



Kentucky Employees' Retirement System 2014 Actuarial Valuation Results

December 4, 2014



Benefit Financing



➤ Basic Retirement Funding Equation

$$C + I = B + E$$

C = Contributions

I = Investment Income

B = Benefits Paid

E = Expenses (administration)



Combined Funded Status



Fund	June 30, 2014			June 30, 2013		
	Pension	Insurance	Combined	Pension	Insurance	Combined
KERS Non-Hazardous	21.0%	27.9%	22.1%	23.2%	23.4%	23.2%
KERS Hazardous	64.6%	105.6%	78.0%	64.5%	96.2%	74.9%
CERS Non-Hazardous	62.6%	70.0%	64.2%	60.1%	66.6%	61.5%
CERS Hazardous	59.8%	66.8%	62.0%	57.7%	62.1%	59.1%
SPRS	35.6%	66.4%	43.5%	37.1%	61.3%	43.3%



Pension Results



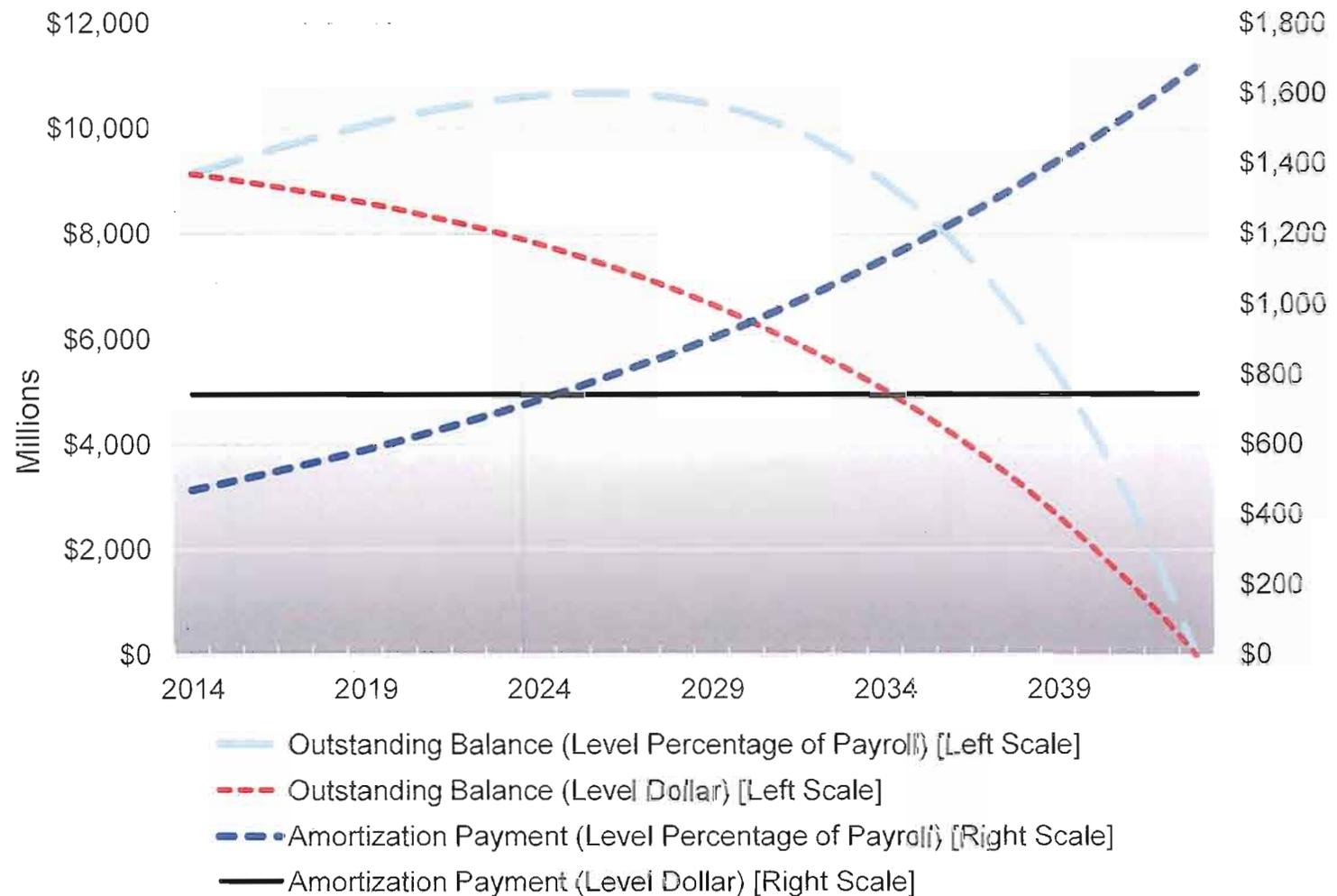
Comments on Pension Valuations



