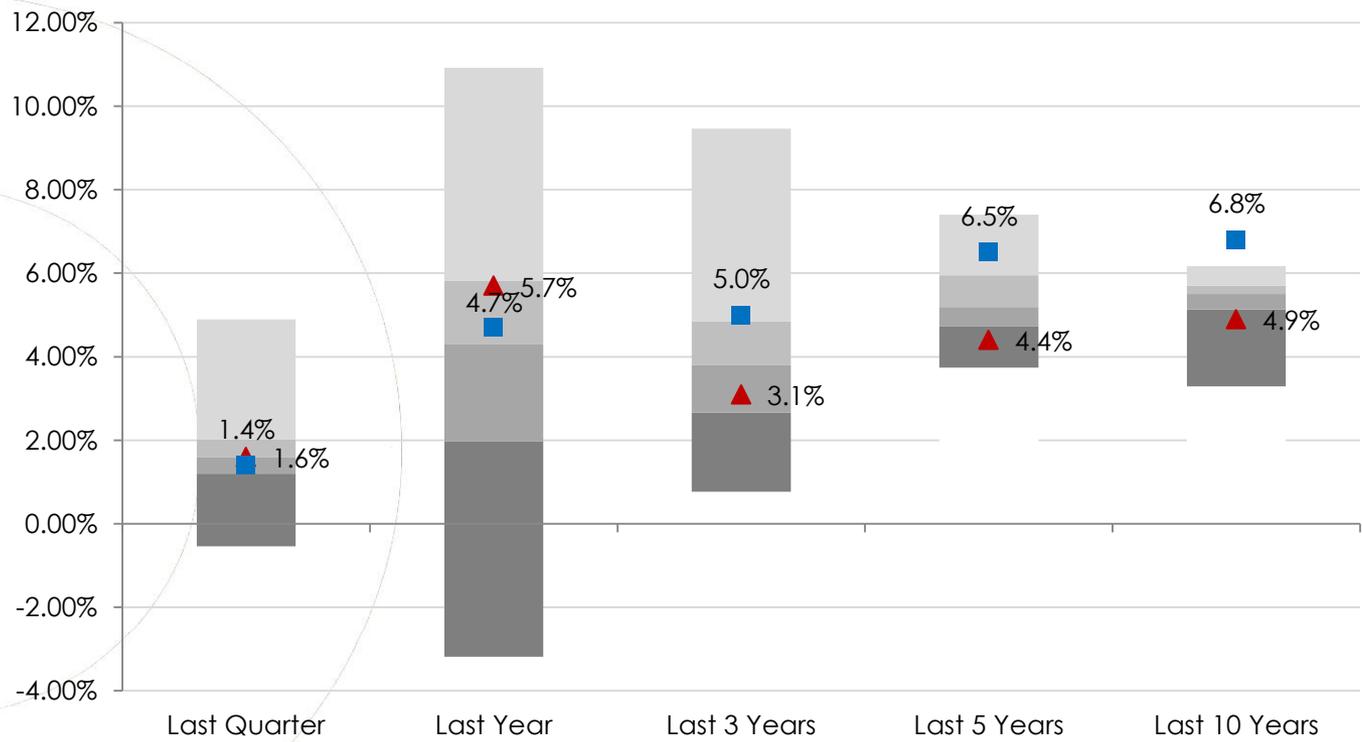
# Asset Allocation Summary – Fixed Income Allocation



# Asset Allocation Summary – Fixed Income Allocation



# Fixed Income Composite vs. Core Fixed Income Peer Universe



■ OTRS Fixed Income Composite <sup>1</sup>	1.4%	4.7%	5.0%	6.5%	6.8%
◆ Barclays Capital Aggregate	1.6%	5.7%	3.1%	4.4%	4.9%

<sup>1</sup>Excludes High Yield

## Performance – Fixed Income Managers

	Last 10 Years	% Rank	Last 5 Years	% Rank	Last 3 Years	% Rank	Last Year	% Rank	Last Quarter	% Rank
Loomis Sayles	7.7	3	7.1	18	5.5	16	4.3	76	1.1	79
Lord Abbett	6.4	14	6.0	24	4.7	23	6.0	39	1.8	31
Mackay Shields	6.5	13	6.4	22	4.9	21	3.7	78	1.3	77
Hoisington	9.1	3	13.5	2	9.5	3	27.8	1	4.8	1
<i>BC Aggregate</i>	4.9		4.4		3.1		5.7		1.6	
Loomis HY	-	-	8.2	72	8.0	46	2.8	75	1.9	70
Lord Abbett HY	-	-	9.7	24	8.8	25	3.0	65	2.5	47
Mackay HY	-	-	8.5	63	7.1	66	2.5	76	2.8	25
<i>ML High Yield II</i>	8.0		8.4		7.5		2.1		2.5	

## Fixed Income Portfolio Characteristics – Trailing Five Years

	Asset Class	Credit Quality	Modified Duration	Maturity	Yield to Maturity
Loomis Sayles	Core Plus	AA-	6.1	8.5	3.7%
Lord Abbett	Core Plus	AA	5.1	7.3	2.9%
Mackay Shields	Core Plus	BBB+	3.6	8.3	3.1%
Hoisington	Active Duration	AAA	20.0	29.3	2.5%
<b>Core Fixed Income Composite</b>	<b>Core Plus</b>	<b>A+</b>	<b>7.3</b>	<b>11.3</b>	<b>3.1%</b>
Loomis Sayles	High Yield	BB	4.1	5.5	5.5%
Lord Abbett	High Yield	B	2.6	5.1	6.9%
Mackay Shields	High Yield	BB-	3.6	5.9	6.2%
<b>High Yield Composite</b>	<b>High Yield</b>	<b>B</b>	<b>3.4</b>	<b>5.5</b>	<b>6.2%</b>

## Fixed Income Performance Characteristics – Trailing Five Years

	Asset Class	Upside Capture Ratio %	Downside Capture Ratio %	Trailing Five Year Return	Correlation vs. BC Aggregate
Loomis Sayles	Core Plus	139.1%	99.4%	7.1%	0.57
Lord Abbett	Core Plus	114.3%	67.4%	6.1%	0.85
Mackay Shields	Core Plus	115.5%	72.4%	6.1%	0.68
Hoisington	Active Duration	338.5%	423.7%	13.4%	0.59
Loomis Sayles	High Yield	151.9%	12.1%	9.9%	0.01
Lord Abbett	High Yield	138.1%	-33.1%	9.9%	0.01
Mackay Shields	High Yield	125.4%	-14.0%	8.6%	0.03

Upside and downside capture ratios measured against the Barclays Capital Aggregate index.  
\*Composite performance used when necessary.

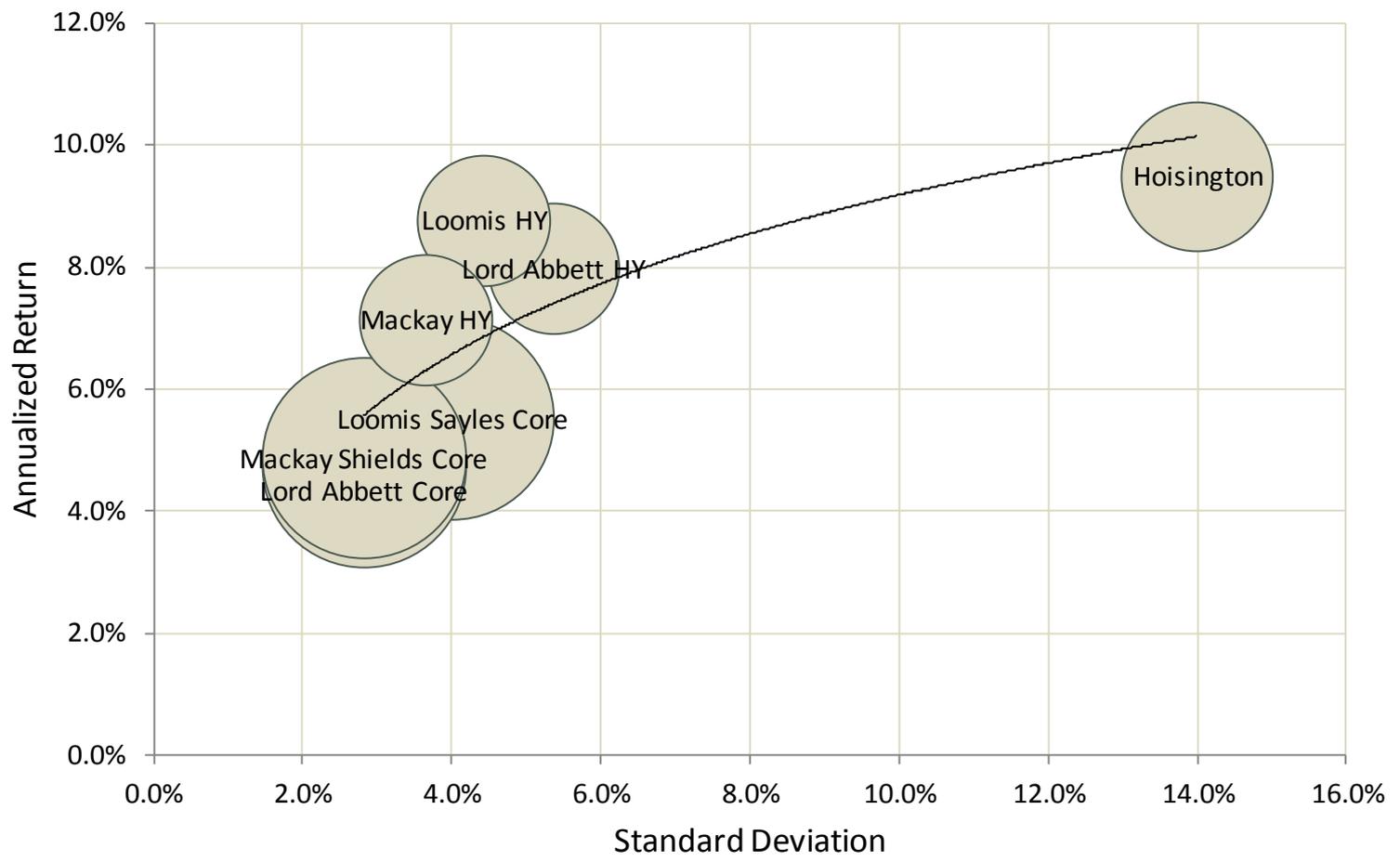
## Fixed Income Portfolios: 5 Year Correlation Matrix

Trailing Five Years	Hoisington	Loomis Core	Loomis High Yield	Lord Abbett Core	Lord Abbett High Yield	Mackay Shields Core	Mackay Shields High Yield
Hoisington	-						
Loomis Core	0.28	-					
Loomis High Yield	-0.44	0.69	-				
Lord Abbett Core	0.54	0.92	0.44	-			
Lord Abbett High Yield	-0.45	0.66	0.97	0.40	-		
Mackay Shields Core	0.39	0.97	0.60	0.96	0.59	-	
Mackay Shields High Yield	-0.34	0.73	0.94	0.49	0.97	0.67	-

\*Composite performance used when necessary.

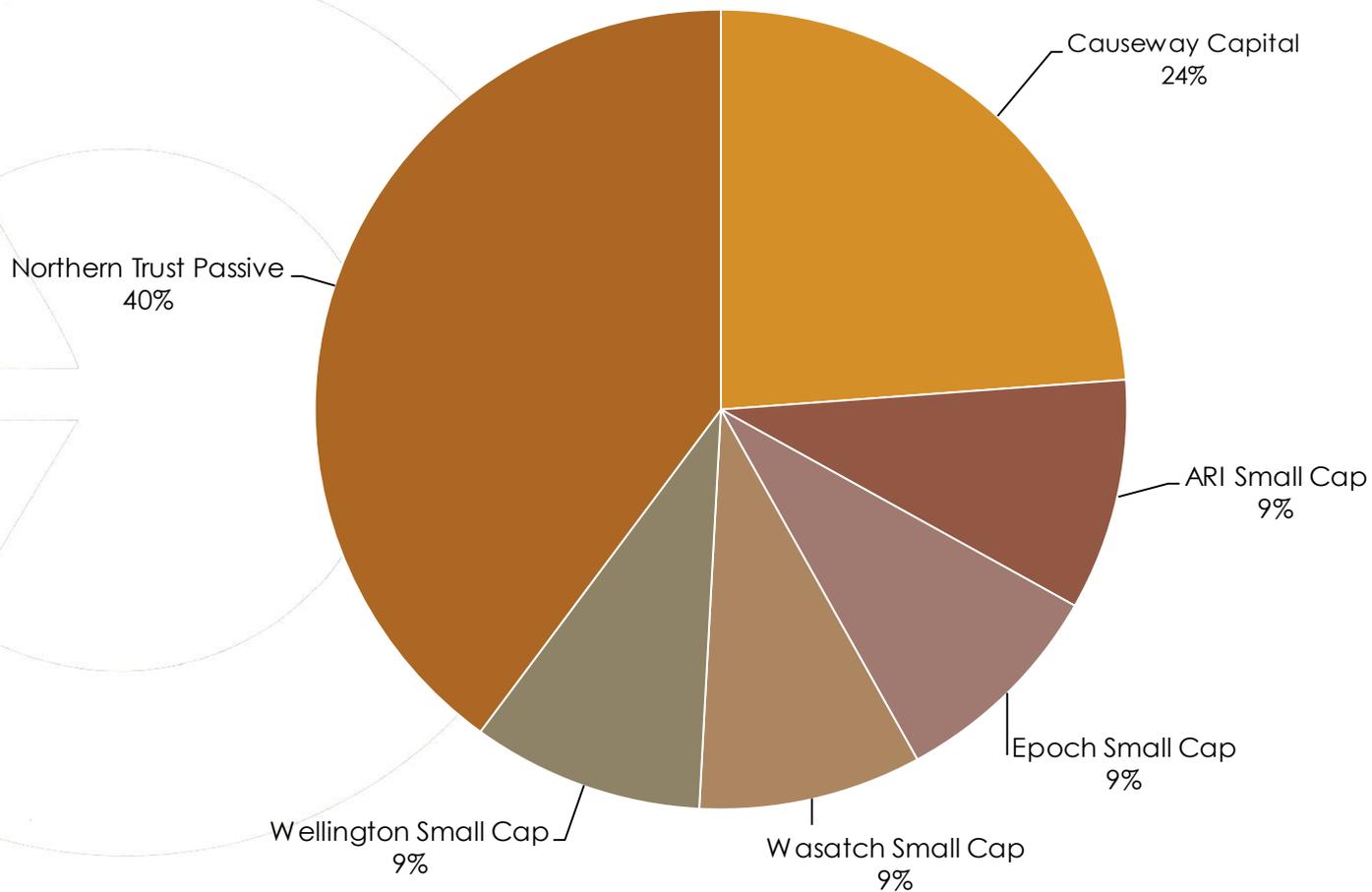
# Fixed Income Risk Return Comparison

Composite Data Used – Three Years Ended March 31, 2015

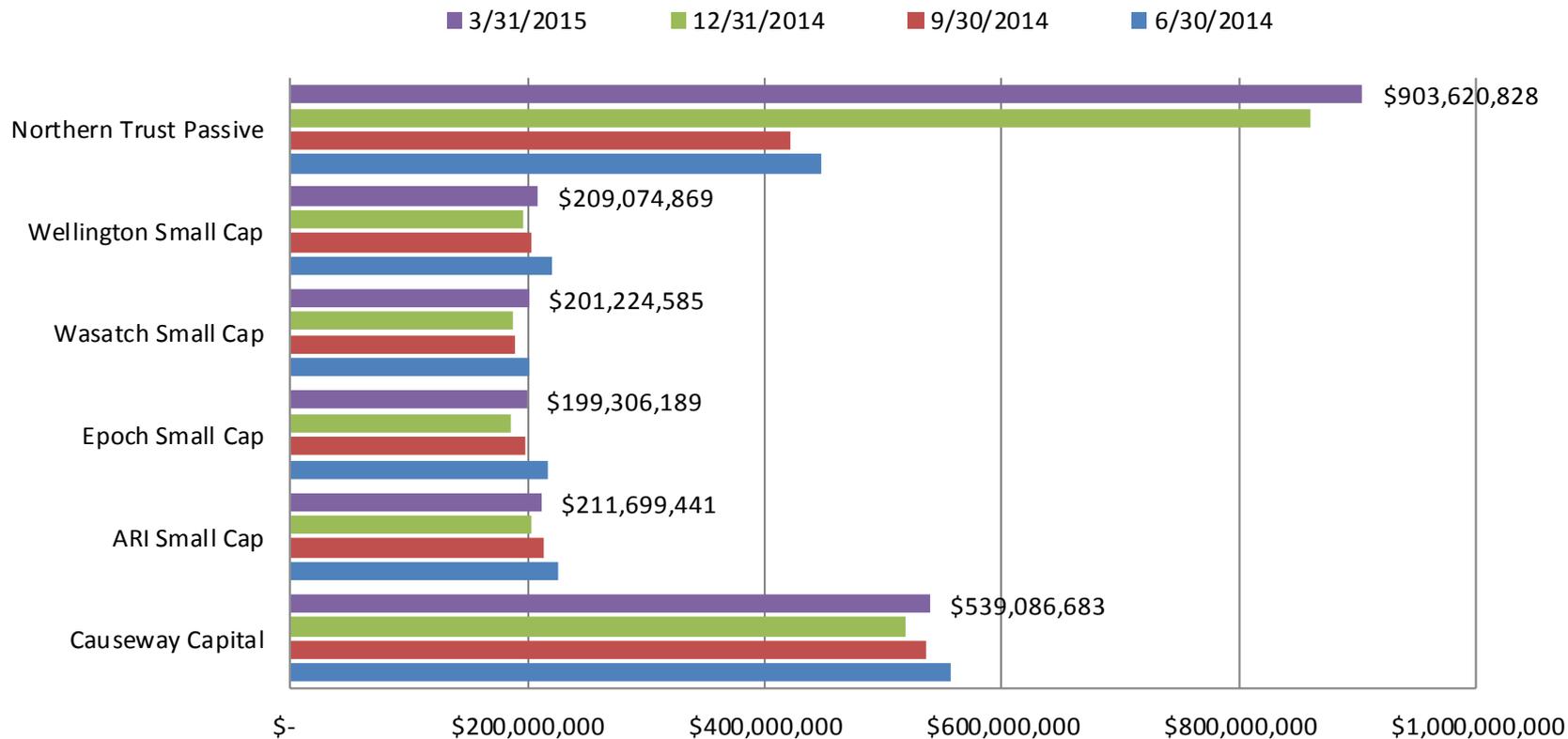


\*Composite performance used when necessary to calculate figures.

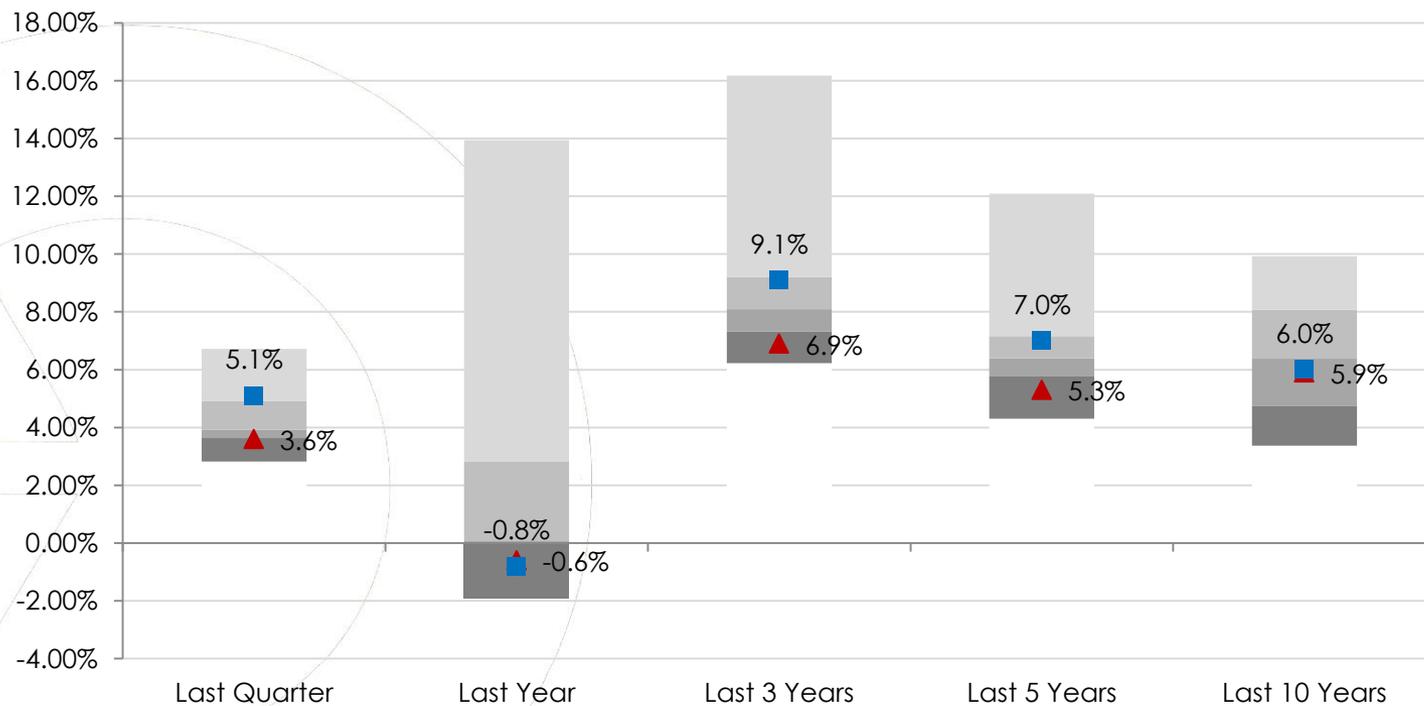
# Asset Allocation Summary – International Equity Allocation



# Asset Allocation Summary – International Equity Allocation



# Active International Equity vs. Non-US Equity Allocation Peer Universe



■ OTRS Active Intl Equity	5.1%	-0.8%	9.1%	7.0%	6.0%
◆ MSCI ACWI Ex-US	3.6%	-0.6%	6.9%	5.3%	5.9%

## Performance – International Equity Managers

	Last 10 Years	% Rank	Last 5 Years	% Rank	Last 3 Years	% Rank	Last 1 Year	% Rank	Last Quarter	% Rank
<b>Causeway</b>	<b>6.3</b>	<b>44</b>	<b>7.8</b>	<b>26</b>	<b>9.3</b>	<b>25</b>	-0.6	79	3.8	57
<b>Northern Trust Passive</b>	-	-	-	-	-	-	0.5	46	5.0	24
<i>MSCI ACWI Ex US</i>	-	-	-	-	10.7	-	5.4	-	2.3	-
<b>ARI<sup>1</sup></b>	-	-	-	-	12.6	15	-0.2	64	4.1	45
<b>EPOCH<sup>1</sup></b>	-	-	-	-	9.7	24	-8.4	98	6.6	6
<b>Wasatch<sup>1</sup></b>	-	-	-	-	14.2	11	1.2	40	6.9	3
<b>Wellington<sup>1</sup></b>	-	-	-	-	13.3	13	-2.4	96	6.6	6
<i>MSCI EAFE Small Cap</i>	-	-	-	-	11.0	-	-2.6	-	5.6	-

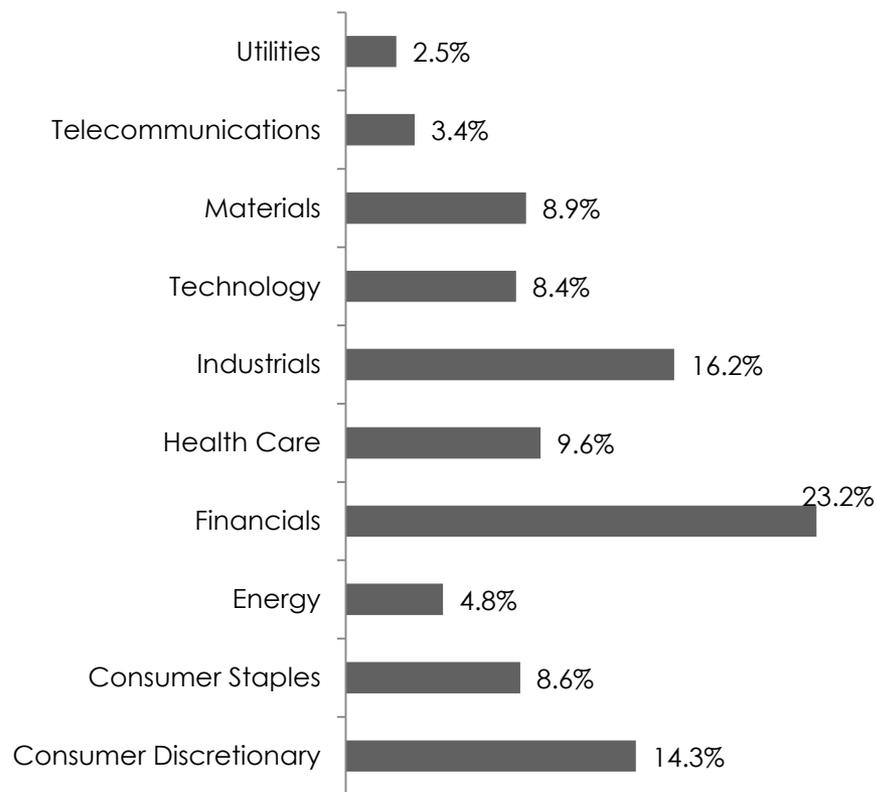
<sup>1</sup>Ranked in Non-US Equity Manager Universe.