- Market value investment return was greater than anticipated for all Funds
- Actuarial value investment return was greater than expected for all Funds
- Increase in funded ratios for all Funds except for the KERS Non-Hazardous and SPRS
- Per statute, amortization period reset to 30 years effective June 30, 2013
- Amortization period is 29 years as of June 30, 2014 using level percentage of payroll financing
- Recommended KERS and SPRS contribution rates are set biennially beginning with 14/15 and 15/16 fiscal years based on the July 1, 2013 valuation results
- KERS and SPRS contribution rates as of June 30, 2014 are for informational purposes only.

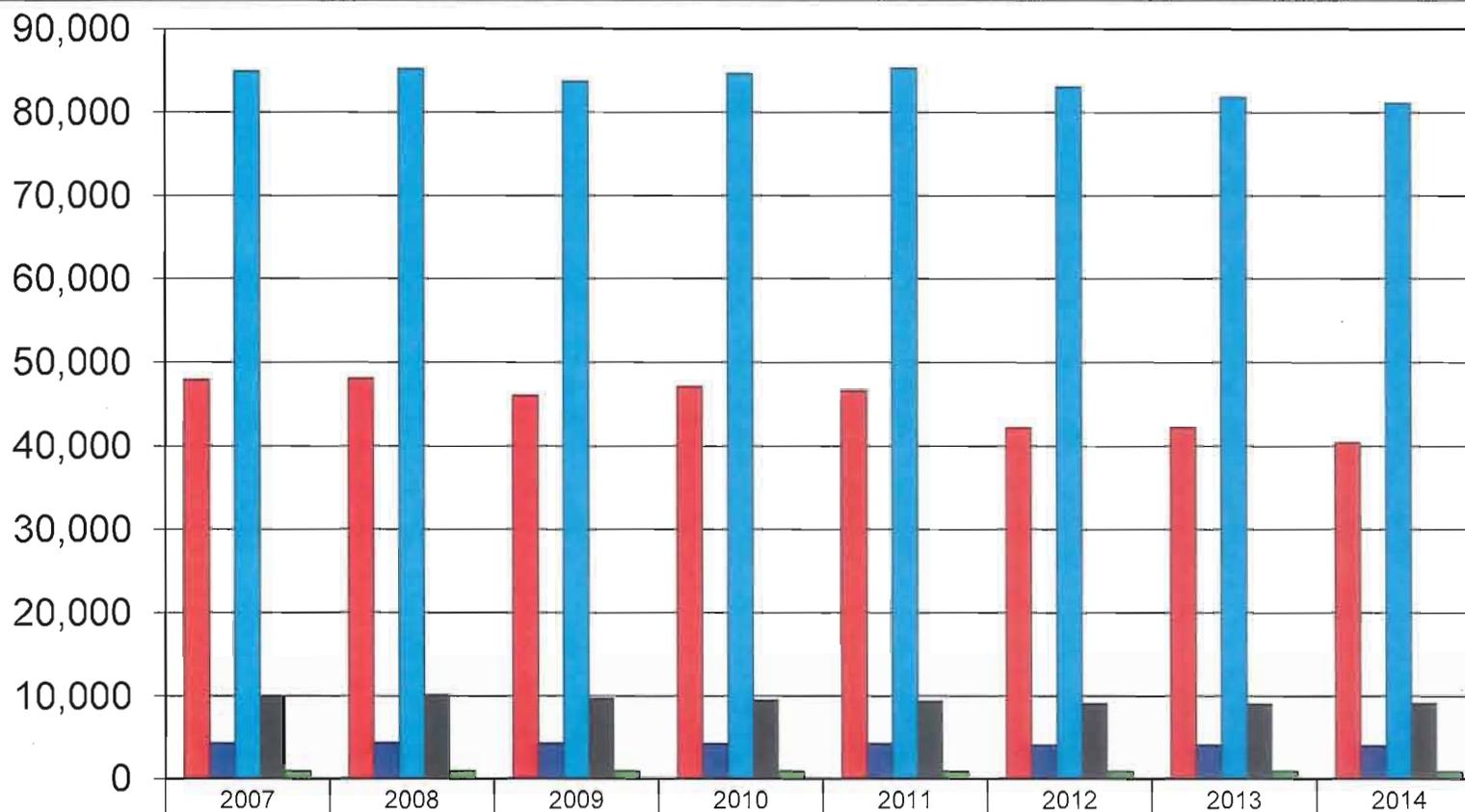


Amortization Schedule of UAL (KERS Non-Hazardous)