# Total International Equity Portfolio Holdings Review

## Largest Equity Positions

Position	% of Total Equity Allocation
AKZO Nobel	0.76%
Nestle SA	0.75%
Novartis AG	0.70%
KDDI	0.69%
Reed Elsevier	0.67%
Roche Holdings	0.60%
Toyota	0.60%
Novartis	0.58%
UBS	0.58%
British American Tobacco	0.58%
<b>Top Ten Total Weight</b>	<b>6.51%</b>

## Sector Weightings



## Active International Equity Characteristics – Trailing Five Years

	<b>Asset Class</b>	<b>Upside Capture Ratio %</b>	<b>Downside Capture Ratio %</b>	<b>Trailing Five Year Return</b>	<b>Correlation vs. MSCI ACWI ex US</b>
Causeway	Large Cap Value	114.2%	95.9%	9.2%	0.93
Northern Trust	Passive Index	100.6%	99.4%	5.1%	1.00
Advisory Research	Small Cap Value	96.9%	72.3%	9.7%	0.89
EPOCH	Small Cal Value	102.8%	85.0%	8.6%	0.89
Wasatch	Small Cap Growth	99.8%	79.3%	17.3%	0.71
Wellington	Small Cap Growth	101.5%	85.4%	8.2%	0.96

Upside and downside capture ratios measured against the MSCI ACWI ex-US index.

\*Composite performance used when necessary.

## International Equity Portfolios: 5 Year Correlation Matrix

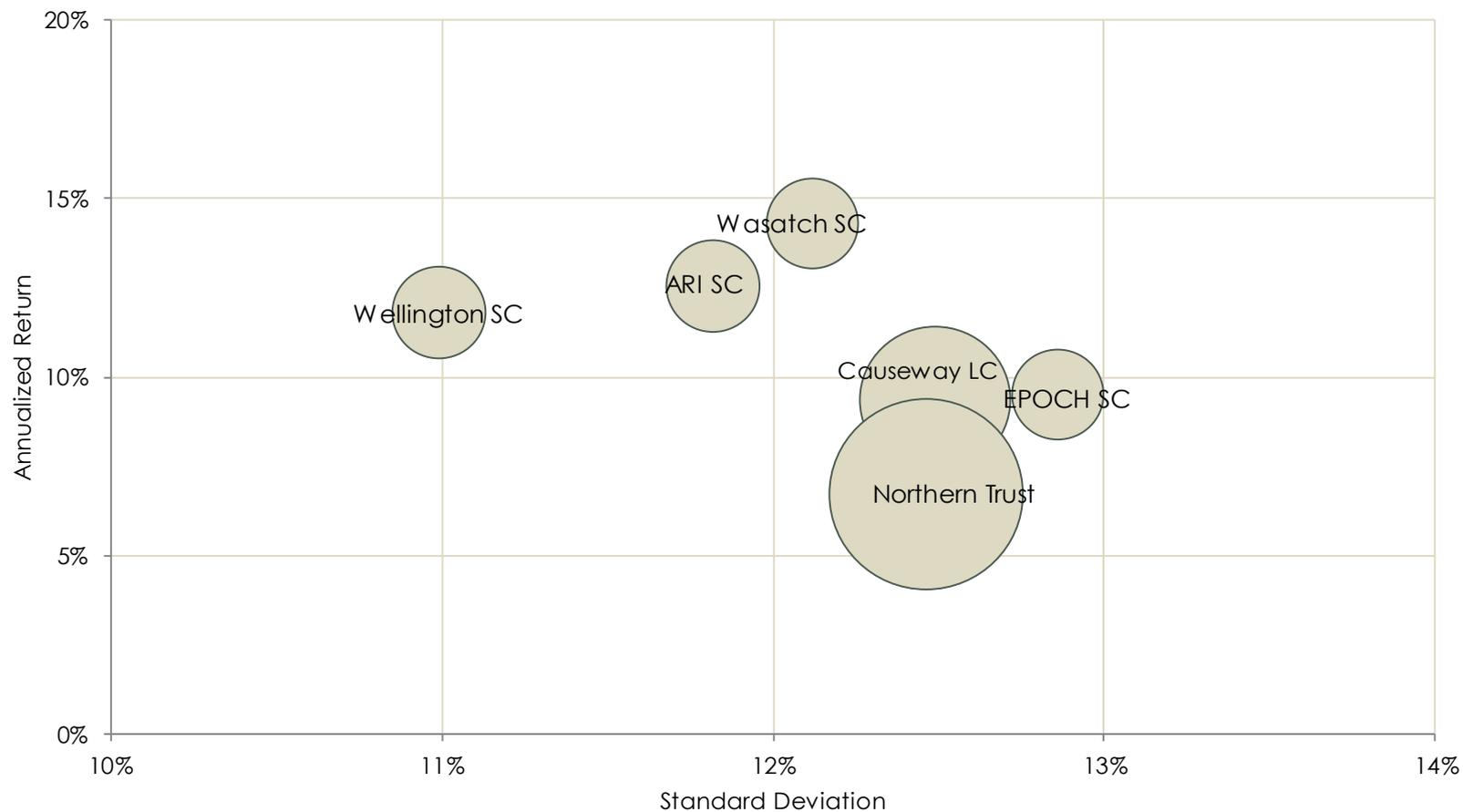
<b>Trailing Five Years</b>	ARI SCI	Causeway LCI	EPOCH SCI	Northern Trust	Wasatch SCI	Wellington SCI
ARI SCI	-					
Causeway LCI	0.92	-				
EPOCH SCI	0.94	0.92	-			
Northern Trust Passive	0.94	0.97	0.94	-		
Wasatch SCI	0.86	0.85	0.93	0.91	-	
Wellington SCI	0.92	0.97	0.94	0.98	0.74	-

\*Composite performance used when necessary.

first quarter, 2015

# International Equity Risk Return Comparison

Composite Data Used – Three Years Ended March 31, 2015



## Performance – MLPs

	Last 5 Years	% Rank	Last 3 Years	% Rank	Last 1 Year	% Rank	Last Quarter	% Rank
<b>Chickasaw</b>	-	-	<b>26.3</b>	-	<b>10.2</b>	-	<b>-1.1</b>	-
<b>ARI</b>	-	-	<b>14.6</b>	-	<b>6.4</b>	-	<b>-0.7</b>	-
<b>Cushing</b>	-	-	<b>21.7</b>	-	<b>9.8</b>	-	<b>0.0</b>	-
<i>Alerian MLP</i>	-		9.2		-2.5		-5.2	

## May Manager Status Report

Manager	Mandate	Strategy	AUM	% of Portfolio	Current Status	Reason for Status Change	Status Change Effective Date	Date of Last Review	Date of Next Review	Expectations
Geneva Capital Management, LTD	Domestic Equity	Small Cap	205,734,384	1.41%	<b>On Alert</b>	Acquisition	July 2014	December 2014	June 2015	Maintain continuity of management practices and results

All other managers currently rated In Compliance

MEMORANDUM

**TO:** The Board of Trustees of OTRS

**FROM:** Tom Spencer, Executive Director

**DATE:** May 15, 2015

**RE:** Investment Guidelines for Northern Trust Securities Lending Program

---

The Board of Trustees selected Northern Trust to be its custodian bank a few months ago. This is the bank that keeps all of TRS' portfolio records of investment holdings. In addition to recordkeeping work the bank also engages in "securities lending." As an agent of TRS it lends securities in the portfolio in exchange for cash in most cases. This cash is invested to earn incremental income for the portfolio.

Suggested enhancements to be considered to the guidelines from Northern's Short Duration Fixed Income Team are the following:

- a. Remove the allocation percent limits on CDs and commercial paper. Current limit is 15%.
- b. Increase the maturity limit for CDs and Commercial Paper from 180 days to 13 months.
- c. Allow investment in non-standard repurchase agreements (backed by equities, corporate bonds, municipals and commercial paper). Maximum allocation of 25% in total to term non-standard repurchase agreements, with maximum in one type of collateral at 10%.
- d. Lower the Weighted Average Maturity (WAM) of the cash collateral portfolio from 90 days to 60 days.

Suffice it to say that easing certain investment restrictions, increases risk even if it isn't doing so in any substantial way. My personal belief is that a securities lending program is a good idea but it should not be looked at as any significant addition to the System's investment income. It is a way to help offset custody and other investment-related costs.

Northern provided us with income estimates today:

1. If TRS uses the OPERS guidelines, the expected net income is \$17,460,000 per year.
2. If TRS goes along with a, b and d, the expected net income is \$18,657,000 per year.
3. If TRS agrees with all of the suggestions, the expected net income is \$19,854,000 per year.

These are only estimates based on current market conditions and are certainly not guarantees by Northern Trust.

**EXHIBIT B**  
**TO SECURITIES LENDING AUTHORIZATION AGREEMENT**  
**(“Agreement”)**

**PART 1**  
**GUIDELINES FOR CASH COLLATERAL ACCOUNT**

Effective as of July 1, 2015

OTRS Custom Account – Cash Collateral Account

**Purpose**

The OTRS CUSTOM ACCOUNT (also known as the “Cash Collateral Account”) shall be available to the Oklahoma Teachers Retirement System Board of Trustees (“Lender”) who participates in the Securities Lending Program offered by The Northern Trust Company (“Agent”). Lenders in the Cash Collateral Account receive cash as Collateral for loans of their securities to approved borrowers. The purpose of the Cash Collateral Account is to identify eligible Collateral and, in the case of cash collateral, the opportunity for a market rate of return consistent with allowed investment latitude and thereby seek to generate positive program spreads.

Capitalized terms used in this Exhibit B and not defined shall have the meanings given to them in the Agreement.

**Collateralization Levels**

Initial Collateral levels will not be less than one hundred two percent (102%) of the Market Value of the Borrowed Securities, or not less than one hundred five percent (105%) if the Borrowed Securities and the Collateral are denominated in different currencies. Marking to market is performed every business day subject to de minimis rules of change in value, and the borrower is required to deliver additional Collateral when necessary so that the total Collateral held by Agent for all loans to the Borrower of all Participating Lenders will at least equal the Market Value of all the Borrowed Securities of all Participating Lenders loaned to the Borrower.

**Cash Collateral Guidelines**

Listed below are the cash Collateral guidelines specifying eligible investments, credit quality standards, and diversification, maturity and liquidity requirements. All requirements listed in these guidelines are effective at the time of purchase of any security or instrument as a cash Collateral investment. Agent will make use of market standard settlement methods for cash investments including the use of a tri-party custodian as approved by Agent’s appropriate risk committee. Settlement through a tri-party custodian may result in cash collateral being held on deposit at the tri-party custodian. Eligible collateral held on deposit must fit the criteria set forth within Sections I (Objectives) and II (Eligible Investments) of these guidelines.

## ***CASH COLLATERAL INVESTMENT POLICY AND GUIDELINES***

### **I. Objectives:**

The key objectives of the management of cash collateral supporting securities loans are:

- 1. Preservation of Capital.** Safety of principal is the foremost objective of the cash collateral investment program.
- 2. Liquidity.** The Cash Collateral Account shall remain sufficiently liquid to enable the Lenders to meet their obligations to their members and the costs of administration.
- 3. Return on Investment.** Consistent with the objectives noted above, optimize the spread between the collateral earnings and the rebate paid to the borrower of securities.

### **II. Eligible Investments:**

The Agent is authorized to invest U.S. dollar cash collateral supporting securities loans, as summarized and restricted below:

A. Obligations issued or guaranteed by the United States Government, including Treasury Bills, Notes and Bonds, or U.S. Government agencies or instrumentalities including:

1. Federal National Mortgage Association;
2. Federal Home Loan Bank;
3. Federal Farm Credit Bank;
4. Federal Home Loan Mortgage Corporation;
5. Government National Mortgage Corporation; and
6. Not more than twenty-five percent (25%) of the cash collateral available for investment shall be invested in any one issuer.

B. Negotiable certificates of deposit.

1. Issued by a nationally or state-chartered bank, a savings bank, a savings and loan association or a state-licensed branch of a foreign bank.
2. Rating must be "A-1", "P-1", or the equivalent by a Nationally Recognized Statistical Ratings Organization (NRSRO). If rated by more than one NRSRO, all ratings must be in this equivalent ratings category.
3. Purchases shall not exceed fifteen percent (15%) of the cash collateral available for investment.
4. Not more than three percent (3%) of the cash collateral available for investment shall be invested in any one financial institution as specified in this paragraph.
5. Maximum maturity of one hundred eighty (180) days.

C. Bankers' acceptances.

1. Eligible for purchase by the Federal Reserve System.
2. Rating must be "A-1", "P-1", or the equivalent by a NRSRO. If rated by more than one NRSRO, all ratings must be in this equivalent ratings category.
3. Maximum maturity of two hundred seventy (270) days.
4. Purchases shall not exceed fifteen percent (15%) of the cash collateral available for investment.
5. Not more than three percent (3%) of the cash collateral available for investment shall be invested in any one commercial bank.

D. Commercial paper.

1. Rating must be "A-1", "P-1", or the equivalent by a NRSRO. If rated by more than one NRSRO, all ratings must be in this equivalent ratings category.
2. Maximum maturity of one hundred eighty (180) days for direct investments and two hundred seventy (270) days for repurchase agreement collateral.
3. Purchases shall not exceed fifteen percent (15%) of the cash collateral available for investment.
4. Not more than three percent (3%) of the cash collateral available for investment shall be invested in the commercial paper of any one issuing corporation.

E. Obligations of state and local governments.

1. Must possess the highest short-term rating from at least one nationally recognized rating agency.
2. Purchases shall not exceed fifteen percent (15%) of the cash collateral available for investment.
3. Not more than three percent (3%) of the cash collateral available for investment shall be invested in the obligations of any one issuing government.
4. Maximum maturity, as measured to the shorter of final maturity or put date, of three hundred sixty-five (365) days.

F. Repurchase agreements.

1. With counterparties that have a minimum short-term debt rating of 'A-1' or equivalent by both Moody's Investor Service and Standard & Poor's, or their parent rating in the event that the counterparty is not directly rated, and are either:

- a. diversified securities broker-dealers who are members of the Financial Industry Regulatory Authority (FINRA) having \$5 billion in assets and \$350 million in capital and subject to regulation of capital standards by any state or federal regulatory agency; or
  - b. a bank, savings bank or savings and loan association having \$5 billion in assets and \$500 million in capital and regulated by the Superintendent of Financial Institutions, or through an institution regulated by the Comptroller of the Currency, Federal Deposit Insurance Corporation, or Board of Governors of the Federal Reserve System;
2. Subject to a minimum of one hundred two percent (102%) collateralization with daily updated valuation and having underlying collateral consisting of those items and those rating and collateral maturity restrictions as specified in paragraphs A through E of this Section;
3. Pursuant to a signed Master Repurchase Agreement with counterparties that governs each transaction requiring that:
  - a. the securities are held free and clear of any lien and by an independent third party custodian or Lenders' custodian acting solely as agent for each Lender and is a Federal Reserve Bank, or a bank which is a member of the Federal Deposit Insurance Corporation and which has combined capital, surplus and undivided profits of not less than \$25 million; and
  - b. a perfected first security interest under the Uniform Commercial Code in such securities is created for the benefit of Lenders;
4. Maximum maturity of ninety seven (97) days;
5. Purchases shall not exceed seventy-five percent (75%) of the cash collateral available for investment;
6. Not more than ten percent (10%) of the cash collateral available for investment shall be invested with any one counterparty;
7. Repurchase agreements with collateral as specified in paragraphs B through E of this Section, shall be limited to five percent (5%) of the cash collateral available for investment for each collateral type; and
8. May be conducted on a tri-party basis.

G. For purposes of late day cash sweep, units of The NTGI Collective Short Term Investment Fund (“STIF”). The fund is governed by the Fund Declaration/ Investment Guidelines established by Northern Trust Investments, N.A. as trustee.

H. The interest rate on variable rate or floating rate securities must reference one of the following indices: LIBOR, Fed Funds, Treasury Bills, or Commercial Paper. The interest rate must also reset no less frequently than quarterly. Variable rate municipal obligations may reset off the SIFMA index.

### **III. Ineligible Investments:**

The Agent is not authorized to invest in the following:

1. Obligations issued by or guaranteed by the lending agent or any related party, except for NTGI Collective STIF;
2. 144A Securities (17 CFR §230.144A); and
3. Any structured investment vehicles (SIVs).

### **IV. Portfolio Maturity:**

The dollar-weighted average maturity of cash collateral investments shall not exceed ninety (90) days. The average maturity of variable rate instruments will be calculated to the next interest rate reset date. The Cash Collateral Account’s minimum overnight (next business day) liquidity level shall not be less than twenty percent (20%).

### **V. Compliance**

Agent shall follow these guidelines explicitly. If at any time the Cash Collateral Account after time of purchase falls outside these guidelines (e.g., a credit rating downgrade), Agent shall notify Lenders in writing as soon as reasonably possible. Agent shall also notify the Chief Investment Officer or the Chief Finance Officer of Lenders by telephone who shall determine if immediate action is necessary to bring the Cash Collateral Account into compliance.

## ***Operation of the Cash Collateral Account***

### **I. Income**

Income earned from the investment of cash Collateral shall be distributed to Lenders on a monthly basis. Income shall be net of (i) expenses, including but not limited to, transaction accounting and reporting expenses, auditing fees, brokerage fees and other commissions, and any miscellaneous expenses, (ii) any applicable withholding of tax, (iii) loan rebate fees paid or accrued to the borrowers, and (iv) any adjustments to provide for regular returns.

If total rebates payable exceed total revenues with respect to any loan or loans of a Lender, the net shortfall shall be allocated between such Lender and the Agent in the same proportions as positive securities lending revenues. Any amounts thereby payable by a Lender shall be the personal obligation of that Lender and shall be due and payable upon each Lender's receipt of Agent's invoice for such amounts. Agent may withhold (and each Lender is deemed to grant to Agent a lien upon) future loan revenues, and any other property of the Lender then or thereafter in the possession of Agent, to secure the payment of such obligation. Notwithstanding the foregoing, however, all other Collateral losses shall not be shared between the Lender and the Agent to any extent but shall be allocated as provided in the Agreement or these guidelines.

Incidental expenses, (e.g., negative float due to payment advances) incurred in the administration of the Cash Collateral Account are recovered against incidental receipts, (e.g., positive float from pending balances) similarly arising and any remaining balance is added to the lending revenues for the benefit of all participating lenders. Net realized short-term capital gains or losses (if any) will be distributed at least annually.

## **II. Net Asset Value**

The Cash Collateral Account will value investments at acquisition cost as adjusted for amortization of premium or accretion of discount in order to maintain a net asset value of One Dollar (\$1.00) per unit.

The Cash Collateral Account intends to maintain a constant net asset value within minimum tolerances established by Agent's senior management. There is no guarantee, however, that the Cash Collateral Account will be able to attain that objective. The fund is not registered under the Investment Company Act of 1940 as a money market fund, is not subject to regulation by the Securities and Exchange Commission and does not comply with federal regulations governing registered money market mutual funds.

In no event shall Agent be personally liable to restore any loss within the Cash Collateral Account, unless the loss was directly caused by the negligence or intentional misconduct of Agent.

## **III. Trading Policy**

Although the Cash Collateral Account will generally not engage in short-term trading, the fund may dispose of any portfolio security prior to its maturity if, on the basis of a revised credit evaluation of the issuer or other considerations, Agent believes such disposition is advisable. Subsequent to its purchase, a portfolio security or issuer thereof may be assigned a lower rating or cease to be rated. Such an event would not necessarily require the disposition of the security, if the continued holding of the security is determined to be in the best interest of the Lenders of the Cash Collateral Account.

#### **IV. Effecting Changes**

Agent shall effect any change to the Cash Collateral Account guidelines, as promptly as possible after Agent's receipt of a properly executed Amendment to the Cash Collateral Account guidelines, giving due regard to operational requirements. Lenders may change the guidelines of the Cash Collateral Account no more than two times in any calendar year by signing a new Amendment to the Cash Collateral Account guidelines and returning it to Agent.

**EXHIBIT B**  
**TO SECURITIES LENDING AUTHORIZATION AGREEMENT**  
**(“Agreement”)**  
**PART 2**

**NON-CASH COLLATERAL SCHEDULE**

**OTRS Non-Cash Collateral Account**

**Collateralization Levels**

Initial Collateral levels for all Loans will not be less than one hundred two percent (102%) of the Market Value of the Borrowed Securities, or not less than one hundred five percent (105%) if the Borrowed Securities and the Collateral are denominated in different currencies. Marking to market is performed every business day subject to de minimis rules of change in value, and the Borrower is required to deliver additional Collateral when necessary so that the total Collateral held by Agent for all Loans to the Borrower of all Participating Lenders will at least equal the Market Value of all the Borrowed Securities of all Participating Lenders loaned to the Borrower.

**Collateral Guidelines**

Listed below are the non-cash Collateral guidelines specifying eligible Collateral.

Agent will make use of the market standard settlement methods for non-cash collateral, including the use of a tri-party custodian as approved by Agent’s appropriate risk committee. Settlement through a tri-party custodian may result in cash collateral being held on deposit at the tri-party custodian.

Capitalized terms used in this Exhibit B and not defined shall have the meanings given to them in the Agreement.

**I. Eligible Instruments**

Non-cash eligible instruments may consist of the following:

Obligations issued or guaranteed by the United States Government, its agencies and instrumentalities.

**II. Diversification**

Obligations issued or guaranteed by the U.S. Government, or its agencies and instrumentalities, may be accepted without limit.

**Investment Policy Exception Review  
May 2015**

Manager	Expiration	IPS Section	Exception	Reporting Required
Hoisington	12/31/2016	VII:E:1	Increase maximum portfolio concentration in cash and cash equivalents from 5% to 100%	Quarterly reporting illustrating the contribution to total return
Wellington	12/31/2016	VII:D.5	Increase the maximum portfolio exposure in Japan from 35% to 40%	When the portfolio exposure in Japan exceeds 35%, provide quarterly reporting illustrating the contribution to total return
Lord Abbett	8/31/2017	VII: G.6	Increase the maximum concentration in developing or emerging markets issuers as determined by MSCI to 15%	Attribution from the EM allocation reported monthly as a component of portfolio total return
Shapiro	12/31/2017	VII:A	Selectively hold up to 15% of the portfolio in larger capitalization companies	Quarterly reporting with and without large cap holdings
Loomis Sayles <i>(High Yield)</i>	12/31/2017	VII: G.5,6	Increase the maximum portfolio concentration in emerging markets from 10% to 30%; increase the maximum portfolio concentration in non-USD from 20% to 40%; establish a 10% allocation to preferred stock in the High Yield Portfolio	Attribution from the allocation reported quarterly as a component of portfolio total return
Loomis Sayles <i>(Core Plus)</i>	4/30/2018	VII: G.5	Increase the maximum portfolio concentration in emerging markets from 10% to 15%	Attribution from the allocation reported quarterly as a component of portfolio total return



# OKLAHOMA TEACHERS RETIREMENT SYSTEM

## Proposed Fiscal Year Audit Plan (2015\* to 2018)

\* partial year – January 1, 2015 to June 30, 2015



MANAGING RISK. IMPROVING PERFORMANCE.

## Internal Audit Proposed Audit Plan

As the internal control and compliance activities progress, the entities reviewed , project timing, and estimated hours may be adjusted due to identified risks and management’s needs.

Proposed FY 2015 Audit Plan	Hours Estimate	Projected Timing												
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Client Services Division Review	---	█												
ALICE Auto-migration Process	225 – 250				█									
Employer Portal – Contribution Payments	200 - 225				█									
Total FY 2015 Estimate	425 – 475													
Travel expenses will be billed at actual cost.	\$45,900 - \$51,300													
Proposed FY 2016 Audit Plan		July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	
Accounting and Cash Control Review	250 - 300	█												
P-Card and Accounts Payable Review	100 - 125				█									
Investment Policy and Procedures Review	350 - 425						█							
Risk Assessment - Update	150 – 175										█			
Total FY 2016 Estimate	850 – 1,025													
Travel expenses will be billed at actual cost.	\$91,800 - \$110,700													

## Internal Audit Proposed Audit Plan

As the internal control and compliance activities progress, the entities reviewed , project timing, and estimated hours may be adjusted due to identified risks and management’s needs.

Prospective - Presented as potential audit plan projects only, subject to change based on risk assessment results.	Hours Estimate
<b>Proposed FY 2017 Audit Plan</b>	
Business Continuity Planning Review/Disaster Recovery	175 – 200
Member Retirement Account Reconciliation Process Review	200 – 225
Communication with Members – Client Portal	400 – 425
Follow-up/Implementation Status for Previously Completed Reviews and Recommendations	150 – 175
Total FY 2017 Estimate	925 – 1,025
Travel expenses will be billed at actual cost.	\$99,900 - \$110,700
<b>Proposed FY 2018 Audit Plan</b>	
P-Card and Accounts Payable Review	100 – 125
Retirement Benefit Payments – Process Review	450 – 475
ALICE User Access Review – Segregation of Duties Review	200 – 225
Follow-up/Implementation Status for Previously Completed Reviews and Recommendations	150 – 175
Total FY 2018 Estimate	875 – 975
Travel expenses will be billed at actual cost.	\$97,200 - \$108,000

**TEACHERS' RETIREMENT SYSTEM OF OKLAHOMA**  
**ACTUARIAL EXPERIENCE STUDY**  
**AS OF JUNE 30, 2014**

May 13, 2015

Board of Trustees  
Teachers' Retirement System of Oklahoma  
Oliver Hodge Education Building  
2500 N. Lincoln Boulevard, 5<sup>th</sup> Floor  
Oklahoma City, Oklahoma 73105

**Subject: Results of 2014 Actuarial Experience Investigation Study**

Dear Members of the Board:

We are pleased to present our report of the 2014 Actuarial Experience Investigation Study for the Teachers' Retirement System of Oklahoma (OTRS). It includes a discussion of recent experience, it presents our recommendations for new actuarial assumptions and methods, and it provides information about the actuarial impact of these recommendations on the liabilities and other key actuarial measures.

With the Board's approval of the recommendations in this report, we believe the actuarial condition of the System will be more accurately portrayed.

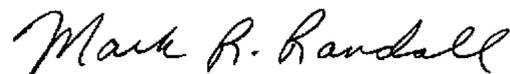
The study was conducted in accordance with generally accepted actuarial principles and practices, and with all of the Actuarial Standards of Practice issued by the Actuarial Standards Board. The undersigned both meet all of the Qualification Standards of the American Academy of Actuaries and both are experienced in performing actuarial valuations for large public retirement systems.

We wish to thank the Executive Director and staff for their assistance in this project.

Sincerely,



R. Ryan Falls, FSA, EA, MAAA  
Senior Consultant



Mark R. Randall, FCA, MAAA, EA  
Chief Executive Officer

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**SECTION I**  
INTRODUCTION

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## Introduction

In determining liabilities, contribution rates and funding periods for retirement plans, actuaries must make assumptions about the future. Among the assumptions that must be made are:

- Retirement rates
- Mortality rates
- Termination rates
- Disability rates
- Investment return rate
- Salary increase rates
- Inflation rate

For some of these assumptions, such as the mortality rates, past experience provides important evidence about the future. For other assumptions, such as the investment return rate, the link between past and future results is much less relevant. In either case, though, actuaries should review their assumptions periodically and determine whether these assumptions are consistent with actual past experience and with anticipated future experience.

In conducting experience studies, actuaries generally use data over a period of several years. This is necessary in order to gather enough data so that the results are statistically significant. In addition, if the study period is too short, the impact of the current economic conditions may lead to misleading results. It is known, for example, that the health of the general economy can impact salary increase rates and withdrawal rates. Using results gathered during a short-term boom or bust will not be representative of the long-term trends in these assumptions. Also, the adoption of legislation, such as plan improvements or changes in salary schedules, will sometimes cause a short-term distortion in the experience. For example, if an early retirement window was opened during the study period, we would usually see a short-term spike in the number of retirements followed by a dearth of retirements for the following two, or four, years. Using a longer period prevents giving too much weight to such short-term effects. On the other hand, using a much longer period increases the difficulty of identifying changes in behavior that may be occurring, such as mortality improvement or a change in the ages at which members retire. In our view, using a five-year period is reasonable.

In an experience study, we first determine the number of deaths, retirements, etc. that occurred during the period. Then we determine the number expected to occur, based on the current actuarial assumptions. The number "expected" is determined by multiplying the probability of the occurrence at the given age, by the "exposures" at that same age. For example, let's look at a rate of retirement of 15% at age 55. The number of exposures can only be those members who are age 55 and eligible for retirement at that time. Thus they are considered "exposed" to that assumption. Finally we calculate the A/E ratio, where "A" is the actual number (of retirements, for example) and "E" is the expected number. If the current assumptions were "perfect", the A/E ratio would be 100%. When it varies much from this figure, it is a sign that new assumptions may be needed. (However, in some cases we prefer to set our assumptions to produce an A/E ratio a little above or below 100%, in order to introduce some conservatism.) Of course we not

only look at the assumptions as a whole, but we also review how well they fit the actual results by sex, by age, and by service.

Finally, if the data leads the actuary to conclude that new assumptions are needed, the actuary "graduates" or smoothes the results since the raw results can be quite uneven from age to age or from service year to service year.

Please bear in mind that, while the recommended assumption set represents our best estimate, there are other reasonable assumptions sets that could be supported. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rates and funding periods.

## **ORGANIZATION OF REPORT**

Section II contains our findings and recommendations for each actuarial assumption. The impact of adopting our recommendations on liabilities and contribution rates is shown in Section III. Section IV summarizes the recommended changes. Section V provides a summary of the entire set of proposed assumptions and methods. Finally, Section VI presents detailed summaries of the data and comparisons of the A/E ratios.

## **SECTION VI EXHIBITS**

The exhibits in Section VI should generally be self-explanatory. For example, on page 54, we show the exhibit analyzing the male termination rates. The second column shows the total number of males who terminated during the study period. This excludes members who died, became disabled or retired. Column (3), labeled "Total Count" shows the total exposures. This is the number of males who could have terminated during any of the years. On this exhibit, the exposures exclude anyone eligible for retirement. A member is counted in each year he could have terminated, so the total shown is the total exposures for the five year period. Column (4) shows the probability of termination based on the raw data. That is, it is the result of dividing the actual number of terminations (col. 2) by the number exposed (col. 3). Column (5) shows the current termination rate and column (6) shows the new recommended termination rate. Columns (7) and (8) show the expected numbers of terminations based on the current and proposed termination assumptions. Columns (9) and (10) show the Actual-to-Expected ratios under the current and proposed termination assumptions.

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## **SECTION II**

### **ANALYSIS OF EXPERIENCE AND RECOMMENDATIONS**

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## Analysis of Experience and Recommendations

We will begin by discussing the economic assumptions: inflation, the investment return rate, and the salary increase assumption. Next we will discuss the demographic assumptions: mortality, disability, termination and retirement. Finally we will discuss the actuarial methods used.

### **ECONOMIC ASSUMPTIONS**

Actuarial Standards of Practice (ASOP) No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*, provides guidance to actuaries on giving advice on selecting economic assumptions for measuring obligations for defined benefit plans. In September 2013, the Actuarial Standard Board adopted changes to ASOP No. 27 which significantly reduced the reasonable range for an acceptable investment return assumption. The effective date for this new standard is for measurement dates on or after September 30, 2014. Generally speaking, the recently adopted version indicates that economic assumptions should be based on the actuary's estimate of future experience and no longer includes the "best-estimate range" standard.

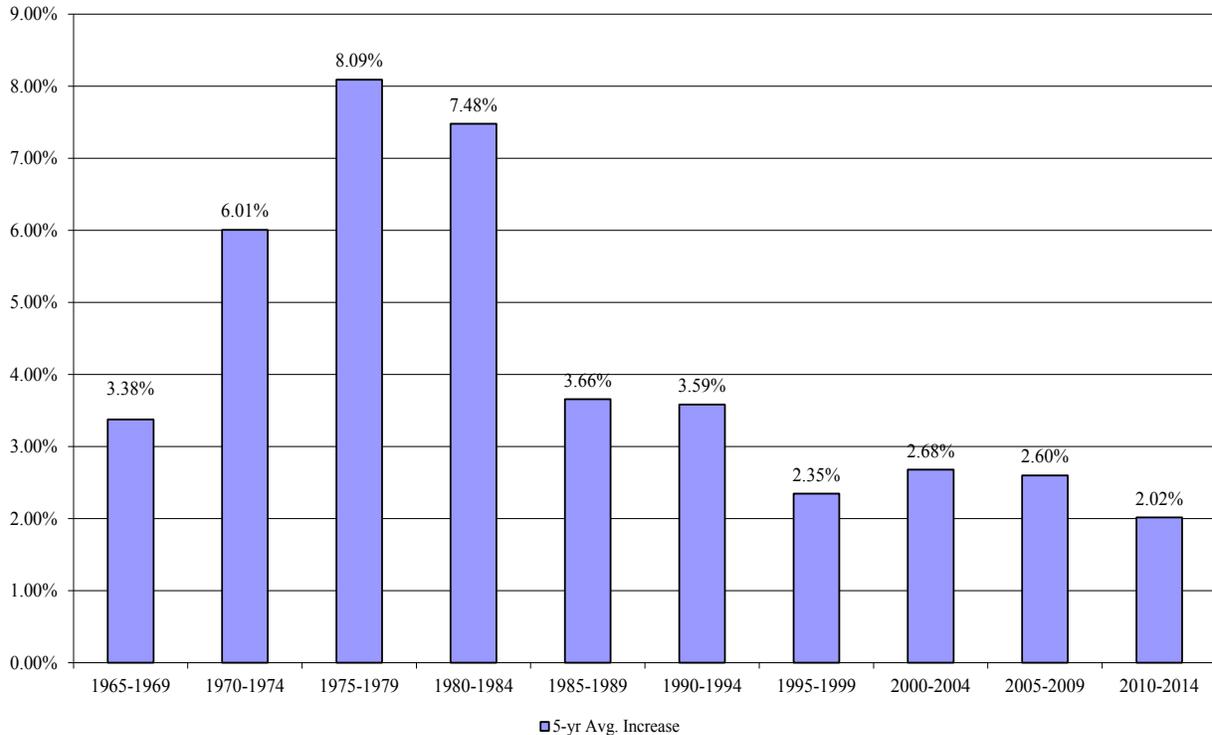
Generally, the economic assumptions are much more subjective in nature than the demographic assumptions. As no one knows what the future holds, it is necessary for the actuary to estimate possible future economic outcomes. These estimates are based on a mixture of past experience, future expectations, and professional judgment. The actuary should consider a number of factors, including the purpose and nature of the measurement, and appropriate recent and long-term historical economic data.

### **INFLATION**

By "inflation," we mean price inflation, as measured by annual increases in the Consumer Price Index (CPI). This inflation assumption underlies most of the other economic assumptions. It primarily impacts investment return and salary increases. The current annual inflation assumption for OTRS is 3.00%.

The chart on the next page shows the average annual inflation in each of the ten consecutive five-year periods over the last fifty years:

Average Annual Inflation  
 CPI-U, Five-Calendar-Year Averages



Source: Bureau of Labor Statistics, CPI-U, all items, not seasonally adjusted

The table below shows the average inflation over various periods, ending June 2014:

Periods Ending June 2014	Average Annual Increase in CPI-U
Last five (5) years	2.02%
Last ten (10) years	2.31%
Last fifteen (15) years	2.43%
Last twenty (20) years	2.41%
Last thirty (30) years	2.81%
Since 1913 (first available year)	3.19%

Source: Bureau of Labor Statistics, CPI-U, all items, not seasonally adjusted

Inflation has been relatively low over the last 20 years, yet over a period closer to 30 years inflation has averaged close to 3.00% per year or higher.

Most of the investment consulting firms, in setting their capital market assumptions, currently assume that inflation will be less than 3.00%. We examined the 2014 capital market assumption sets for eight investment consulting firms: BNY Mellon, PCA, NEPC, Mercer, Hewitt EnnisKnupp, JP Morgan, R.V. Kuhns, and Towers Watson. The average assumption for inflation was 2.50%, with a range of 2.25% to 3.25%. It should be noted that five of these investment consulting firms set their assumptions based on approximately a ten-year outlook, while

actuaries must make much longer projections. The remaining three firms set their assumptions based on a 20- or 30-year outlook.

In the Social Security Administration's 2014 Trustees Report, the Office of the Chief Actuary is projecting a long-term average annual inflation rate of 2.7% under the intermediate cost assumption. (The low cost assumption was 2.0% and the high cost assumption was 3.4%) Since 2013, the spread between the low and high cost assumptions has narrowed by 0.6% and the intermediate cost assumption decreased by 0.1%.

The Philadelphia Federal Reserve conducts a quarterly survey of the Society of Professional Forecasters. In their forecast immediately preceding the July 1, 2014 actuarial valuation, second quarter of 2014, was for inflation over the next ten years to average 2.25%. Most observers expect inflation to continue to be low as the economy works out of the recession. However, the society of Professional Forecasters are predicting inflation to average 1.90% for the calendar year 2014 and 2.10% for the 2015 calendar year, so it is not just the next two years that is depressing inflation forecasts.

Another source of information is the Public Funds Survey that is prepared on behalf of the National Association of State Retirement Administrators (NASRA) and the National Council on Teacher Retirement Systems (NCTR). This report includes responses from 126 plans, including all of the largest public funds covering state employees or teachers. The current survey, published in January 2015, shows that the median inflation rate assumed for large public retirement systems in the U.S. is 3.00%, the average inflation rate is 3.16%, and most of the retirement systems in the survey (102 of the 126) have an inflation assumption at, or above, 3.00% (the current inflation assumption for OTRS).

The current explicit inflation assumption for OTRS is 3.00%. Many economists forecast inflation rates lower than the current 3.00% assumption, but these forecasts are often for shorter periods than are necessary in preparing an actuarial valuation. Because of this, we recommend a continuation of the current assumption of 3.00%.

## **INVESTMENT AND ADMINISTRATIVE EXPENSES**

There are two primary types of expenses that are paid from the trust. First, administrative expenses are those expenses associated with running the retirement system (e.g., staff salaries, office space, actuarial fees, etc.). The other primary type of expense is investment expenses that are paid from the trust (transaction costs, investment consultants, etc.). Since the trust fund pays these expenses from plan assets, it is necessary to incorporate the expected expenses into the actuarial valuation.

There are two common approaches to incorporating these expenses into the actuarial valuation. Plan expenses may be explicitly assumed as a direct increase to the annual normal cost or implicitly assumed by developing an investment return assumption that is expected to meet the return target after paying plan expenses from the investment earnings. Our past practice has been to set the investment return assumption as the net return after payment of both investment and administrative expenses (implicit assumption for all expenses).

We believe that an implicit expense assumption for the investment expenses paid from the trust is still the most appropriate. However, we recommend an explicit assumption, in the form of a direct increase to the annual normal cost, to incorporate the administrative expenses into the actuarial valuation. There are three reasons why we recommend a change to the assumption pertaining to administrative expenses:

- There will be an increased likelihood that the investment returns will meet, or exceed, the 8.00% investment return assumption since the administrative expenses will be accounted for separately.
- The investment return reported in the actuarial valuation will better align with the returns reported by the investment staff and asset advisors. Previously, the investment return reported in the actuarial valuation was reduced by the administrative expenses incurred during the year.
- According to the new GASB standards, the investment return assumption for use in financial reporting should be based on the long-term expected rate of return on a plan's investments and should be net of investment expenses but not of administrative expenses. An explicit assumption for administrative expenses would better align the actuarial valuations for funding and financial reporting, but these assumptions do not necessarily need to be consistent.

The following chart shows the administrative expenses for the last five years expressed as a percentage of the payroll each year. Since the assumption will be explicitly assumed to increase the annual normal cost, it is most appropriate to consider the administrative expenses as a percentage of payroll.

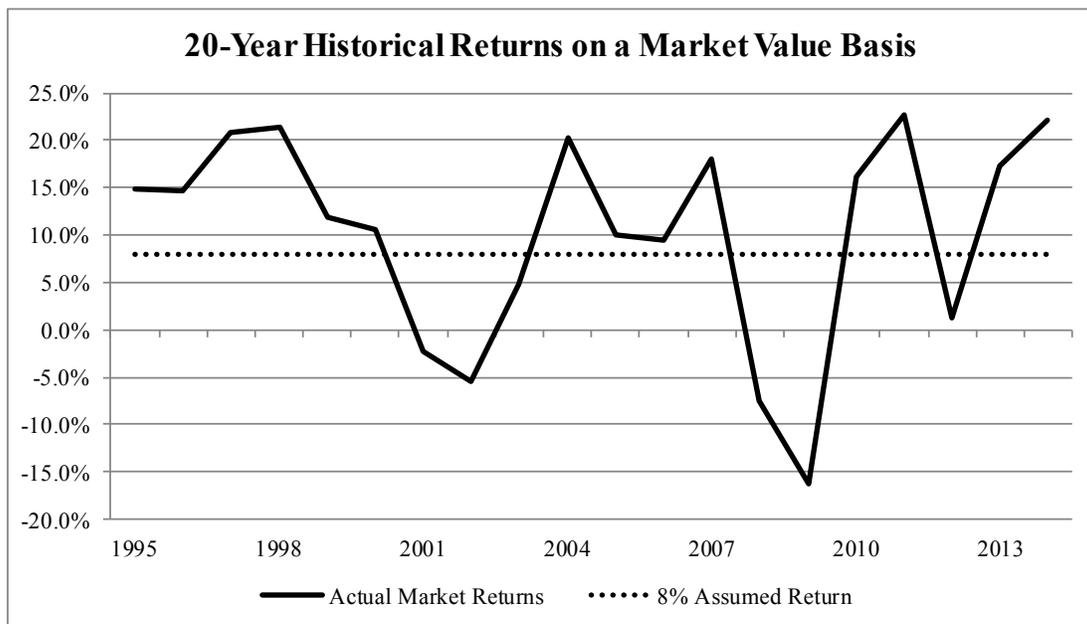
Administrative Expenses Expressed as a Percentage of Payroll	
Fiscal Year	Percentage
2014	0.10%
2013	0.10%
2012	0.11%
2011	0.12%
2010	0.12%
Average	0.11%

Based on this information, we recommend an explicit assumption for administrative expenses that will be incorporated as an increase of 0.10% of payroll to the annual normal cost rate. Further, we recommend that the current implicit assumption for investment expenses be maintained.

## INVESTMENT RETURN

Currently, OTRS assumes an investment return rate of 8.00%, net of investment and administrative expenses. This is the rate used in discounting future payments in calculating the actuarial present value of those payments. Even a small change to this assumption can produce significant changes to the liabilities and contribution rates. The 8.00% assumption is composed of a 3.00% assumed inflation rate plus a 5.00% assumed real return.

The chart below shows a 20-year year history of OTRS market returns through FY 2014 compared to the current assumption of 8.00%.



The returns in the chart above are market returns, net of investment and administrative expenses, as reported in the actuarial valuations. OTRS exceeded the expected 8.00% return assumption in 14 of the last 20 years with an average market return during this period of 9.7%, which exceeds the 8.00% assumption. Moreover, OTRS exceeded 8.00% nine of the last fifteen years for an average market return during this period of 7.4%.

However, for this assumption, past performance, even averaged over a twenty-year period, is not a reliable indicator of future performance. The actual asset allocation of the trust fund will significantly impact the overall performance, so returns achieved under a different allocation are not meaningful. More importantly, the real rates of return for many asset classes, especially equities, vary so dramatically from year to year that even a twenty-year period is not long enough to provide reasonable guidance.

We believe an appropriate approach to reviewing an investment return assumption is to determine the median expected portfolio return given the retirement plan's target allocation and a given set of capital market assumptions. Per the Target Allocation stated in the Teachers'

Retirement System of Oklahoma Investment Policy Statement, Revised January, 2015, the target asset allocation for OTRS is:

Asset Class	Target
Domestic All Cap Equity	7.0%
Domestic Large Cap Equity	10.0%
Domestic Mid Cap Equity	13.0%
Domestic Small Cap Equity	10.0%
International Large Cap Equity	11.5%
International Small Cap Equity	6.0%
Core Plus Fixed Income	17.5%
High-Yield Fixed Income	6.0%
Private Equity	5.0%
Real Estate	7.0%
Master Limited Partnerships	7.0%
Cash and Equivalents	0.0%
<b>Total</b>	<b>100.0%</b>

Because GRS does not develop or maintain its own capital market assumptions, we reviewed assumptions developed and published by the following investment consulting firms:

- JP Morgan
- NEPC
- PCA
- Mercer
- RV Kuhns
- Towers Watson
- BNY Mellon
- Hewitt EnnisKnupp

These investment consulting firms issue reports that describe their capital market assumptions, which include their estimates of expected returns, volatility, and correlations. While these assumptions are developed based upon historical analysis, many of these firms also incorporate forward looking adjustments to better reflect near-term expectations.

Given the current strategic target asset allocation set for OTRS and the investment firms' capital market assumptions for 2014, the development of the average nominal return, net of investment expenses paid from the trust, is provided in the table on the next page:

Investment Consultant	Investment Consultant Expected Nominal Return	Investment Consultant Inflation Assumption	Expected Real Return (2)-(3)	Actuary Inflation Assumption	Expected Nominal Return (4)+(5)	Standard Deviation of Expected Return (1-Year)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	7.09%	3.00%	4.09%	3.00%	7.09%	14.00%
2	7.31%	2.75%	4.56%	3.00%	7.56%	13.70%
3	7.10%	2.50%	4.60%	3.00%	7.60%	14.10%
4	7.26%	2.22%	5.04%	3.00%	8.04%	12.40%
5	7.80%	2.20%	5.60%	3.00%	8.60%	14.10%
6	7.86%	2.25%	5.61%	3.00%	8.61%	14.30%
7	7.94%	2.26%	5.68%	3.00%	8.68%	11.80%
8	8.33%	2.50%	5.83%	3.00%	8.83%	14.10%
<b>Average</b>	<b>7.59%</b>	<b>2.46%</b>	<b>5.13%</b>	<b>3.00%</b>	<b>8.13%</b>	<b>13.56%</b>

We determined, for each firm, the expected nominal return rate based on OTRS' target allocation and then subtracted that investment consulting firm's expected inflation to arrive at their expected real return in column (4). Then we added back OTRS' current 3.00% inflation to arrive at an expected nominal return net of investment expenses. As the table shows, the resulting average arithmetic one-year return of the eight firms is 8.13%.

The forward-looking capital market assumptions and return forecasts developed by investment consulting firms already reflect expected investment expenses. Their return estimates for core investments (i.e., fixed income, equities, and real estate) are generally based on anticipated returns produced by passive index funds that are net of investment related fees. Investment return expectations for the alternative asset class such as private equity and hedge funds are also net of investment expenses. Therefore, we did not make any additional adjustments to account for investment related expenses. This analysis also assumes that investment managers will generate enough alpha to at least cover the cost of the active management. No additional alpha for active management has been considered.

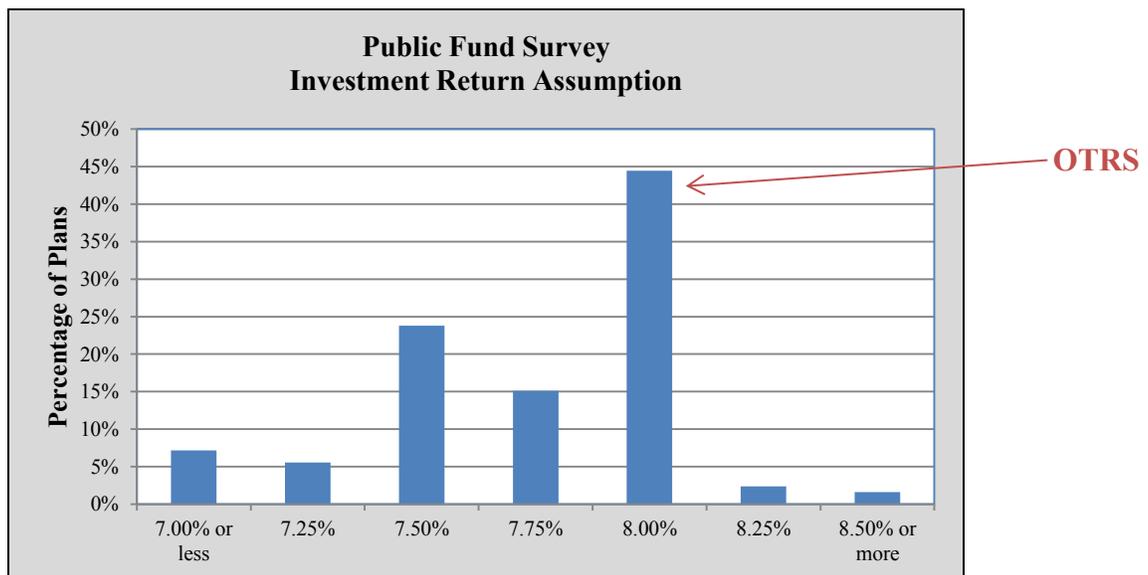
In addition to examining the expected one-year return, it is important to review anticipated volatility of the investment portfolio and understand the range of long-term net returns that could be expected to be produced by the investment portfolio. Therefore, the following table provides the 25<sup>th</sup>, 50<sup>th</sup>, and 75<sup>th</sup> percentiles of the 20-year geometric average of the expected nominal return, net of investment expenses paid from the trust, as well as the probability of exceeding the current 8.00% assumption.

Investment Consultant	Distribution of 20-Year Average Geometric Net Nominal Return			Probability of exceeding 8.00% *
	25th	50th	75th	
(1)	(2)	(3)	(4)	(5)
1	4.09%	6.16%	8.27%	27.8%
2	4.66%	6.68%	8.74%	33.2%
3	4.59%	6.67%	8.79%	33.5%
4	5.48%	7.31%	9.18%	40.2%
5	5.59%	7.67%	9.79%	45.7%
6	5.55%	7.65%	9.80%	45.6%
7	6.27%	8.02%	9.80%	50.3%
8	5.83%	7.91%	10.02%	48.8%
<b>Average</b>	<b>5.26%</b>	<b>7.26%</b>	<b>9.30%</b>	<b>40.6%</b>

\*Plan's current return assumption net of investment expenses.

The table above documents that the average probability of exceeding the current 8.00% investment return assumption over a 20-year period is 40.6%.

As a point of reference, the Public Funds Survey published in January 2015 of 126 large public retirement systems reflects the nominal assumption in use, or announced for use, as of the date of the survey. The average investment return assumption for responding systems was 7.72%. The table below provides the distribution of the different investment return assumptions used by other large public retirement systems.



While we do not recommend the Board select an assumption based on this information, it is still informative to see OTRS' assumption in relation to its peers. The table shows that the 8.00% assumption is slightly above the median return of 7.75%. You should be aware that several large

plans have recently reduced their assumption, and several others are in the middle of a review of this assumption.

Based on this analysis, we believe that the current 8.00% investment return assumption satisfies the best-estimate assumption requirement under ASOP No. 27 as revised and adopted in September 2013.

## **SALARY INCREASE RATES**

In order to project future benefits, the actuary must project future salary increases. Salaries may increase for a variety of reasons:

- Across-the-board increases provided by the state for all teachers
- Across-the-board increases for all teachers in a district
- Increases to a statewide minimum teacher salary schedule
- Additional pay for additional duties, such as teaching in a summer program
- Step or service-related increases
- Increases for acquisition of advanced degrees or specialized training
- Promotions
- Merit increases, if available
- Bonuses, if available

Our salary increase assumption is meant to reflect all of these types of increases, since all of these affect the salaries used in benefit calculations and upon which contributions are made.

The salary increase assumption is generally broken down into two components, consisting of wage inflation (e.g., across-the-board increases, increases in minimum salary schedule, etc.) and an additional component to reflect components similar to merit increases, promotions and other increases that are more correlated with service. Most actuaries recommend salary increase assumptions that include an element that depends on the member's age or service, especially for large, public retirement systems. It is typical to assume larger pay increases for younger or shorter-service employees. Experience shows salaries are more closely correlated to service than age, since most teacher salary schedules are based on service.

We will first analyze the component of the salary increase assumption related to wage inflation.

### **Real Wage Growth**

The actuary should not look at the overall increases in payroll in setting this assumption, because payroll can grow at a rate different from the average pay increase for individual members. There are two reasons for this. First, when older, longer-service members terminate, retire or die, they are generally replaced with new teachers being compensated with a lower salary. Because of this, in most populations that are not growing in size, the growth in total payroll will be smaller than the average pay increase for members. Second, payroll can change due to an increase or

decrease in the size of the group. Therefore, to analyze salary increases, we examine the actual increases for individuals.

We analyzed the salary increases based on the change in the member's reported pay from one year to the next. That is, we looked at each member who appeared as an active member in two consecutive valuations—these are called continuing members—and measured their salary increases.

Salary increases for teachers can vary significantly from year to year. When the employer's tax revenues stall or increase slowly, salary increases can be small or nonexistent. During more economically favorable times, salary increases can be larger. Our experience across many teacher systems also shows many occasions in which salary increases will be low for a period of several years followed by a significant increase in one year. Therefore, for this assumption in particular, we prefer to use data over a longer period in establishing our assumptions. We used a ten-year period to analyze this assumption.

Over the last ten years, the average pay increases for continuing members were as follows:

Period	Increase
FY 2004 to FY 2005	3.96%
FY 2005 to FY 2006	4.42%
FY 2006 to FY 2007	8.13%
FY 2007 to FY 2008	5.53%
FY 2008 to FY 2009	2.39%
FY 2009 to FY 2010	2.28%
FY 2010 to FY 2011	0.96%
FY 2011 to FY 2012	7.02%
FY 2012 to FY 2013	0.31%
FY 2013 to FY 2014	3.22%
Average	3.82%

The average annual increase was 3.82%, with substantially larger increases provided in FY 2007 and FY 2012. Based on the current assumptions, the expected increase in salary was 4.85%.

While the actual average increase for the last ten years of 3.82% appears considerably lower than the expected increase of 4.85%, this comparison does not consider the actual rate of inflation over the same period. The actual rate of inflation over the past ten years was 2.31% while the valuation assumption has been 3.00%. The chart below illustrates the difference in the salary increases over the past ten years after adjusting for the difference in actual inflation over the same period:

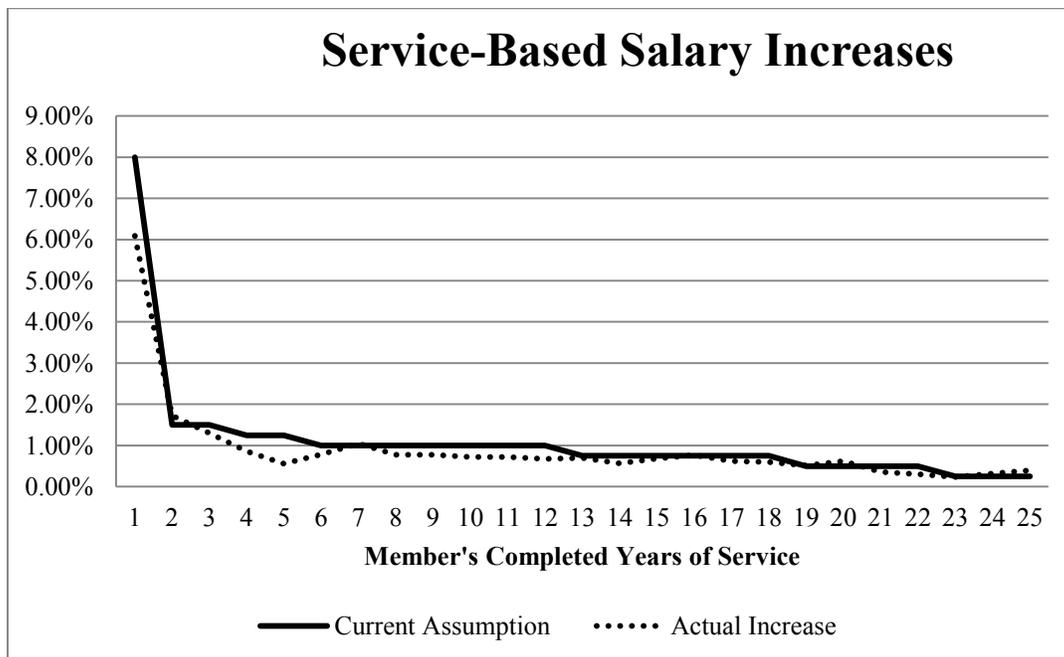
Measure Basis	Total Increase	Inflation	Increase in Real Wage
Experience 2004-2014	3.82%	2.31%	1.51%
Current Assumption	4.85%	3.00%	1.85%

Once the total salary increase is adjusted for the difference in actual inflation, the real wage increases were approximately 34 basis points less than assumed. During the second half of this period, the economy has been trying to recover from the “Great Recession” that ended in 2009 and the slow pace of recovery has dampened wage growth across the country. However, we believe that the experience of the past 10 years provides a basis to recommend a decrease in the wage growth component of 0.25%. The following analysis will determine whether any adjustments to the service-based increases may be necessary.

### Service-Based Salary Increases

After considering the salary increases related to overall wage inflation (i.e., across-the-board increases, increases in minimum salary schedule, etc.), the next step is to study the components that may change over the course of a member’s career based on their service (i.e., merit increases, promotions, etc.).

The following chart compares the actual salary increases in excess of the observed wage inflation over the past ten years to the current valuation assumption.



The current service-based increases continue to provide a reasonable fit to the actual experience, so we are not recommending a change to the service-based portion of the salary increase assumption.

Additional results of the analysis regarding this assumption are provided in Section VI on page 60.

## **NEW HIRE SALARY INCREASES**

In order to prepare our long-range projections, we also need to set an assumption for the rate of increase in the average starting pay for each year's group of new members. We currently assume that the average starting pay for each year's group of new members increases at 4.00% per year, in line with assumed wage inflation. We are recommending decreasing this assumption by 25 basis points in line with the decrease in the assumed wage inflation.

## **PAYROLL GROWTH RATE**

The salary increase rates discussed above are assumptions applied to individuals. They are used in projecting future benefits. We also use a separate payroll growth assumption, currently 3.50%, in determining the charge needed to amortize the unfunded actuarial accrued liability. The amortization payments are calculated to be a level percentage of payroll, so as payroll increases over time, these charges do as well. The amortization percentage is dependent on the rate at which payroll is assumed to increase.

Payroll has grown at 1.00% over the last five years, 2.82% over the last ten years, and 3.06% over the last 20 years. Part of this increase, though, comes from the growth in the number of active members. If we adjust to remove the effect of the increase in membership, payroll growth has averaged 0.96% over the last five years, 1.88% over the last ten years, and 2.24% since 1994 (last 20 years). Finally, the primary component of payroll growth is inflation (as with all economic assumptions). If we adjust the actual payroll growth rate experience for the difference between actual and assumed inflation, the normalized experience now becomes 1.95%, 2.59%, and 2.84% respectively.

Note that the payroll growth assumption is less than the lowest recommended salary increase rate (3.75%). This is because of the effect of teachers with higher salaries retiring or terminating and being replaced by new teachers starting with a lower salary.

Based on historical experience, we recommend that the current assumption of 3.50% be lowered to an assumed payroll growth rate of 3.25% per year.

## **DEMOGRAPHIC ASSUMPTIONS**

As previously mentioned, actuaries are guided by the Actuarial Standards of Practice (ASOP) adopted by the Actuarial Standards Board (ASB). One of these standards is ASOP No. 35, *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations*. This standard provides guidance to actuaries giving advice on selecting noneconomic assumptions for measuring obligations under defined benefit plans. We believe the recommended assumptions in this report were developed in compliance with this standard.

## POST-RETIREMENT MORTALITY RATES

OTRS' liability depends in part on how long retirees live. If members live longer, benefits will be paid for a longer period of time, and the liability will be larger. Additionally, teachers have longer life expectancies compared to the general population. This experience is also true for the retired teachers and educators in OTRS, and it will be important to reflect this in the mortality assumption used in the valuation.

The mortality table currently being used for non-disabled retirees and for beneficiaries receiving benefits is the RP-2000 combined mortality table projected forward 16 years (i.e. to 2016) using Scale AA. The base rates from these tables are multiplied by 90% for males and 80% for females. To analyze the data, we begin by determining the expected number of deaths in each year at each age for males and females. Then we compare the actual number to the expected number. The ratio of the actual deaths to the expected deaths—the A/E ratio—then tells us whether the assumptions are reasonable.

There were 2,218 deaths among male retirees and 3,869 deaths among female retirees during the last five years. (These figures exclude deaths among beneficiaries and disabled retirees.) Based on the current mortality assumption, we expected 2,058 and 3,304 deaths respectively. This produced A/E ratios of 108% for males and 117% for females. Five years ago, the A/E ratios were 115% for males and 120% for females based on the same mortality assumption. This experience indicates there is continued improvement in life expectancy for the retired members, especially for males. Although the A/E ratio for all retirees was 114%, it was only 103% for the core retiree ages, ages 60 to 84, and therefore it is necessary to update the assumption to reflect continuing mortality improvement (longer life expectancies) in the future.

### Static versus Generational Mortality Improvements

The current assumption applies mortality improvements to the published RP-2000 mortality table for a fixed number of years (e.g., 16 years) and the resulting set of mortality rates is used for every future year in the valuation projection. This approach is referred to as a “static” mortality projection and is a commonly accepted approach to setting mortality assumptions. Since this approach does not assume continuing mortality improvement beyond the fixed number of years at the valuation date, the assumption must include a margin of conservatism to allow for future improvements in mortality rates. As long as the mortality of OTRS annuitants continues to improve, this margin will periodically need to be reestablished.

The other commonly accepted approach to incorporating mortality improvement into an actuarial valuation of a pension plan is referred to as “generational” mortality projection. A generational mortality projection does not build in a margin up front, but the mortality is assumed to improve every future year in the valuation projection. Since this form of mortality projection assumes continual mortality improvements, there should be no need to periodically reestablish margin for future mortality improvements in the mortality assumption.

Improvement in mortality continues to be a reality and this trend can be seen throughout the past experience studies for OTRS. In an effort to better anticipate these continued mortality

improvements, our recommended assumption for post-retirement mortality will include “generational” mortality improvements going forward.

### **Proposed Assumption**

Since the “generational” mortality assumption will anticipate the future mortality improvements, there is no longer a need to establish a mortality assumption with margin to allow for future improvements in mortality rates. As a result, our goal was to find mortality tables with the best fit for the mortality experience of OTRS over the past five years (i.e., A/E ratios close to 100%).

For males, we recommend the RP-2000 Combined Healthy for males with White Collar Adjustments. This assumption produces an A/E ratio of 105% over the experience period. Further, the mortality rates are projected on a fully generational basis using Scale BB from the table’s base year of 2000.

GRS works with teacher retirement systems across the country and, in particular, many teacher retirement systems in the Southwest region of the United States. We have generally found that that the published mortality tables do not provide a good match to the mortality experience of retired female teachers, especially at the core ages between 60 and 84. As a result, GRS has developed a specialized mortality table for retired female teachers in the Southwest region. Based on the experience of OTRS over the past five years, this specialized table provides a superior fit to the mortality experience of OTRS.

For females, we recommend the GRS Southwest Region Teacher Mortality Table with the base rates scaled to 105%. This assumption produces an A/E ratio of 100% over the experience period. Further, the mortality rates are projected on a fully generational basis using Scale BB from the table’s base year of 2012.

Please refer to the exhibits on pages 46 and 47 for additional information regarding this assumption.

### **DISABLED MORTALITY RATES**

This assumption has a much smaller impact on the actuarial valuation as there are relatively few disability occurrences and disability benefits comprise a small portion of the total benefits provided by the retirement system. There were 97 deaths among the male disabled retirees and 202 deaths among female disabled retirees during the last five years. Based on the current mortality assumptions, we expected 83 and 169 deaths for males and females respectively. This produces A/E ratios of 116% for males and 120% for females compared to 112% for males and 130% for females in the prior experience study. There is still a sufficient margin for the possibility of future mortality improvement within this group, so we are not recommending any changes at this time. Please refer to the information on pages 48 and 49 for additional information.

## ACTIVE MORTALITY RATES

This is another minor assumption with a relatively small impact on the actuarial valuation as the probability of death for a member during their working career is low. In fact, mortality across employee groups is generally lower than the mortality rates in the post-retirement mortality tables. The results of the analysis are shown in Section VI on pages 50 and 51. As you can see, there were 555 actual deaths (227 males and 328 females), while there were 462 expected deaths (179 males and 283 females). This produced A/E ratios of 127% and 116% for males and females respectively. In total, the A/E ratio is 120%. Since there is not currently an explicit assumption for future mortality improvement for this group, an A/E ratio of greater than 100% is desirable to provide a margin for future mortality improvement. The current assumption provides sufficient margin for future improvement and we are not recommending any changes to the active mortality assumption at this time.

## DISABILITY RATES

Disability is a minor assumption with a relatively small impact on the actuarial valuation as the occurrence of disability is significantly less frequent than termination and retirement rates. Even though the occurrence is somewhat infrequent, the value of the benefit for the disabled member can be significant.

The results of the analysis are shown in Section VI, on pages 52 and 53. There were 397 new disabled retirees during the period, while we expected 562. The A/E ratios were 78% and 68% for males and females respectively. Because the A/E ratios are lower than we'd prefer, we recommend modifying the current assumption at certain ages to better fit the experience. After these changes, the A/E ratios increase to 86% for males and 80% for females. We want to end up with A/E ratios below 100% to be conservative and to account for members who may have become disabled late in the period but who were not approved for disability by the end of the period.

## TERMINATION RATES

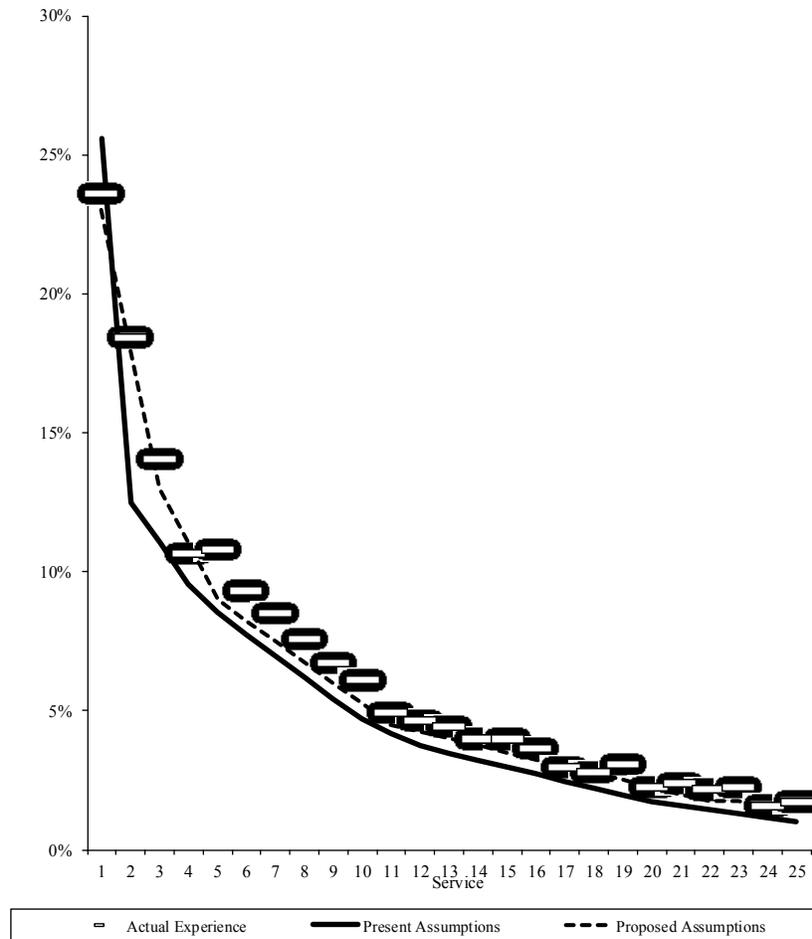
Termination rates reflect members who leave for any reason other than death, disability, or service retirement. They apply whether the termination is voluntary or involuntary, and whether the member takes a refund or keeps their account balance on deposit. The current termination rates reflect the member's gender and service.

An analysis of the results is shown in Section VI on pages 54 and 55. In the aggregate, the current assumptions produce an A/E ratio of 113% and 130% for males and females respectively. For this assumption, A/E ratios over 100% are conservative. However, the A/E ratio based on the current assumption builds in too much conservatism, especially for females.

Ideally, the A/E ratio should be slightly above 100%. We are recommending increases in the assumed termination rates in order to bring the A/E ratios closer to 100%. Based on an analysis of the male and female rates at each service level, we have determined that the rates of

termination for males and females are very similar. As a result, we have proposed a set of termination rates that are the same for males and females. The proposed assumptions produce A/E ratios of 110% and 107% for males and females respectively (108% in total), and produce better matches to experience by service, as shown in the following chart.

**Combined Rate of Termination for Males and Females**



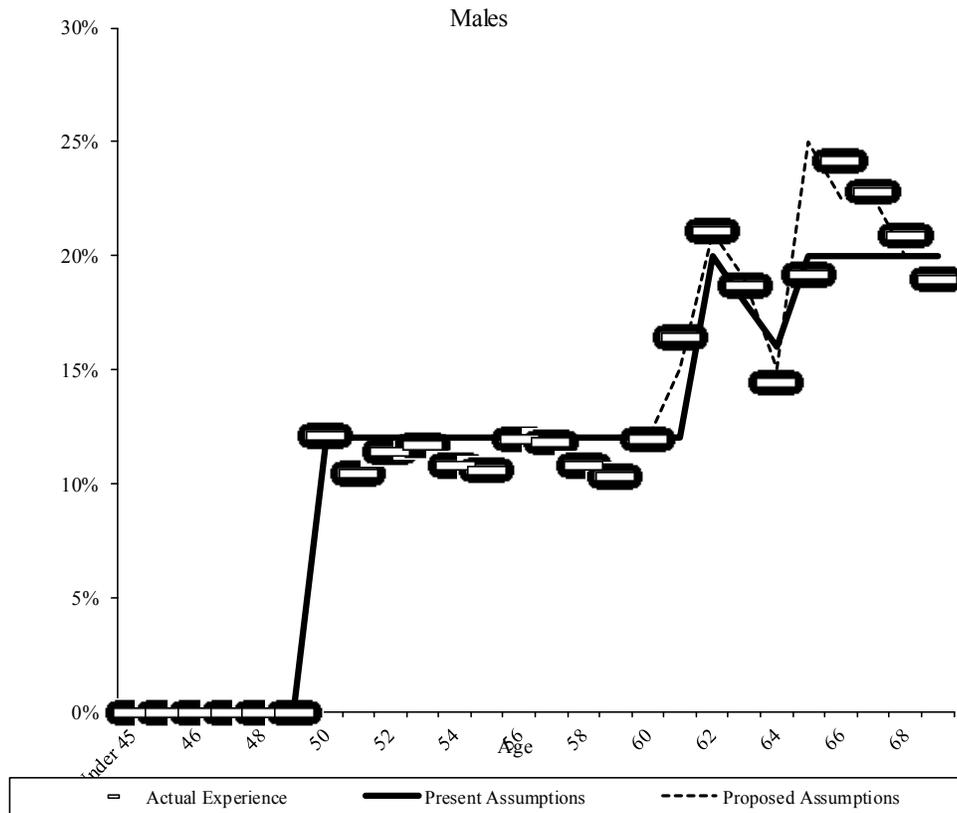
**RETIREMENT RATES**

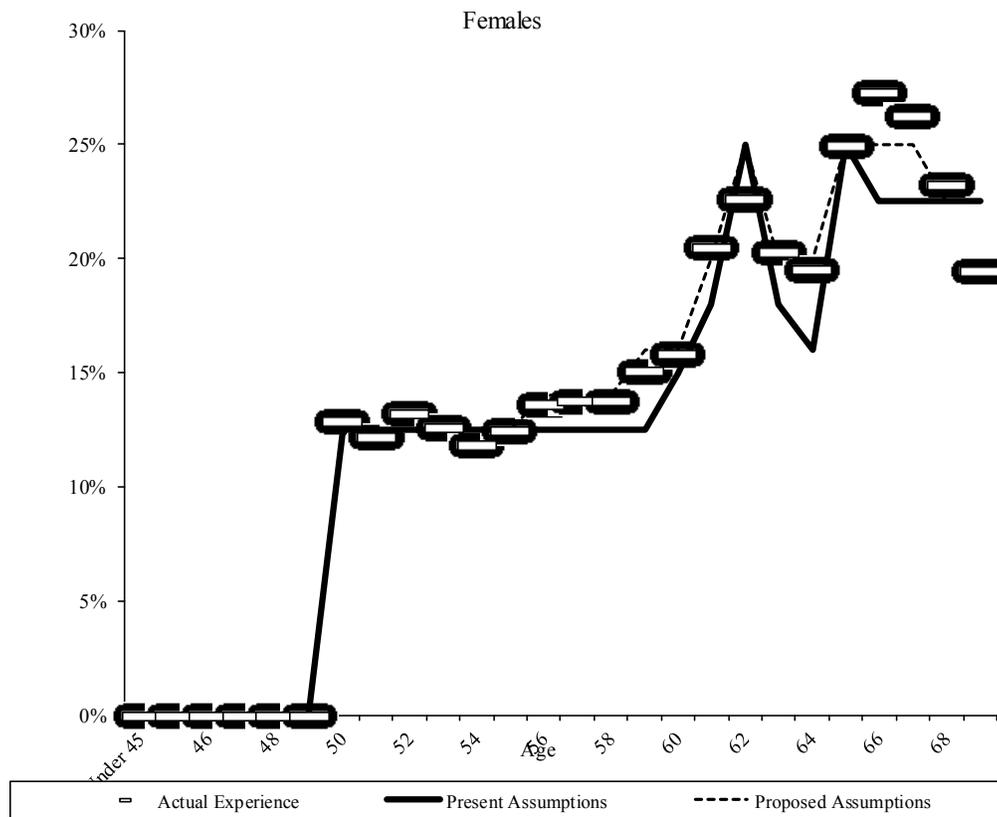
We currently use rates of retirement that vary by age, sex and type of retirement (reduced or unreduced). Experience showed that 14,507 active members retired during the study period: 13,497 with an unreduced retirement benefit (i.e., they met the Rule of 80 or were at least age 62 with five years of service), and 1,010 retired and commenced a reduced retirement benefit. Note that these numbers exclude previously terminated members who retired during the period. It should be noted that all retirements prior to age 62 during the experience period were members who were hired before June 30, 1992 and retired after meeting the Rule of 80.

For unreduced retirement, the experience shows that slightly more females retired than expected, while fewer males retired than expected. As shown in Section VI on pages 56 and 57, we

expected 13,766 retirements over the five-year period (4,258 males and 9,508 females), compared to the 13,497 actual retirements (3,913 males and 9,584 females). This produced overall A/E ratios of 92% for males and 101% for females.

Based on these facts, we determined that a change in the assumption was necessary and are recommending updated retirement rates that are somewhat higher overall than the current assumption and provide a better fit across each age. The updated assumptions, shown in the chart below, as well as tables on pages 56 and 57, have an A/E of 88% for males and 94% for females. We are targeting an A/E ratio below 100% because an A/E less than 100% provides for some conservatism.





Members hired before June 30, 1992 can retire with an unreduced benefit at Rule of 80 or age 62 with five years of service and this group makes up the vast majority of the plan experience over the past five years. As a result, we have enough experience to develop reasonable experience-based tables that reflect the retirement patterns for members eligible to retire under these provisions. All retirements prior to age 62 during the experience period were members that were hired before June 30, 1992 and retired after meeting the Rule of 80.

Alternatively, members hired after June 30, 1992 but before November 1, 2011 can also retire at 62 with five years of service, but they must meet the Rule of 90 before they can retire with an unreduced benefit before age 62. Similarly, members hired after October 31, 2011 must meet one of the following criteria in order to retire: (i) age 65 with five years of service, or (ii) age 60 and meets the Rule of 90.

In order to model the career and future retirement benefits of a member hired after June 30, 1992, we must develop a set of assumed retirement rates for this group when there is absolutely no experience on which to base the assumption. We previously developed a separate retirement assumption for members hired after June 30, 1992, and before November 1, 2011, that was based on a modification of the experience for members hired before June 30, 1992.

We are proposing a change to this assumption for members hired after June 30, 1992. The premise is that all members, whether they were hired before or after June 30, 1992, have the

same inherent probability of retirement upon reaching the Rule of 80. The only difference is that members hired after June 30, 1992 must work a few years longer in order to retire with an unreduced benefit.

As a result, we propose that the retirement rates for members hired after June 30, 1992 are the same as the experience-based rates for members hired before June 30, 1992 with one exception. The probability of retirement upon first eligibility for Rule of 90 reflects the accumulated probability of retirement between Rule of 80 and Rule of 90. The current assumption for members hired after October 31, 2011 employs this methodology.

Please refer to the summary of proposed assumptions on page 41 to see the recommended rates.

We also looked at the experience for reduced retirement which has much less impact on the actuarial valuation. Members hired before November 1, 2011 can retire with reduced benefits at age 55 with five years of service or at 30 years of service. Similarly, members hired after October 31, 2011 can retire with reduced benefits at age 60 with five years of service. Results are shown in Section VI on pages 58 and 59. As you can see from the exhibits, actual experience in total closely followed expectations regarding the reduced retirement behavior with a combined A/E ratio 98% (84% for males and 102% for females). At this time, we are not recommending any changes to this assumption. Experience continues to show that relatively few members decide to retire and immediately commence a reduced retirement benefit.

## **OTHER ASSUMPTIONS**

There are other assumptions made in the course of a valuation, such those listed below, and believe these are generally realistic or conservative and are recommending no changes at this time.

1. Percent Married: 80% of employees are assumed to be married.
2. Age difference: Male members are assumed to be three years older than their spouses, and female members are assumed to be three years younger than their spouses.
3. Percent electing annuity on death (when eligible): All of the spouses of married participants who die after becoming eligible for a retirement benefit are assumed to elect an annuity, in lieu of the \$18,000 lump sum and refund.
4. Percent electing deferred termination benefit: Members terminating employment with a vested benefit are assumed to elect a refund or a deferred benefit, whichever is more valuable at the time of termination.
5. Assumed age for commencement of deferred benefits: Members electing to receive a deferred benefit are assumed to commence receipt at age 62 (65 if hired after October 31, 2011).

6. Supplemental medical insurance: All members, whether currently active, inactive, or retired, are assumed to be eligible to receive the supplemental insurance benefit, if they have at least 10 years of service credit at retirement.
7. Members who retire with at least 24 years of credited service are assumed to have 120 days of unused sick leave for which they will receive one year of service credit. This assumption only applies to reduced and unreduced retirement.
8. No assumption is made that current active members employed by the comprehensive universities will elect to transfer out of OTRS.
9. Reemployment, purchase of service, transfers: No recognition is made of (i) future member reimbursements upon reemployment, (ii) future purchase of additional service, or (iii) special transfer provisions.
10. For EESIP eligible employees, if the refund amount to be paid exceeds the actuarial present value of the additional benefit, then it is assumed the member does not elect the enhanced benefit.

## **ACTUARIAL FUNDING COST METHOD**

We have reviewed the actuarial cost method being used—the Entry Age Normal (EAN) cost method—and we continue to believe that this is the method of choice for this plan. It is appropriate for the public sector because not only does it produce a level cost as a percentage of pay for an individual member, it also it produces costs that remain stable as a percentage of payroll over time, resulting in intergenerational equity for taxpayers. The recent Public Fund Survey, published in January 2015, surveyed 126 retirement systems (mostly statewide). Over 75% of the plans reported using the EAN Method.

The traditional “individual” version of EAN uses the provisions applicable to each individual member to determine the normal cost. Under this method, the normal cost rate for the plan is the weighted average of the normal cost amounts determined for each individual member. As a result, any change to the benefits for future hires would have no immediate impact on the actuarial accrued liability and normal cost under “individual” EAN. When there is a change in benefits for future hires, the normal cost under “individual” EAN will gradually change as more members are covered under the new benefit structure.

Currently, the plan employs an aggregate version of EAN, sometimes referred to as “entry life” EAN. The version of “entry life” EAN used by the plan was designed to produce a level pattern of cost as a percentage of payroll in situations where new benefits are introduced only for future hires. Further, the version of “entry life” EAN used by the plan uses a hypothetical group of new hires to determine the normal cost rate. The use of this hypothetical group was intended to reflect the difference in the demographics of new hires and the entire plan membership. In summary, the version of “entry life” EAN used by the plan differs from the “individual” EAN in two ways. First, the normal cost is currently based on a hypothetical group representative of

recent new entrants. Second, the normal cost is currently developed based on the benefit structure applicable to members hired after October 31, 2011.

Both methods provide a reasonable allocation of plan costs over time and only differ in the pattern of how these costs are allocated. We believe that both methods are appropriate for OTRS.

In 2012, the Governmental Accounting Standards Board (GASB) approved new accounting and reporting standards for public employee pensions and OTRS recently incorporated these new standards into the Comprehensive Annual Financial Report for the fiscal year ending June 30, 2014. One aspect of the new standards is that plans are required to use the "individual" version of EAN for financial reporting purposes and OTRS complied with this requirement for financial reporting purposes.

It should be noted that the Board continues to have the ability to select the most reasonable actuarial cost method for purposes of funding and monitoring the health of OTRS. Further, it is completely appropriate for the Board to adopt a different cost method for these purposes.

Due strictly to the differences in the application ("individual" versus "entry life") of the EAN actuarial cost method, OTRS reported an accrued liability of \$19,575,551,730 for plan funding purposes and \$19,646,619,191 (referred to as the Total Pension Liability) for financial reporting purposes.

Clearly, the different versions of the EAN actuarial cost method produce very similar actuarial valuation results for OTRS. As a result, we recommend that the actuarial cost method be modified to the individual entry age normal actuarial cost method. This method will base the normal cost calculation on the individual members currently in the valuation and not on a hypothetical group of new entrants. This method will also base the normal cost for each individual member on the benefit provisions that apply to that individual.

## **ACTUARIAL ASSET VALUATION METHOD**

Actuaries generally recommend using a smoothed actuarial value of assets (AVA), rather than market value (MVA), in order to dampen the fluctuations in measurements such as the funded status and the Actuarially Determined Contribution (ADC).

The current method smoothes all differences between the expected returns (based on the 8.00% investment return assumption) and actual returns, net of expenses, over a five-year period. For example, if the actual return is 13% in one year, then 8% is reflected immediately in the AVA, and the other 5% is recognized in 20% increments over five years.

We continue to believe this method is appropriate. It does not distinguish between types of return (interest, dividends, realized gains/losses, and unrealized gains/losses), like some other methods. It treats different asset classes and different investment styles the same. We do not believe the method has a bias relative to market. In other words, we expect the ratio of the AVA to MVA to average about 100% over the very long term. We believe this method does a good

job of smoothing asset gains and losses, and reduces fluctuations in the funding period. Therefore, we are not recommending a change to this method.

## **FUNDING POLICY**

### **Industry Guidance**

The recent recession and significant changes in accounting for public employee pension plans have resulted in a renewed focus on formal funding policies for public pension plans. Now, more than ever, public retirement systems need to have a sound, written funding policy to secure member benefits and mitigate the risks to the plan sponsor.

There have been reports issued by actuaries, governmental associations, and others to assist with the development of guidelines for funding policies, including the:

- Report from the Pension Funding Task Force 2013 (convened by the Center for State and Local Government Excellence), titled “Pension Funding: A Guide for Elected Officials”;
- GFOA Best Practice “Core Elements of a Pension Funding Policy”; and
- Report in 2014 from the Conference of Consulting Actuaries Public Plans Community, titled “Actuarial Funding Policies and Practices for Public Pension Plans”.

All of the recent guidance on funding policy has the following common themes:

- The goal of the policy should be to achieve a fully funded public pension plan,
- A reasonable allocation of the cost of plan benefits, and
- An understanding of the risks inherent in the arrangement.

### **Funding Policy for OTRS**

The contributions received by OTRS are completely unrelated to the annual actuarial valuation of the System. Specifically, the primary contributions to the System are:

- Members contribute 7.00% of pay,
- Employers contribute 8.55% or 9.50% of pay, depending on whether the employers are covered by the EESIP, and
- The State of Oklahoma contributes 5.00% percent of revenues from sales taxes, use taxes, corporate income taxes, individual income taxes, and the lottery.

The accounting and financial reporting of the System requires that an actuarially determined contribution be calculated each year as part of the actuarial valuation which is then compared to the actual contribution received by the System. Under the prior accounting standards (i.e., GASB Statements 25 and 27), the actuarially determined contribution was referred to as the Annual Required Contribution (ARC) and was determined as the contribution required to fund the normal cost and to amortize the UAAL as a level percentage of payroll over 30 years.

Under the new accounting standards (i.e., GASB Statements 67 and 68), the actuarially determined contribution is referred to the Actuarially Determined Employer Contribution (ADEC). Additionally, the Board now has the discretion to customize the methods used to calculate the ADEC.

In the coming months, we will be talking with the Board about the construction of a funding policy. This funding policy will help the Board define their goals for the funding of the System, establish the methods for determining the ADEC, and assess the adequacy of contributions received from the employers and the State.

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**SECTION III**  
ACTUARIAL IMPACT OF RECOMMENDATIONS

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## Actuarial Impact of Recommendations

Shown below is a table that compares key results from the June 30, 2014 actuarial valuation with these same results redetermined using the recommended actuarial assumptions and methods. As you can see, the assumption changes increase the Actuarially Determined Contribution by 1.02% and increase the unfunded actuarial accrued liability (UAAL) by \$398 million.

Item	Current Assumptions and Methods	Recommended Assumptions and Methods	Increase/Decrease
Normal cost	9.81%	9.93%	0.12%
Unfunded actuarial accrued liability	\$7,207 million	\$7,605 million	\$398 million
Funded ratio	63.2%	61.9%	-1.3%
Funding period (8% return on market)	11 years	14 years	3 years
Actuarially Determined Contribution	13.11%	14.13%	1.02%

Under the current method, the normal cost is the average expected cost for a typical new member. Under the recommended method, the normal cost rate is the weighted average of the normal cost amounts determined for each individual member and it includes 0.10% of payroll as a provision for administrative expenses paid by the trust. The normal cost also includes both the 7.00% contribution paid by members and the balance to be paid by the employers. The unfunded actuarial accrued liability is the portion of the total present value of future benefits that is assigned to past years and is in excess of the actuarial value of assets. The funding period is the number of years that will be required to amortize the UAAL, assuming that the employer contribution rate remains at current levels, and assuming there are no gains, losses, benefit changes, assumption changes, etc. The Actuarially Determined Contribution (ADC) is the sum of the employer's share of the normal cost and an amount needed to amortize the UAAL over 30 years with payments increasing at the assumed payroll growth rate (3.50% for the current assumptions and 3.25% for the recommended assumptions).

The table on the next page shows the changes in (i) the UAAL, and (ii) the ADC expressed as a percent of payroll, due to each of the recommended assumption changes.

Item	UAAL (millions)	ADC (% of Payroll)
June 30, 2014 Actuarial Valuation	\$7,207	13.11%
Increase/(decrease) due to:		
Individual EAN	71	0.20%
Mortality rates	312	0.74%
Termination rates	(1)	-0.24%
Disability rates	1	0.00%
Retirement rates	114	0.27%
Salary increase rates	(99)	-0.35%
Administrative expense in NC%	N/A	0.10%
Payroll growth	N/A	0.30%
All changes reflected	\$7,605	14.13%

As can be seen, the changes in the mortality rates and retirement rates were the most significant items, increasing the UAAL by over \$426 million in total. Other items had smaller impacts and, in total, resulted in a decrease of about \$28 million.

The figures above were calculated as of June 30, 2014, using the same benefit provisions and the same member and financial data that were used to prepare the regular June 30, 2014 actuarial valuation report.

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**SECTION IV**  
SUMMARY OF RECOMMENDATIONS

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## Summary of Recommendations

Our recommendations may be summarized as follows:

1. Make no change to the 3.00% inflation assumption.
2. Make no change in the nominal investment return rate assumption of 8.00% and the resulting 5.00% real rate of return. However, the administrative expenses will now have an explicit assumption in the development of the ADC and the assumption will no longer assume that they are paid from the gross investment return.
3. Decrease the wage inflation component of the salary scale by 0.25% from 4.00% to 3.75%.
4. For the long-term projections, assume each future cohort of new members is paid 3.75% more than the preceding cohort.
5. Decrease the payroll growth assumption by 0.25% from 3.50% to 3.25%. The payroll growth assumption does not impact the liabilities, only the development of the amortization of the unfunded actuarial accrued liability.
6. Update the post-retirement mortality tables for non-disabled retirees to the RP-2000 Combined Healthy for males with White Collar Adjustments and to the GRS Southwest Region Teacher Mortality Table with the base rates multiplied by 105% for females. Sample rates are shown on pages 46 and 47.
7. No change to the disabled post-retirement mortality assumption. Sample rates are shown on pages 48 and 49.
8. No change to the pre-retirement mortality assumption for males and females. Sample rates are shown on pages 50 and 51.
9. Make slight changes to the rates of disability incidence for males and females. Sample rates are shown on pages 52 and 53.
10. Increase termination rates for females for most service bands with smaller changes to rates for males. The same rates will also be used for both males and females. Proposed termination rates are shown on pages 54 and 55.
11. Generally increase the unreduced retirement rates for males and females at the higher retirement ages. For members hired after June 30, 1992, assume the probability of retirement upon first eligibility for Rule of 90 reflects the accumulated probably of retirement between Rule of 80 and Rule of 90. Make no change to the reduced retirement rates. The current and proposed tables are shown on pages 56 through 59.

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## **SECTION V**

### **SUMMARY OF ASSUMPTIONS AND METHODS INCORPORATING RECOMMENDATIONS**

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## SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

### I. Valuation Date

The valuation date is June 30th of each plan year. This is the date as of which the actuarial present value of future benefits and the actuarial value of assets are determined.

### II. Actuarial Cost Method

Because the employer contribution rate is set by statute, the actuarial valuation is used to determine the number of years required to amortize the Unfunded Actuarial Accrued Liability (UAAL), or the funding period.

The Individual Entry Age Normal actuarial cost method assigns the plan's total unfunded liabilities (the actuarial present value of future benefits less the actuarial value of assets) to various periods. The unfunded actuarial accrued liability is assigned to years prior to the valuation, and the normal cost is assigned to the year following the valuation. The remaining costs are the normal costs for future years. Then each year's contribution is composed of (i) that year's normal cost, plus (ii) a payment used to reduce the unfunded actuarial accrued liability.

The normal contribution is determined using the Entry Age Normal method. Under this method, a calculation is made to determine the rate of contribution which, if applied to the compensation of each individual member during the entire period of anticipated covered service, would be required to meet the cost of all benefits payable on his behalf. The salary-weighted average of these rates is the normal cost rate. This calculation reflects the plan provisions that apply to each individual member. The employer normal cost rate is equal to (i) the normal cost rate, minus (ii) the member contribution rate.

The actuarial accrued liability is the difference between the total present value of future benefits and the actuarial present value of future normal costs. The unfunded actuarial accrued liability is the excess of the actuarial accrued liability over the actuarial value of assets.

The balance of the employers' contributions--the remainder after paying their share of the normal cost--is used to reduce the unfunded actuarial accrued liability. The funding period is the length of time required for the unfunded actuarial accrued liability to be completely amortized, assuming that the portion used to reduce the unfunded remains level as a percentage of total payroll, which is assumed to grow 3.25% per year.

The funding period is calculated as the number of years required to fully amortize the UAAL, assuming that: (a) future market earnings, net of investment expenses, will equal 8.00% per year, (b) there will be no liability gains/losses or changes in

assumptions, (c) the number of active members will remain unchanged, (d) active members who leave employment will be replaced by new entrants each year, and (e) employer and State contributions will remain the same percentage of payroll as projected for the current fiscal year.

The Entry Age actuarial cost method is an “immediate gain” method (i.e., experience gains and losses are separately identified as part of the UAAL). However, they are amortized over the same period applied to all other components of the UAAL.

The actuarial valuation also determines the Actuarially Determined Employer Contribution (ADEC). This is the contribution required to pay the normal cost and amortize the UAAL over 30 years as a level percent of pay. The 30-year period applies to all components of the UAAL and is recalculated each year (open amortization method).

### *III. Actuarial Value of Assets*

The actuarial value of assets is equal to the market value, adjusted for a five-year phase in of actual investment return in excess of expected investment return. The actual return is calculated net of investment and administrative expenses, and the expected investment return is equal to the assumed investment return rate multiplied by the prior year's market value of assets, adjusted for contributions, benefits paid, and refunds.

### *IV. Actuarial Assumptions*

#### *A. Economic Assumptions*

1. Investment return: 8.00% per year, net of investment expenses and compounded annually, composed of an assumed 3.00% inflation rate and a 5.00% net real rate of return.
2. Administrative expenses: 0.10% of valuation payroll per year

3. Salary increase rate: A 3.75% wage inflation component, including 3.00% price inflation, plus a service-related component as shown below:

<u>Years of Service</u>	<u>Service-Related Component</u>	<u>Total Salary Increase Rate</u>
(1)	(2)	(3)
0	8.00%	11.75%
1-2	1.50%	5.25%
3-4	1.25%	5.00%
5-11	1.00%	4.75%
12-17	0.75%	4.50%
18-21	0.50%	4.25%
22-24	0.25%	4.00%
25 or more	0.00%	3.75%

3. Payroll growth rate: In the amortization of the unfunded actuarial accrued liability, payroll is assumed to increase 3.25% per year. This increase rate has no allowance for future membership growth.
4. Future ad hoc cost-of-living increases: None.

B. Demographic Assumptions

1. Mortality rates - after retirement or termination.
  - a. Healthy males – RP-2000 Combined Healthy mortality table for males with White Collar Adjustments. Generational mortality improvements in accordance with Scale BB from the table's base year of 2000.
  - b. Healthy females – GRS Southwest Region Teacher Mortality Table, scaled at 105%. Generational mortality improvements in accordance with Scale BB from the table's base year of 2012.
  - c. Disabled males – RP-2000 Mortality Table for disabled males, multiplied by 75%, no set back.
  - d. Disabled females – RP-2000 Mortality Table for disabled females, multiplied by 100%, no set back.
2. Mortality rates for active members – RP-2000 Employee Mortality tables, with male rates multiplied by 60% and female rates multiplied by 50%. No future improvement was assumed for pre-retirement mortality, since this would not have a material effect on the liabilities or costs.

Mortality Improvement: The nondisabled annuity mortality assumption includes an explicit generational mortality improvement assumption. To account for future mortality improvement for disabled annuitants and active members, the tables and table multipliers selected above were chosen so that the assumed mortality rates are smaller than the rates observed in the last experience study, covering experience for FY 2010 – FY 2014. The ratio of the actual number of deaths occurring during this period to the expected number based on the selected assumptions was:

- 116% for disabled male annuitants
- 120% for disabled female annuitants
- 127% for active male members
- 116% for active female members

3. Disability rates - Based on 2015 Experience Study, males and females separate. Sample rates are shown below:

Age	Expected Disabilities Occurring per 100 Lives	
	Male Members	Female Members
	(1)	(2)
25	0.023	0.020
30	0.023	0.020
35	0.032	0.040
40	0.059	0.100
45	0.090	0.160
50	0.270	0.240
55	0.405	0.370
60	0.158	0.260
65	0.000	0.000

Disability rates are applied only for members with 10 or more years of service, since rates were developed based on exposure for this group.

4. Termination Rates – Rates based on the member's service, developed from the 2015 Experience Study. Rates reflect terminations for causes other than death, disability or retirement. Sample rates are shown below:

<u>Expected Terminations per 100 Lives</u>	
Credited Service (Years)	Males and Females
<u>(1)</u>	<u>(2)</u>
0	23.00
1	18.00
2	13.00
3	11.00
4	9.00
5	8.25
6	7.50
7	6.75
8	6.00
9	5.25
10	4.50
11	4.25
12	4.00
13	3.75
14	3.50
15	3.25
16	3.00
17	2.75
18	2.50
19	2.25
20	2.00
21	1.75
22	1.75
23	1.50
24	1.50
25 or more	0.00

Termination rates are not applied to a member who is eligible for a retirement benefit (reduced or unreduced).

5. Retirement rates - Separate male and female rates, based on age, developed from the 2015 Experience Study. Sample rates are shown below:

Age	Expected Retirements per 100 Lives			
	Unreduced Retirement		Reduced Retirement	
	Males	Females	Males	Females
Under 50	0.0	0.0	0.0	0.0
50	12.0	12.5	0.0	0.0
51	12.0	12.5	0.0	0.0
52	12.0	12.5	0.0	0.0
53	12.0	12.5	0.0	0.0
54	12.0	12.5	0.0	0.0
55	12.0	12.5	1.0	1.5
56	12.0	14.0	1.8	2.0
57	12.0	14.0	2.0	2.3
58	12.0	14.0	2.3	2.5
59	12.0	16.0	2.5	2.8
60	12.0	16.0	2.8	3.0
61	15.0	20.0	3.0	3.5
62	21.0	25.0	10.0	10.0
63	19.0	20.0	7.5	7.5
64	15.0	20.0	7.5	7.5
65	25.0	25.0		
66	22.5	25.0		
67	22.5	25.0		
68	20.0	22.5		
69	20.0	22.5		
70	20.0	22.5		
71	20.0	22.5		
72	20.0	22.5		
73	20.0	22.5		
74	20.0	22.5		
75 and over	100.0	100.0		

The retirement assumption was further modified for members hired after June 30, 1992. The probability of retirement upon first eligibility for Rule of 90 reflects the accumulated probably of retirement between Rule of 80 and Rule of 90, if applicable.

C. Other Assumptions

1. Percent married: 80% of employees are assumed to be married.
2. Age difference: Males are assumed to be three years older than females.
3. Percent electing annuity on death (when eligible): All of the spouses of married participants who die after becoming eligible for a retirement benefit are assumed to elect an annuity, in lieu of the \$18,000 lump sum and refund.
4. Percent electing deferred termination benefit: vested terminating members are assumed to elect a refund or a deferred benefit, whichever is more valuable at the time of termination.
5. Assumed age for commencement of deferred benefits: Members electing to receive a deferred benefit are assumed to commence receipt at age 62 (age 65 if hired on or after November 1, 2011).
6. Supplemental medical insurance: All members, whether currently active, inactive, or retired, are assumed to be eligible to receive the supplemental insurance benefit, if they have at least 10 years of service credit at retirement.
7. Members who retire with at least 24 years of credited service are assumed to have 120 days of unused sick leave for which they will receive one year of service credit. This assumption only applies to reduced and unreduced retirement.
8. No assumption was made that current active members employed by the comprehensive universities will elect to transfer out of OTRS.
9. Reemployment, purchase of service, transfers: No recognition is made of (i) future member reimbursements upon reemployment, (ii) future purchase of additional service, or (iii) special transfer provisions.
10. For EESIP eligible employees, if the refund amount to be paid exceeds the actuarial present value of the additional benefit, then we assume the member does not elect the enhanced benefit.
11. Decrement timing: Decrements of all types are assumed to occur mid-year.

*V. Participant Data*

Participant data was supplied on an electronic file for (i) active members, (ii) inactive vested members who are entitled to a future deferred benefit, (iii) inactive nonvested members who are entitled to a refund of their employee contributions, and in some cases a portion of the accumulated interest, and (iv) members and beneficiaries receiving benefits.

The data for active and inactive, non-retired members included date of birth, date of hire, gender, years of service, salary, employee contributions and accumulated interest on employee contributions. The data also included a code to indicate whether the employee had elected to make contributions on salary above \$25,000, and a code indicating the type of employer (comprehensive university, other college or university, or other employer). For retired members and beneficiaries, the data included date of birth, gender, spouse's date of birth (where applicable), amount of monthly benefit, date of retirement, and a form of payment code.

Individual member contributions for the 12 months prior to the valuation date were used to determine the actual salary for plan members in the prior plan year. The valuation assumptions for salary increases were used to determine the projected salary for the current plan year. Additionally, contributing members were assumed to accrue one additional year of service between the end of the prior employment year and the valuation date.

Additional assumptions were made to correct for missing, bad, or inconsistent data. These had no material impact on the results presented.

Some inactive, nonvested employees who are entitled to a refund are not included in the data, but a liability for their refund is included instead in the Suspense Fund, which is included in the liability.

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## **SECTION VI**

### **SUMMARY OF DATA AND EXPERIENCE**

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**NON-DISABLED RETIREES  
POST-RETIREMENT MORTALITY - MALE**

Age	Actual Deaths	Total Count	Actual Rate	Assumed Rate		Expected Deaths		Actual/Expected	
				Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
50-54	2	648	0.0031	0.0017	0.0027	1	2	157%	116%
55-59	40	4,838	0.0083	0.0032	0.0041	17	20	238%	201%
60-64	117	13,253	0.0088	0.0062	0.0070	88	93	134%	125%
65-69	226	18,039	0.0125	0.0117	0.0120	211	217	107%	104%
70-74	322	15,249	0.0211	0.0193	0.0202	294	308	109%	104%
75-79	364	10,809	0.0337	0.0342	0.0357	369	386	99%	94%
80-84	394	6,662	0.0591	0.0637	0.0626	415	417	95%	95%
85-89	435	3,620	0.1202	0.1112	0.1084	390	392	111%	111%
90-94	243	1,177	0.2065	0.1858	0.1821	206	214	118%	113%
95-99	65	239	0.2720	0.2614	0.2726	60	65	108%	100%
100-104	10	21	0.4762	0.3345	0.3495	7	7	149%	136%
Other	0	2	0.0000	0.3600	0.4000	0	0	0%	0%
Totals	2,218	74,557				2,058	2,122	108%	105%

**NON-DISABLED RETIREES  
POST-RETIREMENT MORTALITY - FEMALE**

Age	Actual Deaths	Total Count	Actual Rate	Assumed Rate		Expected Deaths		Actual/Expected	
				Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
50-54	11	1,774	0.0062	0.0015	0.0031	3	5	409%	202%
55-59	53	12,220	0.0043	0.0028	0.0035	34	43	157%	125%
60-64	170	32,447	0.0052	0.0052	0.0050	168	164	101%	104%
65-69	297	38,184	0.0078	0.0089	0.0076	341	289	87%	103%
70-74	370	27,986	0.0132	0.0149	0.0127	416	355	89%	104%
75-79	495	19,715	0.0251	0.0241	0.0245	476	483	104%	103%
80-84	649	13,495	0.0481	0.0400	0.0491	540	663	120%	98%
85-89	687	7,651	0.0898	0.0706	0.0952	540	728	127%	94%
90-94	645	4,129	0.1562	0.1170	0.1686	483	696	134%	93%
95-99	370	1,461	0.2533	0.1634	0.2434	239	356	155%	104%
100-104	108	298	0.3624	0.1967	0.3198	59	95	184%	113%
Other	14	26	N/A	0.0000	0.0000	6	5	221%	292%
Totals	3,869	159,386				3,304	3,881	117%	100%

**DISABLED RETIREES  
POST-RETIREMENT MORTALITY - MALE**

Age	Actual Deaths	Total Count	Actual Rate	Assumed Rate		Expected Deaths		Actual/Expected	
				Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
50-54	13	194	0.0670	0.0237	0.0237	5	5	278%	278%
55-59	16	410	0.0390	0.0285	0.0285	12	12	136%	136%
60-64	18	587	0.0307	0.0337	0.0337	20	20	91%	91%
65-69	19	383	0.0496	0.0408	0.0408	16	16	122%	122%
70-74	10	207	0.0483	0.0521	0.0521	11	11	94%	94%
75-79	7	88	0.0795	0.0691	0.0691	6	6	118%	118%
80-84	5	47	0.1064	0.0914	0.0914	4	4	116%	116%
85-89	4	44	0.0909	0.1164	0.1164	5	5	79%	79%
90-94	3	20	0.1500	0.1625	0.1625	3	3	94%	94%
95-99	0	4	0.0000	0.2249	0.2249	1	1	0%	0%
100-104	0	0	N/A	0.2788	0.2788	0	0	0%	0%
Other	2	89	0.0225	0.3000	0.3000	2	2	120%	120%
Totals	97	2,073				83	83	116%	116%

**DISABLED RETIREES  
POST-RETIREMENT MORTALITY - FEMALE**

Age	Actual Deaths	Total Count	Actual Rate	Assumed Rate		Expected Deaths		Actual/Expected	
				Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
50-54	14	679	0.0206	0.0135	0.0135	9	9	148%	148%
55-59	37	1,297	0.0285	0.0187	0.0187	24	24	152%	152%
60-64	38	1,550	0.0245	0.0241	0.0241	37	37	102%	102%
65-69	31	1,022	0.0303	0.0313	0.0313	32	32	98%	98%
70-74	22	455	0.0484	0.0429	0.0429	19	19	115%	115%
75-79	18	250	0.0720	0.0595	0.0595	15	15	122%	122%
80-84	13	131	0.0992	0.0823	0.0823	11	11	124%	124%
85-89	9	63	0.1429	0.1145	0.1145	7	7	126%	126%
90-94	12	56	0.2143	0.1599	0.1599	9	9	135%	135%
95-99	7	13	0.5385	0.2152	0.2152	3	3	269%	269%
100-104	0	0	N/A	0.2545	0.2545	0	0	0%	0%
Other	1	312	0.0032	0.0000	0.0000	3	3	37%	37%
Totals	202	5,828				169	169	120%	120%

**MALE PRE-RETIREMENT MORTALITY**

Age	Actual Deaths	Total Count	Actual Rate	Assumed Rate		Expected Deaths		Actual/Expected	
				Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Under 20	-	10	0.0000	0.0002	0.0002	-	-	N\A	N\A
20-24	1	1,254	0.0008	0.0002	0.0002	-	-	N\A	N\A
25-29	4	8,141	0.0005	0.0002	0.0002	2	2	200%	200%
30-34	3	11,545	0.0003	0.0003	0.0003	4	4	75%	75%
35-39	10	13,570	0.0007	0.0005	0.0005	7	7	143%	143%
40-44	14	15,214	0.0009	0.0007	0.0007	11	11	127%	127%
45-49	18	15,999	0.0011	0.0010	0.0010	17	17	106%	106%
50-54	37	17,888	0.0021	0.0015	0.0015	26	26	142%	142%
55-59	47	17,637	0.0027	0.0022	0.0022	39	39	121%	121%
60-64	50	13,391	0.0037	0.0036	0.0036	47	47	106%	106%
65-69	22	5,164	0.0043	0.0052	0.0052	26	26	85%	85%
70-74	13	1,262	0.0103	N/A	N/A	N/A	N/A	N\A	N\A
75 and over	8	453	0.0177	N/A	N/A	N/A	N/A	N\A	N\A
Totals	227	121,528				179	179	127%	127%

**FEMALE PRE-RETIREMENT MORTALITY**

Age	Actual Deaths	Total Count	Actual Rate	Assumed Rate		Expected Deaths		Actual/Expected	
				Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Under 20	-	11	0.0000	0.0001	0.0001	-	-	N/A	N/A
20-24	2	3,517	0.0006	0.0001	0.0001	-	-	N/A	N/A
25-29	6	25,386	0.0002	0.0001	0.0001	3	3	200%	200%
30-34	9	31,135	0.0003	0.0002	0.0002	5	5	180%	180%
35-39	11	36,277	0.0003	0.0003	0.0003	10	10	110%	110%
40-44	19	43,266	0.0004	0.0004	0.0004	19	19	100%	100%
45-49	25	44,633	0.0006	0.0007	0.0007	30	30	83%	83%
50-54	60	50,667	0.0012	0.0010	0.0010	50	50	120%	120%
55-59	77	46,839	0.0016	0.0015	0.0015	71	71	108%	108%
60-64	70	30,291	0.0023	0.0023	0.0023	69	69	101%	101%
65-69	29	8,294	0.0035	0.0033	0.0033	26	26	112%	112%
70-74	15	1,582	0.0095	N/A	N/A	N/A	N/A	N/A	N/A
75 and over	5	532	0.0094	N/A	N/A	N/A	N/A	N/A	N/A
Totals	328	322,430				283	283	116%	116%

**MALE DISABILITY EXPERIENCE (Service > =10 Years)**

Age	Actual Disabilities	Total Count	Actual Rate	Assumed Rate		Expected Disabilities		Actual/Expected	
				Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Under 20	-	-	N\A	0.0003	0.0002	-	-	N\A	N\A
20-24	-	-	N\A	0.0003	0.0002	-	-	N\A	N\A
25-29	-	20	0.0000	0.0003	0.0002	-	-	N\A	N\A
30-34	-	1,322	0.0000	0.0003	0.0003	-	-	N\A	N\A
35-39	-	6,203	0.0000	0.0005	0.0004	3	3	0%	0%
40-44	6	8,796	0.0007	0.0008	0.0007	7	6	86%	100%
45-49	13	10,421	0.0012	0.0015	0.0014	17	15	76%	87%
50-54	38	12,742	0.0030	0.0030	0.0027	42	38	90%	100%
55-59	38	12,851	0.0030	0.0060	0.0047	59	55	64%	69%
60-64	14	9,829	0.0014	0.0010	0.0009	11	10	127%	140%
65-69	-	-	N\A	0.0000	0.0000	-	-	N\A	N\A
70-74	-	-	N\A	0.0000	0.0000	-	-	N\A	N\A
75 and over	-	-	N\A	0.0000	0.0000	-	-	N\A	N\A
Totals	109	62,184				139	127	78%	86%

**FEMALE DISABILITY EXPERIENCE (Service > =10 Years)**

Age	Actual Disabilities	Total Count	Actual Rate	Assumed Rate		Expected Disabilities		Actual/Expected	
				Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Under 20	-	-	N\A	0.0002	0.0002	-	-	N\A	N\A
20-24	-	-	N\A	0.0002	0.0002	-	-	N\A	N\A
25-29	-	19	0.0000	0.0002	0.0002	-	-	N\A	N\A
30-34	-	3,665	0.0000	0.0002	0.0002	1	1	0%	0%
35-39	8	14,042	0.0006	0.0009	0.0008	12	11	67%	73%
40-44	21	21,671	0.0010	0.0011	0.0010	31	27	68%	78%
45-49	49	26,350	0.0019	0.0023	0.0020	58	51	84%	96%
50-54	86	34,316	0.0025	0.0036	0.0032	118	107	73%	80%
55-59	96	35,061	0.0027	0.0038	0.0034	133	119	72%	81%
60-64	28	23,484	0.0012	0.0027	0.0016	70	42	40%	67%
65-69	-	-	N\A	0.0000	0.0000	-	-	N\A	N\A
70-74	-	-	N\A	0.0000	0.0000	-	-	N\A	N\A
75 and over	-	-	N\A	0.0000	0.0000	-	-	N\A	N\A
<b>Totals</b>	<b>288</b>	<b>158,608</b>				<b>423</b>	<b>358</b>	<b>68%</b>	<b>80%</b>

**MALE TERMINATION EXPERIENCE**

Service	Actual Withdrawal	Total Count	Actual Rate	Assumed Rate		Expected Withdrawal		Actual/Expected	
				Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
0	602	2,589	0.2325	0.2325	0.2300	777	595	77%	101%
1	1,509	8,619	0.1751	0.1750	0.1800	1,207	1,551	125%	97%
2	1,220	8,275	0.1474	0.1450	0.1300	1,034	1,076	118%	113%
3	849	7,306	0.1162	0.1150	0.1100	804	804	106%	106%
4	621	5,474	0.1134	0.1125	0.0900	520	493	119%	126%
5	489	4,987	0.0981	0.0975	0.0825	424	411	115%	119%
6	382	4,287	0.0891	0.0875	0.0750	322	322	119%	119%
7	276	3,821	0.0722	0.0700	0.0675	258	258	107%	107%
8	241	3,493	0.0690	0.0675	0.0600	210	210	115%	115%
9	208	3,257	0.0639	0.0625	0.0525	171	171	122%	122%
10	159	3,125	0.0509	0.0500	0.0450	148	141	107%	113%
11	172	3,131	0.0549	0.0525	0.0425	141	133	122%	129%
12	121	3,079	0.0393	0.0375	0.0400	123	123	98%	98%
13	117	2,849	0.0411	0.0400	0.0375	107	107	109%	109%
14	109	2,565	0.0425	0.0400	0.0350	90	90	121%	121%
15	84	2,322	0.0362	0.0350	0.0325	75	75	112%	112%
16	60	2,081	0.0288	0.0275	0.0300	62	62	97%	97%
17	62	1,897	0.0327	0.0325	0.0275	52	52	119%	119%
18	54	1,805	0.0299	0.0275	0.0250	45	45	120%	120%
19	52	1,757	0.0296	0.0275	0.0225	40	40	130%	130%
20	48	1,613	0.0298	0.0275	0.0200	32	32	150%	150%
21	46	1,539	0.0299	0.0275	0.0175	27	27	170%	170%
22	35	1,387	0.0252	0.0250	0.0175	21	24	167%	146%
23	26	1,185	0.0219	0.0200	0.0150	15	18	173%	144%
24	20	1,012	0.0198	0.0175	0.0150	10	15	200%	133%
Totals	7,562	83,455				6,715	6,875	113%	110%

**FEMALE TERMINATION EXPERIENCE**

Service	Actual Withdrawal	Total Count	Actual Rate	Assumed Rate		Expected Withdrawal		Actual/Expected	
				Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
0	1,717	7,218	0.2379	0.2400	0.2300	1,732	1,660	99%	103%
1	4,999	26,648	0.1876	0.1200	0.1800	3,198	4,797	156%	104%
2	3,053	22,073	0.1383	0.1050	0.1300	2,318	2,869	132%	106%
3	2,044	19,816	0.1031	0.0900	0.1100	1,783	2,180	115%	94%
4	1,787	16,737	0.1068	0.0825	0.0900	1,381	1,506	129%	119%
5	1,425	15,493	0.0920	0.0750	0.0825	1,162	1,278	123%	112%
6	1,120	13,298	0.0842	0.0675	0.0750	898	997	125%	112%
7	892	11,570	0.0771	0.0600	0.0675	694	781	129%	114%
8	693	10,359	0.0669	0.0525	0.0600	544	622	127%	111%
9	572	9,493	0.0603	0.0450	0.0525	427	498	134%	115%
10	432	8,781	0.0492	0.0400	0.0450	351	395	123%	109%
11	377	8,614	0.0438	0.0350	0.0425	301	366	125%	103%
12	387	8,322	0.0465	0.0325	0.0400	270	333	143%	116%
13	285	7,223	0.0395	0.0300	0.0375	217	271	131%	105%
14	249	6,316	0.0394	0.0275	0.0350	174	221	143%	113%
15	206	5,563	0.0370	0.0250	0.0325	139	181	148%	114%
16	148	4,894	0.0302	0.0225	0.0300	110	147	135%	101%
17	123	4,682	0.0263	0.0200	0.0275	94	129	131%	95%
18	144	4,582	0.0314	0.0175	0.0250	80	115	180%	125%
19	91	4,454	0.0204	0.0150	0.0225	67	100	136%	91%
20	92	4,184	0.0220	0.0140	0.0200	59	84	156%	110%
21	71	3,792	0.0187	0.0130	0.0175	49	66	145%	108%
22	71	3,278	0.0217	0.0120	0.0175	39	57	182%	125%
23	37	2,677	0.0138	0.0110	0.0150	29	40	128%	93%
24	36	2,180	0.0165	0.0100	0.0150	22	33	164%	109%
Totals	21,051	232,247				16,138	19,726	130%	107%

**UNREDUCED RETIREMENT EXPERIENCE  
MALE**

<b>Experience for Members Retiring under the Rule of 80 Eligibility Provisions</b>									
Age	Actual Retirements	Total Count	Actual Rate	Assumed Rate		Expected Retirements		Actual/Expected	
				Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
50	12	99	0.1212	0.1200	0.1200	12	12	100%	100%
51	50	478	0.1046	0.1200	0.1200	57	57	88%	88%
52	85	743	0.1144	0.1200	0.1200	89	89	96%	96%
53	108	923	0.1170	0.1200	0.1200	111	111	97%	97%
54	110	1,015	0.1084	0.1200	0.1200	122	122	90%	90%
55	123	1,159	0.1061	0.1200	0.1200	139	139	88%	88%
56	145	1,209	0.1199	0.1200	0.1200	145	145	100%	100%
57	160	1,355	0.1181	0.1200	0.1200	163	163	98%	98%
58	157	1,452	0.1081	0.1200	0.1200	174	174	90%	90%
59	151	1,458	0.1036	0.1200	0.1200	175	175	86%	86%
60	171	1,426	0.1199	0.1200	0.1200	171	171	100%	100%
61	227	1,383	0.1641	0.1200	0.1500	166	207	137%	110%
62	527	2,494	0.2113	0.2000	0.2100	499	524	106%	101%
63	389	2,080	0.1870	0.1800	0.1900	374	395	104%	98%
64	242	1,672	0.1447	0.1600	0.1500	268	251	90%	96%
65	275	1,435	0.1916	0.2000	0.2500	287	359	96%	77%
66	277	1,145	0.2419	0.2000	0.2250	229	258	121%	107%
67	192	842	0.2280	0.2000	0.2250	168	189	114%	102%
68	127	608	0.2089	0.2000	0.2000	122	122	104%	104%
69	94	496	0.1895	0.2000	0.2000	99	99	95%	95%
70	73	382	0.1911	0.2000	0.2000	76	76	96%	96%
71	67	297	0.2256	0.2000	0.2000	59	59	114%	114%
72	31	217	0.1429	0.2000	0.2000	43	43	72%	72%
73	24	157	0.1529	0.2000	0.2000	31	31	77%	77%
74	21	129	0.1628	0.2000	0.2000	26	26	81%	81%
75 and over	75	453	0.1656	1.0000	1.0000	453	453	17%	17%
Subtotal	3,913	25,107				4,258	4,450	92%	88%

**UNREDUCED RETIREMENT EXPERIENCE  
FEMALE**

<b>Experience for Members Retiring under the Rule of 80 Eligibility Provisions</b>									
Age	Actual Retirements	Total Count	Actual Rate	Assumed Rate		Expected Retirements		Actual/Expected	
				Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
50	34	264	0.1288	0.1250	0.1250	33	33	103%	103%
51	140	1,147	0.1221	0.1250	0.1250	143	143	98%	98%
52	226	1,711	0.1321	0.1250	0.1250	214	214	106%	106%
53	252	1,999	0.1261	0.1250	0.1250	250	250	101%	101%
54	279	2,352	0.1186	0.1250	0.1250	294	294	95%	95%
55	340	2,733	0.1244	0.1250	0.1250	342	342	99%	99%
56	386	2,828	0.1365	0.1250	0.1400	354	396	109%	97%
57	429	3,123	0.1374	0.1250	0.1400	390	437	110%	98%
58	470	3,414	0.1377	0.1250	0.1400	427	478	110%	98%
59	532	3,536	0.1505	0.1250	0.1600	442	566	120%	94%
60	563	3,558	0.1582	0.1500	0.1600	534	569	105%	99%
61	677	3,305	0.2048	0.1800	0.2000	595	661	114%	102%
62	1,305	5,771	0.2261	0.2500	0.2500	1,443	1,443	90%	90%
63	935	4,615	0.2026	0.1800	0.2000	831	923	113%	101%
64	685	3,502	0.1956	0.1600	0.2000	560	700	122%	98%
65	677	2,715	0.2494	0.2500	0.2500	679	679	100%	100%
66	533	1,952	0.2731	0.2250	0.2500	439	488	121%	109%
67	364	1,387	0.2624	0.2250	0.2500	312	347	117%	105%
68	208	894	0.2327	0.2250	0.2250	201	201	103%	103%
69	130	667	0.1949	0.2250	0.2250	150	150	87%	87%
70	114	504	0.2262	0.2250	0.2250	113	113	101%	101%
71	77	376	0.2048	0.2250	0.2250	85	85	91%	91%
72	62	279	0.2222	0.2250	0.2250	63	63	98%	98%
73	33	201	0.1642	0.2250	0.2250	45	45	73%	73%
74	26	163	0.1595	0.2250	0.2250	37	37	70%	70%
75 and over	107	532	0.2011	1.0000	1.0000	532	532	20%	20%
Subtotal	9,584	53,528				9,508	10,189	101%	94%

**REDUCED RETIREMENT EXPERIENCE  
MALE**

Age	Actual Retirements	Total Count	Actual Rate	Assumed Rate		Expected Retirements		Actual/Expected	
				Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
55	14	1,949	0.0072	0.0100	0.0100	19	19	74%	74%
56	23	1,896	0.0121	0.0175	0.0175	33	33	70%	70%
57	31	1,784	0.0174	0.0200	0.0200	36	36	86%	86%
58	31	1,656	0.0187	0.0225	0.0225	37	37	84%	84%
59	26	1,565	0.0166	0.0250	0.0250	39	39	67%	67%
60	34	1,411	0.0241	0.0275	0.0275	39	39	87%	87%
61	46	1,363	0.0337	0.0300	0.0300	41	41	112%	112%
Subtotal	205	11,624				244	244	84%	84%

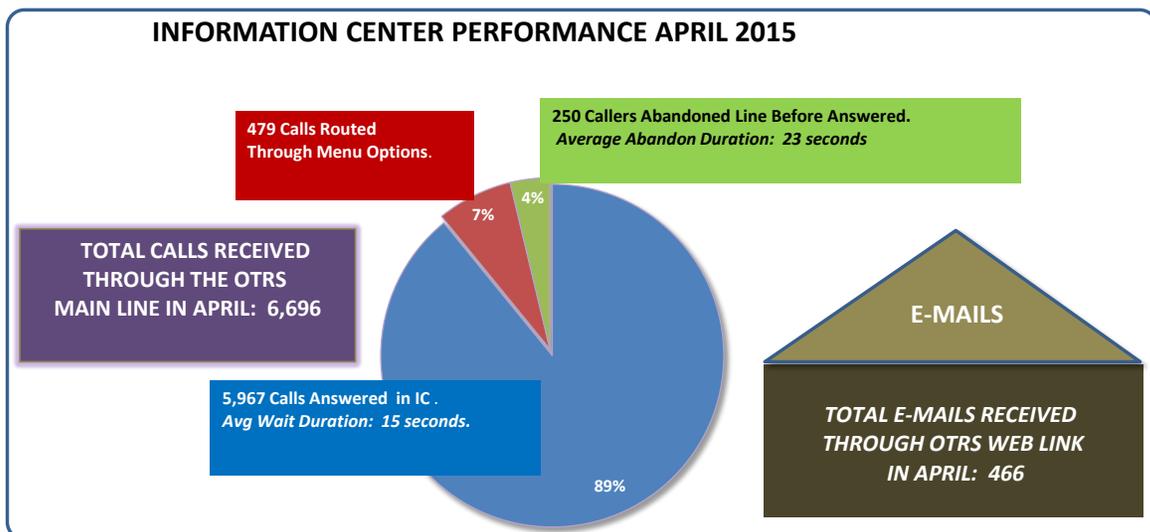
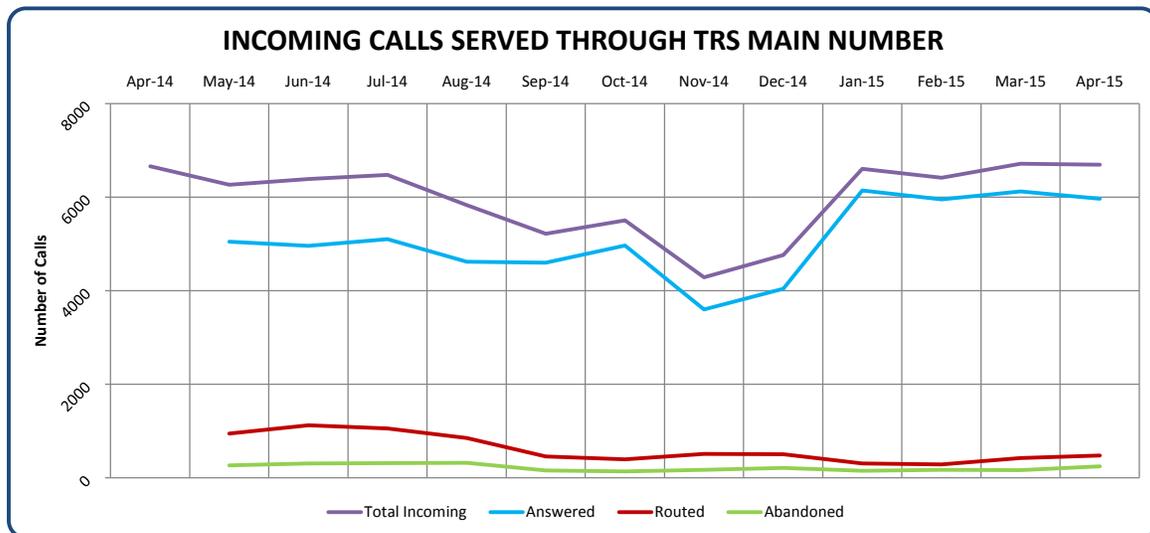
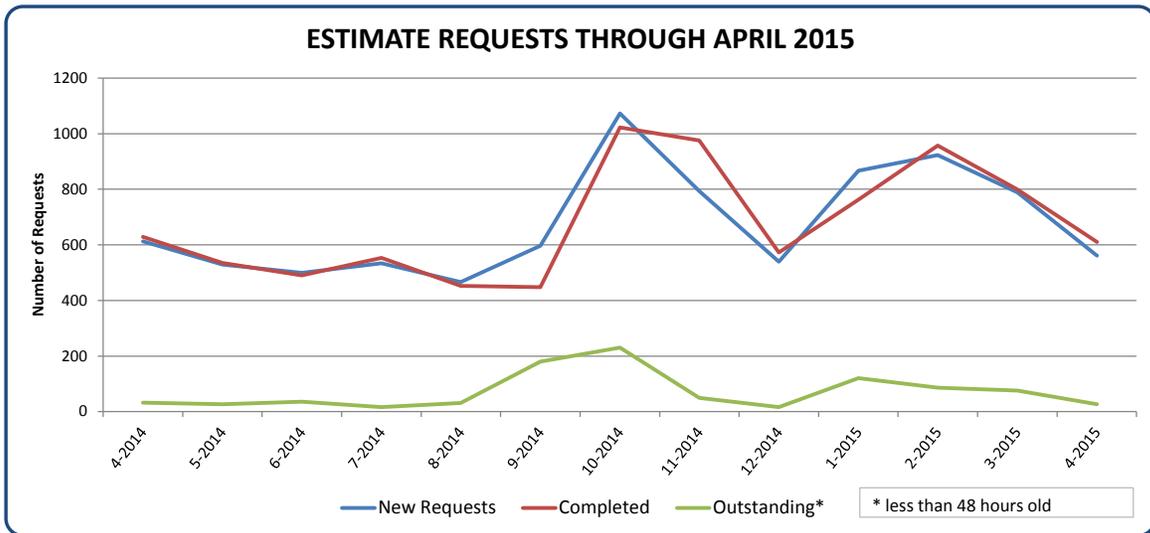
**REDUCED RETIREMENT EXPERIENCE  
FEMALE**

Age	Actual Retirements	Total Count	Actual Rate	Assumed Rate		Expected Retirements		Actual/Expected	
				Current	Proposed	Current	Proposed	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
55	64	6,134	0.0104	0.0150	0.0150	92	92	70%	70%
56	106	5,900	0.0180	0.0200	0.0200	118	118	90%	90%
57	104	5,317	0.0196	0.0225	0.0225	120	120	87%	87%
58	114	4,746	0.0240	0.0250	0.0250	119	119	96%	96%
59	104	4,222	0.0246	0.0275	0.0275	116	116	90%	90%
60	155	3,748	0.0414	0.0300	0.0300	112	112	138%	138%
61	158	3,238	0.0488	0.0350	0.0350	113	113	140%	140%
Subtotal	805	33,305				790	790	102%	102%

**Salary Increase Analysis**

Index (1)	Current Salary Scales		Actual Experience (10 Years)			Proposed Salary Scales		Increase/ (Decrease) in Rates (9)
	Total (2)	Step Rate/ Promotional (3)	Total (4)	Above Inflation (2.31%) (5)	Step Rate/ Promotional (6)	Total (7)	Step Rate/ Promotional (8)	
0	12.00%	8.00%	9.20%	6.89%	6.09%	11.75%	8.00%	(0.25)%
1	5.50%	1.50%	4.83%	2.52%	1.72%	5.25%	1.50%	(0.25)%
2	5.50%	1.50%	4.41%	2.10%	1.30%	5.25%	1.50%	(0.25)%
3	5.25%	1.25%	3.97%	1.66%	0.86%	5.00%	1.25%	(0.25)%
4	5.25%	1.25%	3.67%	1.36%	0.56%	5.00%	1.25%	(0.25)%
5	5.00%	1.00%	3.89%	1.58%	0.78%	4.75%	1.00%	(0.25)%
6	5.00%	1.00%	4.15%	1.84%	1.04%	4.75%	1.00%	(0.25)%
7	5.00%	1.00%	3.88%	1.57%	0.77%	4.75%	1.00%	(0.25)%
8	5.00%	1.00%	3.89%	1.58%	0.78%	4.75%	1.00%	(0.25)%
9	5.00%	1.00%	3.83%	1.52%	0.72%	4.75%	1.00%	(0.25)%
10	5.00%	1.00%	3.83%	1.52%	0.72%	4.75%	1.00%	(0.25)%
11	5.00%	1.00%	3.79%	1.48%	0.67%	4.75%	1.00%	(0.25)%
12	4.75%	0.75%	3.81%	1.50%	0.70%	4.50%	0.75%	(0.25)%
13	4.75%	0.75%	3.68%	1.37%	0.57%	4.50%	0.75%	(0.25)%
14	4.75%	0.75%	3.79%	1.48%	0.68%	4.50%	0.75%	(0.25)%
15	4.75%	0.75%	3.88%	1.57%	0.77%	4.50%	0.75%	(0.25)%
16	4.75%	0.75%	3.73%	1.42%	0.62%	4.50%	0.75%	(0.25)%
17	4.75%	0.75%	3.71%	1.40%	0.60%	4.50%	0.75%	(0.25)%
18	4.50%	0.50%	3.62%	1.31%	0.51%	4.25%	0.50%	(0.25)%
19	4.50%	0.50%	3.73%	1.43%	0.62%	4.25%	0.50%	(0.25)%
20	4.50%	0.50%	3.47%	1.16%	0.36%	4.25%	0.50%	(0.25)%
21	4.50%	0.50%	3.41%	1.10%	0.30%	4.25%	0.50%	(0.25)%
22	4.25%	0.25%	3.34%	1.03%	0.23%	4.00%	0.25%	(0.25)%
23	4.25%	0.25%	3.43%	1.12%	0.32%	4.00%	0.25%	(0.25)%
24	4.25%	0.25%	3.51%	1.20%	0.40%	4.00%	0.25%	(0.25)%
25+	4.00%	0.00%	3.11%	0.80%	0.00%	3.75%	0.00%	(0.25)%

## CLIENT SERVICES PERFORMANCE METRICS THROUGH APRIL 2015





# OKLAHOMA TEACHERS RETIREMENT SYSTEM

PO BOX 53524 OKLAHOMA CITY, OKLAHOMA 73152

(405) 521-2387 OR TOLL FREE (877) 738-6365

## Monthly Retirement Status Report

May 1, 2015

	<b>Count</b>	<b>Benefit Total</b>	<b>Average Benefit</b>	<b>Average Years of Service</b>	<b>Average Age</b>
<b>New Retirements</b>					
Disability	14	\$18,411.66	\$1,315.12	18.58	54.00
Normal	76	\$153,700.54	\$2,022.38	22.83	63.57
Total	90	\$172,112.20	\$1,912.36	22.17	62.08
<b>Terminated Annuities</b>					
	124	(\$163,041.46)	\$1,314.85	24.20	82.37

<b>NORMAL RETIREMENTS</b>			<b>May 1, 2015</b>		
<b>Client Number</b>	<b>Years Of Service</b>	<b>Age</b>	<b>Estimate Ret. Date</b>	<b>Retirement Number</b>	<b>Benefit</b>
Q0260448	11	55	5/1/2015	103535	\$336.75
Q0212321	26	64	5/1/2015	103789	\$3,430.24
Q0085958	21	64	5/1/2015	103385	\$2,668.47
Q0236803	16	63	5/1/2015	103578	\$2,428.94
Q0286402	9	70	5/1/2015	103701	\$442.57
Q0254164	29	62	5/1/2015	103686	\$2,383.46
Q0226704	17	61	5/1/2015	103555	\$804.69
Q0178890	22	69	5/1/2015	103386	\$2,503.30
Q0161119	33	65	5/1/2015	103537	\$2,600.30
Q0233330	13	73	5/1/2015	103473	\$858.40
Q0015005	10	63	5/1/2015	103538	\$956.18
Q0043683	46	72	5/1/2015	103735	\$5,643.38
Q0163025	29	57	5/1/2015	103736	\$4,021.50
Q0218802	48	76	5/1/2015	103790	\$4,011.89
Q0183035	5	62	5/1/2015	103616	\$300.16
Q0227868	39	72	5/1/2015	103539	\$4,893.79
Q0200702	30	66	5/1/2015	103687	\$2,555.51
Q0223418	19	62	5/1/2015	102741	\$1,276.56
Q0184812	29	56	5/1/2015	103788	\$2,378.56
Q0141753	32	66	5/1/2015	103622	\$2,377.24
Q0045186	11	63	5/1/2015	103579	\$443.75
Q0126113	31	62	5/1/2015	103474	\$2,125.94
Q0258387	25	67	5/1/2015	103569	\$2,304.78
Q0069123	38	61	5/1/2015	103791	\$2,976.85
Q0129483	25	55	5/1/2015	103484	\$2,757.29
Q0254106	20	68	5/1/2015	103617	\$2,374.30
Q0017396	25	56	5/1/2015	103363	\$3,293.97
Q0182128	11	64	5/1/2015	103714	\$503.63
Q0105705	11	63	5/1/2015	103787	\$1,079.74
Q0201831	17	62	5/1/2015	103715	\$484.96
Q0278865	10	64	5/1/2015	103618	\$435.01
Q0221924	29	57	5/1/2015	103676	\$5,207.83
Q0200822	12	67	5/1/2015	103688	\$821.82
Q0068001	21	62	5/1/2015	103700	\$1,567.76
Q0243718	9	60	5/1/2015	103580	\$234.57
Q0105498	40	69	5/1/2015	103623	\$1,529.83

NORMAL RETIREMENTS			May 1, 2015		
Client Number	Years Of Service	Age	Estimate Ret. Date	Retirement Number	Benefit
Q0021489	13	62	5/1/2015	103792	\$1,087.52
Q0178690	10	69	5/1/2015	103675	\$315.87
Q0008964	34	62	5/1/2015	103737	\$3,956.65
Q0029730	11	66	5/1/2015	103364	\$513.51
Q0229867	9	60	5/1/2015	103341	\$480.48
Q0048057	39	65	5/1/2015	103746	\$3,879.21
Q0087808	10	62	5/1/2015	103130	\$565.20
Q0033955	27	70	5/1/2015	104025	\$2,947.15
Q0287873	10	65	5/1/2015	103471	\$1,073.71
Q0015636	18	55	5/1/2015	103309	\$639.69
Q0230565	22	62	5/1/2015	103374	\$1,673.55
Q0012809	12	70	5/1/2015	103662	\$1,586.43
Q0199358	13	68	5/1/2015	103527	\$869.09
Q0003397	9	62	5/1/2015	103811	\$1,966.82
Q0187537	30	51	5/1/2015	104674	\$3,519.90
Q0222266	41	70	5/1/2015	103563	\$3,777.13
Q0052532	28	52	5/1/2015	103266	\$2,407.52
Q0164235	17	64	5/1/2015	103508	\$507.62
Q0067303	34	62	5/1/2015	103645	\$3,389.09
Q0146758	37	58	5/1/2015	103644	\$2,691.42
Q0067860	42	62	5/1/2015	103526	\$2,022.47
Q0105344	17	63	5/1/2015	103346	\$1,044.01
Q0122896	13	67	5/1/2015	103465	\$1,456.58
Q0231581	19	62	5/1/2015	103464	\$1,046.51
Q0088723	28	60	5/1/2015	103323	\$1,907.14
Q0184000	34	63	5/1/2015	103668	\$2,829.31
Q0161414	18	68	5/1/2015	103757	\$765.01
Q0106306	11	62	5/1/2015	103695	\$443.91
Q0167934	7	57	5/1/2015	103770	\$488.95
Q0020142	18	73	5/1/2015	103629	\$799.70
Q0219574	38	84	5/1/2015	104108	\$3,574.00
Q0234082	19	67	5/1/2015	103481	\$3,138.15
Q0144902	32	63	5/1/2015	103635	\$2,242.64
Q0049587	39	62	5/1/2015	103509	\$3,485.62
Q0045836	10	64	5/1/2015	103772	\$169.00
Q0024174	41	63	5/1/2015	103566	\$5,326.86
Q0044620	26	66	5/1/2015	103674	\$2,171.41
Q0091200	24	56	5/1/2015	103556	\$1,526.51

<b>NORMAL RETIREMENTS</b>			<b>May 1, 2015</b>		
<b>Client Number</b>	<b>Years Of Service</b>	<b>Age</b>	<b>Estimate Ret. Date</b>	<b>Retirement Number</b>	<b>Benefit</b>
Q0182381	31	61	5/1/2015	103321	\$3,659.12
Q0124939	28	55	5/1/2015	103613	\$2,742.16
<b>Averages</b>	<b>22.83</b>	<b>63.57</b>			<b>\$2,022.38</b>
			<b>Totals</b>	<b>76</b>	<b>\$153,700.54</b>

DISABILITY RETIREMENTS			May 1, 2015		
Client Number	Years Of Service	Age	Estimate Ret. Date	Retirement Number	Benefit
Q0227325	14	56	5/1/2015	D104658	\$849.88
Q0225830	15	50	5/1/2015	D104659	\$1,245.79
Q0111503	25	51	5/1/2015	D104660	\$2,195.30
Q0006874	11	47	5/1/2015	D104661	\$773.27
Q0069428	21	57	5/1/2015	D104662	\$1,481.62
Q0148224	21	58	5/1/2015	D104663	\$1,393.87
Q0133844	17	44	5/1/2015	D104664	\$1,196.51
Q0258285	24	55	5/1/2015	D104665	\$1,564.48
Q0128389	21	56	5/1/2015	D104666	\$1,392.00
Q0255265	25	52	5/1/2015	D104671	\$1,944.24
Q0053509	23	53	5/1/2015	D104670	\$1,813.00
Q0145960	18	61	5/1/2015	D103141	\$1,111.64
Q0235722	17	60	5/1/2015	D104667	\$978.53
Q0166771	10	56	5/1/2015	D104668	\$471.53
<b>Averages</b>	<b>18.58</b>	<b>54.00</b>			<b>\$1,315.12</b>
			<b>Totals</b>	<b>14</b>	<b>\$18,411.66</b>

<b>TERMINATIONS</b>		<b>April 1, 2015</b>				
<b>Termination Type</b>	<b>Years Of Service</b>	<b>Age</b>	<b>Death Date</b>	<b>Termination Date</b>	<b>Retirement Number</b>	<b>Benefit</b>
Deceased	41	102	3/20/2015	4/1/2015	014819	\$1,818.02
Deceased	20	100	3/20/2015	4/1/2015	016451	\$1,011.88
Deceased	24	97	3/24/2015	4/1/2015	016976	\$1,028.94
Deceased	16	94	3/10/2015	4/1/2015	019444	\$507.63
Deceased	32	96	3/20/2015	4/1/2015	019686	\$1,473.92
Deceased	27	94	3/5/2015	4/1/2015	021026	\$367.27
Deceased	39	95	3/17/2015	4/1/2015	021206	\$1,859.37
Deceased	43	97	3/21/2015	4/1/2015	021510	\$1,996.34
Deceased	27	97	3/2/2015	4/1/2015	021774	\$651.64
Deceased	43	97	3/11/2014	4/1/2015	022349	\$1,818.89
Deceased	32	94	3/31/2015	4/1/2015	022414	\$1,639.89
Deceased	39	93	3/19/2015	4/1/2015	022460	\$2,007.19
Deceased	24	97	3/12/2015	4/1/2015	022483	\$1,267.57
Deceased	20	92	3/16/2015	4/1/2015	022928	\$446.75
Deceased	34	87	3/22/2015	4/1/2015	023100	\$1,758.32
Deceased	21	92	3/29/2015	4/1/2015	023102	\$970.33
Deceased	14	93	3/17/2015	4/1/2015	023456	\$650.89
Deceased	42	93	4/22/2015	4/1/2015	023573	\$2,227.11
Deceased	35	91	3/16/2015	4/1/2015	023822	\$1,982.07
Deceased	20	92	3/27/2015	4/1/2015	024060	\$1,033.66
Deceased	28	82	3/11/2015	4/1/2015	024603	\$1,631.72
Deceased	23	91	3/3/2015	4/1/2015	024706	\$1,127.16
Deceased	12	99	3/26/2015	4/1/2015	025632	\$281.76
Deceased	29	81	3/7/2015	4/1/2015	025896	\$1,786.19
Deceased	39	91	3/10/2015	4/1/2015	025980	\$2,420.22
Deceased	44	95	3/20/2015	4/1/2015	026155	\$2,733.39
Deceased	21	92	3/10/2015	4/1/2015	026207	\$824.88
Deceased	37	91	3/18/2015	4/1/2015	026635	\$2,295.62
Deceased	15	90	3/16/2015	4/1/2015	026988	\$537.31
Deceased	14	91	3/28/2015	4/1/2015	027450	\$313.14
Deceased	16	90	3/31/2015	4/1/2015	027469	\$277.20
Deceased	21	91	3/21/2015	4/1/2015	027551	\$463.18
Deceased	19	92	3/8/2015	4/1/2015	027599	\$1,128.94
Deceased	37	93	3/25/2015	4/1/2015	027806	\$2,075.20
Deceased	31	82	3/6/2015	4/1/2015	027835	\$720.88
Deceased	30	96	3/8/2015	4/1/2015	027914	\$1,319.16
Deceased	22	90	3/5/2015	4/1/2015	028453	\$1,459.58

**TERMINATIONS****April 1, 2015**

<b>Termination Type</b>	<b>Years Of Service</b>	<b>Age</b>	<b>Death Date</b>	<b>Termination Date</b>	<b>Retirement Number</b>	<b>Benefit</b>
Deceased	30	91	3/14/2015	4/1/2015	029151	\$2,267.42
Deceased	32	85	3/31/2015	4/1/2015	029158	\$2,604.69
Deceased	37	88	3/23/2015	4/1/2015	029244	\$2,548.89
Deceased	32	81	3/9/2015	4/1/2015	029279	\$898.93
Deceased	25	84	3/7/2015	4/1/2015	029694	\$1,079.17
Deceased	29	84	3/21/2015	4/1/2015	029756	\$1,479.96
Deceased	29	79	3/24/2015	4/1/2015	030113	\$1,394.21
Deceased	10	93	3/7/2015	4/1/2015	030297	\$330.15
Deceased	15	92	3/24/2015	4/1/2015	030347	\$806.08
Deceased	11	83	3/31/2015	4/1/2015	030710	\$78.99
Deceased	25	82	3/4/2015	4/1/2015	030851	\$571.81
Deceased	22	85	3/2/2015	4/1/2015	030914	\$1,026.34
Deceased	20	87	3/17/2015	4/1/2015	031276	\$1,044.96
Deceased	22	83	3/8/2015	4/1/2015	031390	\$453.61
Deceased	16	87	3/6/2015	4/1/2015	031995	\$369.03
Deceased	13	89	3/26/2015	4/1/2015	032311	\$327.12
Deceased	30	78	3/1/2015	4/1/2015	032452	\$1,609.54
Deceased	13	83	3/24/2015	4/1/2015	033019	\$460.33
Deceased	21	83	3/10/2015	4/1/2015	033082	\$1,488.42
Deceased	20	80	3/23/2015	4/1/2015	033160	\$609.54
Deceased	31	89	3/26/2015	4/1/2015	033181	\$1,891.93
Deceased	44	89	3/23/2015	4/1/2015	033387	\$3,239.78
Deceased	14	81	3/29/2015	4/1/2015	033985	\$487.55
Deceased	16	80	3/15/2015	4/1/2015	034093	\$653.59
Deceased	17	85	3/10/2015	4/1/2015	034751	\$768.25
Deceased	23	86	3/13/2015	4/1/2015	035081	\$1,150.74
Deceased	26	77	3/31/2015	4/1/2015	035155	\$2,036.02
Deceased	36	81	3/31/2015	4/1/2015	035158	\$2,363.80
Deceased	16	78	3/15/2015	4/1/2015	035699	\$349.83
Deceased	14	90	3/20/2015	4/1/2015	037084	\$317.36
Deceased	17	86	3/18/2015	4/1/2015	037673	\$1,316.71
Deceased	30	88	3/12/2015	4/1/2015	037818	\$1,857.78
Deceased	29	77	3/12/2015	4/1/2015	037827	\$2,256.99
Deceased	10	87	3/30/2015	4/1/2015	037842	\$379.12
Deceased	12	82	3/20/2015	4/1/2015	038515	\$472.13
Deceased	36	80	3/15/2015	4/1/2015	038542	\$2,815.35
Deceased	22	81	3/29/2015	4/1/2015	038635	\$748.60

**TERMINATIONS****April 1, 2015**

<b>Termination Type</b>	<b>Years Of Service</b>	<b>Age</b>	<b>Death Date</b>	<b>Termination Date</b>	<b>Retirement Number</b>	<b>Benefit</b>
Deceased	19	85	3/9/2015	4/1/2015	039093	\$1,042.96
Deceased	18	82	3/22/2015	4/1/2015	039599	\$120.96
Deceased	33	77	3/30/2015	4/1/2015	040287	\$1,372.68
Deceased	19	85	3/25/2015	4/1/2015	040540	\$1,119.70
Deceased	23	78	3/19/2015	4/1/2015	041497	\$1,315.58
Deceased	28	73	3/26/2015	4/1/2015	042145	\$1,963.03
Deceased	11	81	3/27/2015	4/1/2015	042339	\$629.93
Deceased	30	81	3/1/2015	4/1/2015	043962	\$1,101.91
Deceased	30	71	3/11/2015	4/1/2015	044057	\$2,173.99
Deceased	22	77	3/14/2015	4/1/2015	045030	\$1,397.42
Deceased	29	74	3/18/2015	4/1/2015	045282	\$1,713.48
Deceased	26	72	3/7/2015	4/1/2015	045483	\$1,588.66
Deceased	29	81	3/5/2015	4/1/2015	045751	\$1,996.06
Deceased	11	97	3/16/2015	4/1/2015	046596	\$304.44
Deceased	12	82	3/4/2015	4/1/2015	046801	\$325.59
Deceased	11	79	3/21/2014	4/1/2015	048975	\$498.41
Deceased	30	70	3/30/2015	4/1/2015	052116	\$2,247.84
Deceased	42	80	3/7/2015	4/1/2015	052450	\$2,881.85
Deceased	31	76	3/22/2015	4/1/2015	052770	\$2,031.13
Deceased	21	80	3/9/2015	4/1/2015	054439	\$870.68
Deceased	23	73	3/12/2015	4/1/2015	055902	\$1,272.66
Deceased	37	72	3/19/2015	4/1/2015	058222	\$2,608.14
Deceased	24	68	3/13/2015	4/1/2015	058888	\$1,555.04
Deceased	31	76	3/11/2015	4/1/2015	059757	\$1,480.10
Deceased	14	74	3/27/2015	4/1/2015	061587	\$735.95
Deceased	16	64	3/14/2015	4/1/2015	063163	\$231.28
Deceased	35	72	3/23/2015	4/1/2015	065480	\$3,423.36
Deceased	10	73	3/4/2015	4/1/2015	065955	\$141.61
Deceased	35	73	3/23/2015	4/1/2015	066108	\$3,057.17
Deceased	9	75	3/27/2015	4/1/2015	072396	\$199.97
Deceased	12	68	3/4/2015	4/1/2015	073914	\$387.56
Deceased	25	71	3/23/2015	4/1/2015	074294	\$2,115.25
Deceased	9	70	3/24/2015	4/1/2015	074458	\$563.73
Deceased	26	64	3/21/2015	4/1/2015	074913	\$2,363.18
Deceased	20	65	3/28/2015	4/1/2015	076135	\$939.17
Deceased	32	64	3/5/2015	4/1/2015	077113	\$2,683.46
Deceased	29	61	3/1/2015	4/1/2015	077263	\$1,087.16

<b>TERMINATIONS</b>		<b>April 1, 2015</b>				
<b>Termination Type</b>	<b>Years Of Service</b>	<b>Age</b>	<b>Death Date</b>	<b>Termination Date</b>	<b>Retirement Number</b>	<b>Benefit</b>
Deceased	24	71	3/18/2015	4/1/2015	094975	\$1,704.36
Deceased	10	64	3/18/2015	4/1/2015	098986	\$675.31
Deceased	23	59	3/2/2015	4/1/2015	099353	\$1,948.47
Deceased	45	68	3/2/2015	4/1/2015	099382	\$2,514.35
Deceased	14	71	3/24/2015	4/1/2015	099800	\$968.00
Deceased	11	63	3/2/2015	4/1/2015	101041	\$1,249.48
Deceased	36	61	3/31/2015	4/1/2015	102506	\$4,342.95
Deceased	23	96	3/1/2015	4/1/2015	D00329	\$1,022.57
Deceased	11	80	3/19/2015	4/1/2015	D01460	\$534.48
Deceased	11	80	3/19/2015	4/1/2015	D01460	\$534.48
Deceased	19	72	3/3/2015	4/1/2015	D01558	\$1,437.45
Deceased	23	70	3/5/2015	4/1/2015	D01670	\$1,457.92
Deceased	12	62	3/4/2015	4/1/2015	D096677	\$642.62
<b>Averages</b>	<b>24.20</b>	<b>82.37</b>				<b>\$1,314.85</b>
				<b>Totals</b>	<b>124</b>	<b>\$163,041.46</b>



**OKLAHOMA TEACHERS  
RETIREMENT SYSTEM**

**HR STATUS REPORT  
5/20/2015**

**HR STATUS REPORT**

- **New Hires (April 2015):**  
n/a
- **Resignations/Terminations/Retirements (April 2015):**  
n/a
- **Promotion (April 2015):**  
n/a

**EMPLOYEE RECOGNITION LUNCHEON**

- An Employee Recognition Luncheon was held 04/29/2015.

**MISCELLANEOUS PAYMENTS**

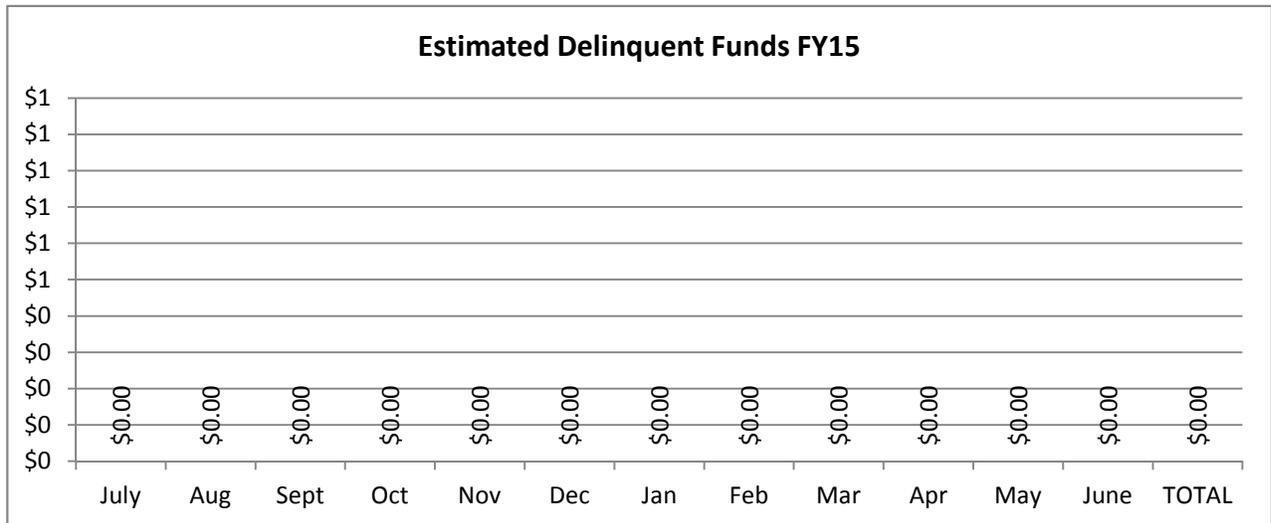
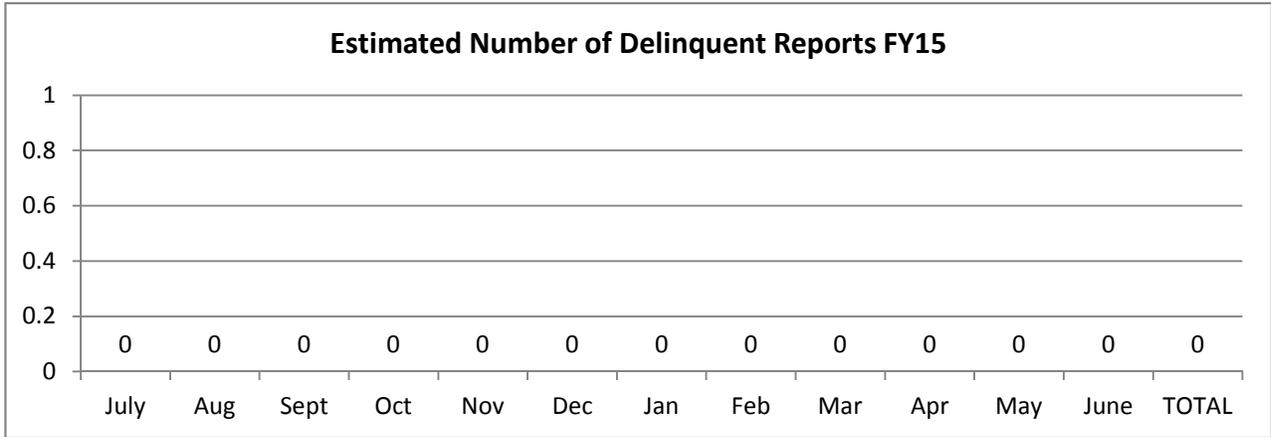
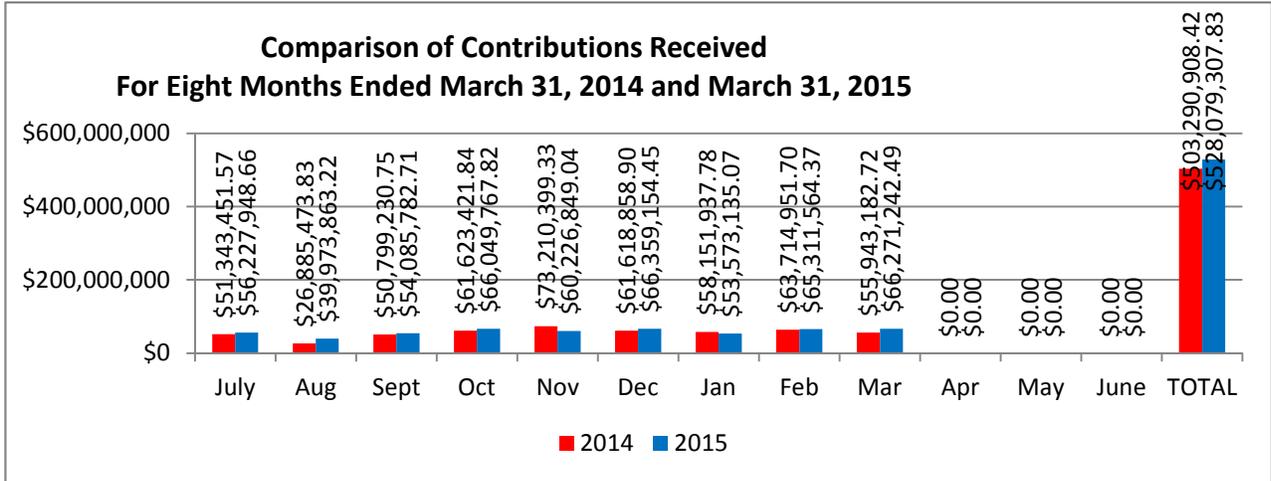
- **Employee of the Quarter**  
*Employee:* 107372  
*Title:* Retirement Planning Consultant  
*Payment:* \$250  
*Effective:* 05/12/2015
- **Severance Payments:**  
n/a

**NEW HIRES, RESIGNATIONS, RETIREMENTS OR OTHER CHANGES PENDING**

- Financial Accountant (receipting) – effective 05/04/2015 (Jun 2015 report)

# Employer Reporting

## Analysis of Employee and Employer Contributions Received





**BALANCE SHEET**  
**APRIL 30, 2015**

**CURRENT ASSETS:**

Cash Not Available For Investment	\$6,795,981.98
Equities (At Market Value)	11,270,806,853.97
Fixed Income (At Market Value)	2,931,298,572.67
Short-Term Investment Account	449,383,873.93
Due From/(To) Broker	(122,704,288.47)
Accounts Receivable Installment Payments	1,237,028.93
Accrued Income	<u>53,179,133.58</u>

**Total Current Assets**

14,589,997,156.59

**CAPITAL ASSETS:**

Office Furniture and Equipment	3,098,149.51
Accumulated Depreciation	<u>(249,578.54)</u>

**TOTAL ASSETS**

\$14,592,845,727.56

**CURRENT LIABILITIES:**

Teachers' Savings Fund	\$4,519,502,369.60
Retirement Benefit Fund	9,377,606,256.70
Interest Fund	629,370,234.14
Expense Fund	26,814,090.36
Suspense Fund	<u>36,244,929.53</u>

**Total Current Liabilities**

14,589,537,880.33

TRS Capital Investment	<u>3,307,847.23</u>
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**TOTAL LIABILITIES AND CAPITAL INVESTMENT**

\$14,592,845,727.56

STATEMENT OF REVENUES, EXPENDITURES AND CHANGES  
FOR THE TEN MONTHS ENDED APRIL 30

	<u>Year to Date</u> (FY 2015)	<u>Year to Date</u> (FY 2014)	<u>% Change</u>
Balance of Cash and Investments Net Position, Beginning of Year	\$14,201,669,559.43	\$11,817,761,245.40	
<b><u>RECEIPTS:</u></b>			
Members' Deposits	220,642,958.24	212,119,259.99	4.02%
Employer Contributions	320,828,281.33	309,581,768.58	3.63%
State Credits	30,897,068.00	30,877,703.00	0.06%
Reimbursed Administrative	14,399.05	78,684.85	-81.70%
Matching Funds from Schools	19,775,186.37	19,635,295.65	0.71%
Lottery Revenue	2,778,233.50	2,815,173.50	-1.31%
Cigarette Sales Tax Revenue	1,367,372.47	1,319,457.94	3.63%
Dedicated Revenue	249,718,733.41	233,021,017.57	7.17%
<b>Total Retirement Receipts</b>	<b>846,022,232.37</b>	<b>809,448,361.08</b>	<b>4.52%</b>
Interest Income (Fixed Income and Short-Term)	106,878,519.45	105,480,880.45	1.33%
Dividend Income	180,147,568.96	189,328,818.17	-4.85%
Net Realized Gain/(Loss)	762,270,045.59	794,193,264.12	-4.02%
Net Unrealized Gain/(Loss)	(429,708,686.16)	908,832,016.29	-147.28%
Investment Operations Income:			
Class Action Lawsuit Proceeds	2,298.49	315,948.40	-99.27%
Other Income	118,788.76	157,044.49	-24.36%
Securities Lending Income	9,661,699.05	6,726,643.36	43.63%
<b>Total Investment Income</b>	<b>629,370,234.14</b>	<b>2,005,034,615.28</b>	<b>-68.61%</b>
<b>TOTAL RECEIPTS</b>	<b>1,475,392,466.51</b>	<b>2,814,482,976.36</b>	<b>-47.58%</b>
<b><u>DISBURSEMENTS:</u></b>			
Retirement Benefits	966,595,652.51	923,088,806.27	4.71%
Insurance Premiums Paid for Retirees	25,347,906.00	25,162,795.00	0.74%
Death Benefits	12,426,769.54	13,446,861.90	-7.59%
Withdrawals of Accounts	25,860,801.22	25,687,080.31	0.68%
<b>Total Benefit Payments</b>	<b>1,030,231,129.27</b>	<b>987,385,543.48</b>	<b>4.34%</b>
Administrative Expense:			
General Operations	4,341,085.78	4,137,915.42	4.91%
Investment Expense	45,551,397.84	39,969,539.29	13.97%
<b>Total Administrative Expenses</b>	<b>49,892,483.62</b>	<b>44,107,454.71</b>	<b>13.12%</b>
<b>TOTAL DISBURSEMENTS</b>	<b>1,080,123,612.89</b>	<b>1,031,492,998.19</b>	<b>4.71%</b>
<b>NET INCREASE/(NET DECREASE)</b>	<b>395,268,853.62</b>	<b>1,782,989,978.17</b>	<b>-77.83%</b>
Balance of Cash and Investments, April 30	<u>\$14,596,938,413.05</u>	<u>\$13,600,751,223.57</u>	



**SCHEDULE I**  
**Comparison of Actual Expenditures Fiscal Year 2014 and Fiscal Year 2015**  
**10 Months Ended April 30**

Object of Expenditure	FY-2014 YTD Actual Expenditures 4/30/2014	FY-2015 YTD Actual Expenditures 4/30/2015	Increase (Decrease) Amount	Increase (Decrease) Percentage
<b>Personal Services</b>				
Salary and Longevity Pay Expenses	1,529,123	1,502,100	(27,023)	-1.8%
Taxes, Benefits, and Other Expenses	757,434	763,383	5,950	0.8%
<b>Subtotal Personal Services</b>	<b>2,286,556</b>	<b>2,265,483</b>	<b>(21,073)</b>	<b>-0.9%</b>
<b>Professional Services</b>				
Investment Manager Expenses	30,027,502	31,780,435	1,752,933	5.8%
Investment Consultant Expenses	585,000	705,000	120,000	20.5%
Investment Custodian Expenses	52,468	50,677	(1,791)	-3.4%
Pension Commission Expenses	34,445	15,016	(19,429)	-56.4%
<b>Subtotal Investment Expenses</b>	<b>30,699,415</b>	<b>32,551,128</b>	<b>1,851,713</b>	<b>6.0%</b>
Legal Services - Special Projects	5,077	40,926	35,849	706.2%
Legal Services - Attorney General	54,094	743	(53,351)	-98.6%
Administrative Hearings	0	0	0	0.0%
Auditing Services	110,726	254,676	143,950	130.0%
Actuarial Services	88,495	88,511	16	0.0%
Medical Hearings	6,000	7,900	1,900	31.7%
Reimbursement for Executive Director Services	0	29,444	29,444	-
Marketing Consultant	15,694	0	(15,694)	-100.0%
Miscellaneous Services	61,316	60,632	(684)	-1.1%
<b>Subtotal Professional Services</b>	<b>341,401</b>	<b>482,832</b>	<b>141,430</b>	<b>41.4%</b>
<b>Total Professional Services</b>	<b>31,040,817</b>	<b>33,033,960</b>	<b>1,993,143</b>	<b>6.4%</b>
<b>Travel and Per Diem Expenses</b>				
Non-Employee Travel Expenses	22,864	18,039	(4,825)	-21.1%
Employee Training	12,625	5,553	(7,072)	-56.0%
Employee Travel Expenses	24,063	14,489	(9,574)	-39.8%
<b>Subtotal Travel and Per Diem Expenses</b>	<b>59,552</b>	<b>38,081</b>	<b>(21,471)</b>	<b>-36.1%</b>
<b>Administrative Expenses</b>				
Postage	144,815	150,929	6,114	4.2%
Telecommunications Services	23,904	17,810	(6,094)	-25.5%
Printing and Binding Contracts	42,040	28,006	(14,034)	-33.4%
Informational Services	60,988	37,457	(23,531)	-38.6%
Rent and Maintenance	166,988	164,718	(2,270)	-1.4%
Office Supplies	18,664	20,457	1,792	9.6%
Buildings and Other Structures Construction and Renovation	7,010	0	(7,010)	-100.0%
Miscellaneous Administrative Expenses	23,805	36,102	12,297	51.7%
<b>Subtotal Administrative Expenses</b>	<b>488,215</b>	<b>455,479</b>	<b>(32,736)</b>	<b>-6.7%</b>
<b>Data Processing Expenses</b>				
Professional Services	726,350	760,541	34,191	4.7%
Rent and Maintenance	4,711	6,217	1,507	32.0%
Office Supplies	2,572	0	(2,572)	-100.0%
Equipment - Telecommunications	2,456	2,807	351	14.3%
<b>Subtotal Data Processing Expenses</b>	<b>736,088</b>	<b>769,565</b>	<b>33,477</b>	<b>4.5%</b>
<b>Total Expenses</b>	<b>34,611,228</b>	<b>36,562,568</b>	<b>1,951,340</b>	<b>5.6%</b>
<b>Total Investment Expenses Only</b>	<b>30,699,415</b>	<b>32,551,128</b>	<b>1,851,713</b>	<b>6.0%</b>
<b>Total Data Processing Expenses Only</b>	<b>736,088</b>	<b>769,565</b>	<b>33,477</b>	<b>4.5%</b>
<b>Total except Investment &amp; Data Processing Expenses</b>	<b>3,175,724</b>	<b>3,241,875</b>	<b>66,151</b>	<b>2.1%</b>



**SCHEDULE II**  
**Comparison of FY2015 Budget to Actual Expenses**  
**10 Months ended April 30, 2015 Year to Date Comparison**

<b>Object of Expenditure</b>	<b>10 Month FY-2015 YTD Budget</b>	<b>10 Month FY-2015 YTD Actual</b>	<b>Over (Under) Amount</b>	<b>Over (Under) Percentage</b>
<b>Personal Services</b>				
Salary and Longevity Pay Expenses	2,018,496	1,502,100	(516,396)	-25.6%
Taxes, Benefits, and Other Expenses	1,083,437	763,383	(320,054)	-29.5%
<b>Subtotal Personal Services</b>	<b>3,101,933</b>	<b>2,265,483</b>	<b>(836,450)</b>	<b>-27.0%</b>
<b>Professional Services</b>				
Investment Manager Expenses	41,334,535	31,780,435	(9,554,100)	-23.1%
Investment Consultant Expenses	585,000	705,000	120,000	20.5%
Investment Custodian Expenses	69,000	50,677	(18,323)	-26.6%
Pension Commission Expenses	52,500	15,016	(37,484)	-71.4%
<b>Subtotal Investment Expenses</b>	<b>42,041,035</b>	<b>32,551,128</b>	<b>(9,489,907)</b>	<b>-22.6%</b>
Legal Services - Special Projects	7,000	40,926	33,926	484.7%
Legal Services - Attorney General	6,250	743	(5,507)	-88.1%
Administrative Hearings	4,150	0	(4,150)	-100.0%
Auditing Services	182,000	254,676	72,676	39.9%
Actuarial Services	150,000	88,511	(61,489)	-41.0%
Medical Hearings	12,850	7,900	(4,950)	-38.5%
Reimbursement for Executive Director Services	0	29,444	29,444	0.0%
Marketing Consultant	25,000	0	(25,000)	-100.0%
Miscellaneous Services	26,340	60,632	34,292	130.2%
<b>Subtotal Professional Services</b>	<b>413,590</b>	<b>482,832</b>	<b>69,242</b>	<b>16.7%</b>
<b>Total Professional Services</b>	<b>42,454,625</b>	<b>33,033,960</b>	<b>(9,420,665)</b>	<b>-22.2%</b>
<b>Travel and Per Diem Expenses</b>				
Non-Employee Travel Expenses	43,000	18,039	(24,961)	-58.0%
Employee Training	18,415	5,553	(12,862)	-69.8%
Employee Travel Expenses	71,772	14,489	(57,283)	-79.8%
<b>Subtotal Travel and Per Diem Expenses</b>	<b>133,187</b>	<b>38,081</b>	<b>(95,106)</b>	<b>-71.4%</b>
<b>Administrative Expenses</b>				
Postage	212,500	150,929	(61,571)	-29.0%
Telecommunications Services	33,330	17,810	(15,520)	-46.6%
Printing and Binding Contracts	88,916	28,006	(60,910)	-68.5%
Informational Services	42,573	37,457	(5,116)	-12.0%
Rent and Maintenance	214,944	164,718	(50,226)	-23.4%
Office Supplies	30,558	20,457	(10,101)	-33.1%
Equipment	7,585	0	(7,585)	-100.0%
Buildings-Purch, Construction Repairs	0	0	0	0.0%
Miscellaneous Administrative Expenses	26,950	36,102	9,152	34.0%
<b>Subtotal Administrative Expenses</b>	<b>657,356</b>	<b>455,479</b>	<b>(201,877)</b>	<b>-30.7%</b>
<b>Data Processing Expenses</b>				
Professional Services	818,526	760,541	(57,985)	-7.1%
Travel and Per Diem Expenses	0	0	0	0.0%
Rent and Maintenance	4,250	6,217	1,967	46.3%
Office Supplies	4,580	0	(4,580)	-100.0%
Equipment - Telecommunications	31,000	2,807	(28,193)	-90.9%
Miscellaneous Administrative Expenses	0	0	0	0.0%
<b>Subtotal Data Processing Expenses</b>	<b>858,356</b>	<b>769,565</b>	<b>(88,791)</b>	<b>-10.3%</b>
<b>Total Expenses</b>	<b>47,205,457</b>	<b>36,562,568</b>	<b>(10,642,889)</b>	<b>-22.5%</b>
<b>Total Investment Expenses Only</b>	<b>42,041,035</b>	<b>32,551,128</b>	<b>(9,489,907)</b>	<b>-22.6%</b>
<b>Total Data Processing Expenses Only</b>	<b>858,356</b>	<b>769,565</b>	<b>(88,791)</b>	<b>-10.3%</b>
<b>Total except Investment and Data Processing Expenses</b>	<b>4,306,066</b>	<b>3,241,875</b>	<b>(1,064,191)</b>	<b>-24.7%</b>

**Miscellaneous Professional Services Expenses**

	<b>Budget 2015</b>	<b>Expenses 2015</b>	<b>Expenses 2014</b>
Background Checks	\$60.00	\$114.00	\$95.00
Management Consultant	5,000.00	0.00	49,985.01
Executive Director Search	0.00	43,008.65	0.00
Document Destruction	3,000.00	1,486.00	1,893.52
Security	7,330.00	4,258.79	5,747.99
Business Service Center	4,000.00	9,229.35	3,086.98
Sign Language Interpreter	0.00	0.00	507.52
Legal Subscription Service	0.00	235.00	0.00
NAVEX Hotline - Ethics	0.00	2,300.02	0.00
	<b><u>\$26,340.00</u></b>	<b><u>\$60,631.81</u></b>	<b><u>\$61,316.02</u></b>

**Miscellaneous Administrative Expenses**

	<b>Budget 2015</b>	<b>Expenses 2015</b>	<b>Expenses 2014</b>
Bank Service Charges	\$6,200.00	\$5,725.98	\$7,051.84
ERP Systems - PeopleSoft	2,720.00	2,124.00	2,655.00
Licenses, Permits, Certificates and Other Rights	1,095.00	14,614.50	1,723.00
Membership in Organizations	10,495.00	8,445.00	5,975.00
Advertising	3,440.00	813.52	2,493.38
Interior Design Services	0.00	0.00	1,335.25
Property and Liability Insurance	3,000.00	2,807.87	2,571.33
Tuition Career-Tech Schools and Other Training	0.00	1,410.00	0.00
Interest on Withholding Taxes	0.00	161.42	0.00
	<b><u>\$26,950.00</u></b>	<b><u>\$36,102.29</u></b>	<b><u>\$23,804.80</u></b>



**CLAIMS FOR AUTHORIZED EXPENDITURES  
APRIL 30, 2015**

Expenses of Board

Trustee	Meeting, April travel	\$ 127.40
Trustee	Meeting, April travel	258.89
Trustee	Meeting, April travel	184.00
Trustee	Meeting, April travel	181.70
		<hr/> 751.99

Communications

Ala Carte Courier	Courier services	485.90
AT&T	Wireless, OneNet charges	507.49
Cox Communications	Cable charges	43.56
FedEx	Freight	11.54
JP Morgan Chase Bank, NA	Account analysis bank fees	620.81
Office of Management and Enterprise Services	Desktop, laptop, email support	3,399.88
Office of Management and Enterprise Services	Server support, disk storage & network support	1,944.00
Office of Management and Enterprise Services	Telecommunications, transaction fees	1,566.75
Thomson West	Legal information services	235.00
Wall Street Journal	Information service subscription - 12 months	299.88
		<hr/> 9,114.81

Contingency, Maintenance, Insurance, Rent, Etc.

Department of Libraries	Records storage - February and March 2015	979.80
Extreme Beans Coffee	Kitchen supplies	525.75
First Aid Express	Safety supplies	54.10
OKAPP.ORG	Business Manager - conference registration/membership	385.00
OKAPP.ORG	Financial Accountant - conference registration/membership	385.00
Oklahoma State Bureau of Investigations	Background checks	19.00
Office of Management and Enterprise Services	Office rent - April	13,195.27
Precision Document Solutions	Printer maintenance	374.90
Sooner Donuts	April board meeting	15.80
Summit Mailing & Shipping Systems	Mail opener maintenance	111.25
Staples	Office supplies	516.40
Standley Systems, LLC	Copier lease	3,584.34
US Court - 10th Circuit Court of Appeals	General Counsel - membership	225.00
Walker Co.	Office supplies	29.92
Zios Italian Kitchen	Catering - April board meeting	224.93
		<hr/> 20,626.46



**CLAIMS FOR AUTHORIZED EXPENDITURES  
APRIL 30, 2015**

Investment Expenditures

Advisory Research	Investment management fees third quarter	\$ 1,086,462.49
Causeway Capital	Investment management fees third quarter	863,974.63
Chickasaw Capital Management	Investment management fees third quarter	623,751.38
Epoch	Investment management fees third quarter	911,805.53
Frontier Capital Management	Investment management fees third quarter	1,150,785.58
Gregory W Group	April 2015 consultant fees	88,500.00
Hoisington Investment Management	Investment management fees third quarter	117,548.00
Hotchkis and Wiley Capital Management	Investment management fees third quarter	1,104,714.70
JP Morgan Chase Bank, NA	Custodian bank fees first and second quarters	50,676.93
Neumeier Poma Investment Counsel	Investment management fees third quarter	208,447.00
Sawgrass Asset Management	Investment management fees third quarter	478,873.00
Wasatch Advisors, Inc.	Investment management fees third quarter	869,394.42
		7,554,933.66

Professional Services, Workers Comp Insurance

22nd Century Staffing	Project Manager: July through December 2014	81,258.13
22nd Century Staffing	Project Manager: January and February 2015	29,608.80
Compsource Oklahoma	Workers compensation premiums	1,819.00
Dathan D Jay MD	April 2015 medical board	300.00
Gabriel, Roeder Smith & Co.	Actuarial evaluation and consulting - March	15,664.00
George R Jay MD	April 2015 medical board	300.00
MY Consulting Inc.	ALICE development	66,900.00
Office of Management and Enterprise Services	Interagency mail/postage	4,842.66
Peyton Osborne MD	April 2015 medical board	300.00
Stinnett & Associates LLC	Audit services March 2015	13,095.00
The Meadows	Document destruction	151.76
		214,239.35

Salaries and Fringe Benefits

Salaries	Administrative department	29,726.18
Salaries	Finance/Accounting department	29,910.11
Salaries	Client Services department	87,445.11
Salaries	Investment department	5,000.00
Education Loan Incentives	Administrative department	8,051.97
	Client Services department	2,287.45
Longevity Payroll		626.00
Excess Benefit Allowance		3,658.39
FICA/MQFE	Social Security and Medicare	12,649.97
Oklahoma State Deferred Savings Incentive Plan	Savings incentive plan and administrative fee	876.15
Oklahoma Group Insurance	Employee health, dental, and life	34,050.11
Teachers' Retirement System of Oklahoma	Employees retirement contributions	33,930.06
Unemployment compensation	Unemployment for Agency payroll	1,006.29
		249,217.79

Grand Total		\$ 8,048,884.06
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