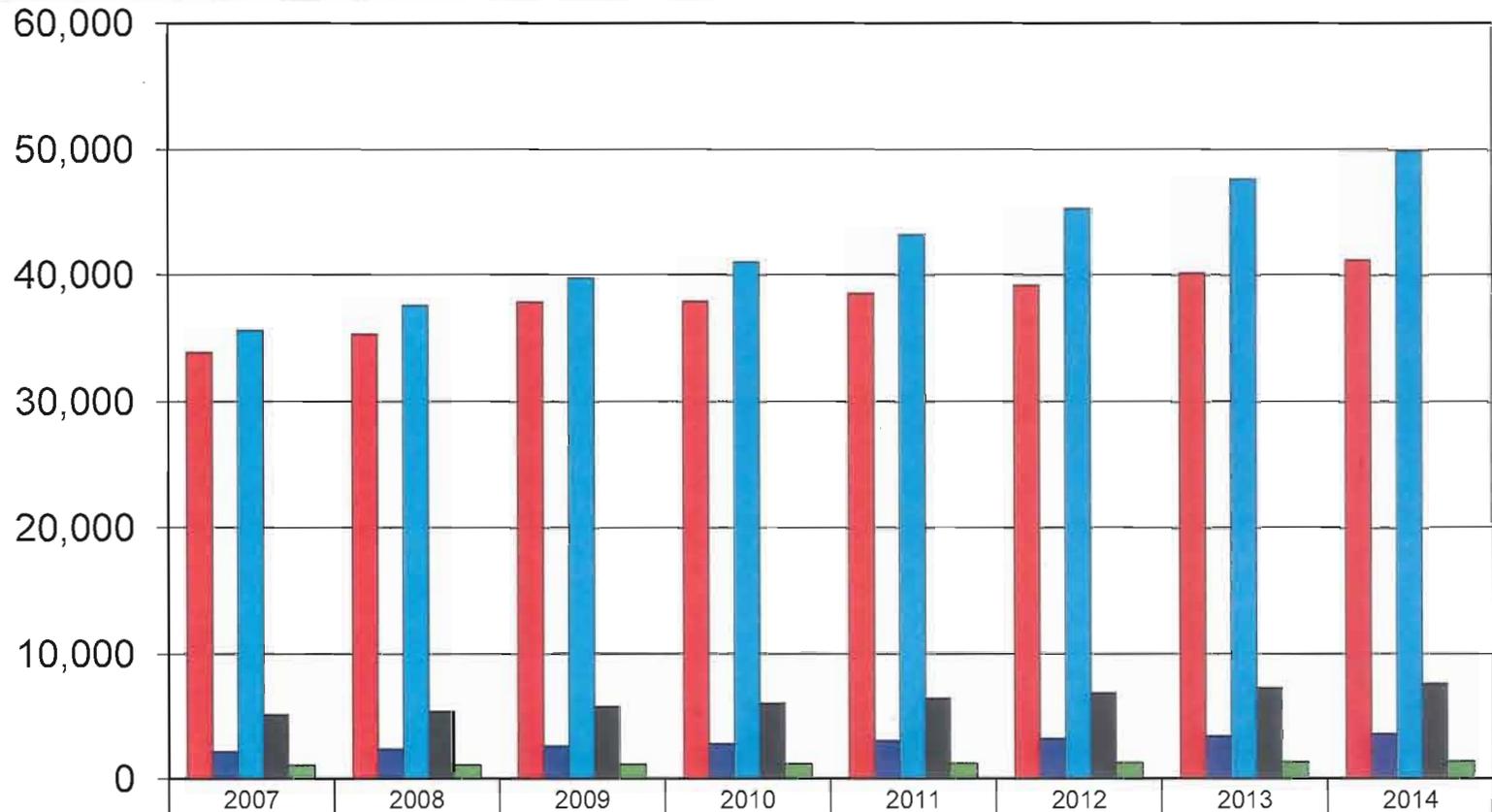
Active Membership



■ KERS Non-Hazardous	47,913	48,085	46,060	47,090	46,617	42,196	42,226	40,365
■ KERS Hazardous	4,349	4,393	4,334	4,291	4,291	4,086	4,127	4,024
■ CERS Non-Hazardous	84,920	85,221	83,724	84,681	85,285	83,052	81,815	81,115
■ CERS Hazardous	10,063	10,173	9,757	9,562	9,407	9,130	9,123	9,194
■ SPRS	957	993	946	961	965	907	902	855



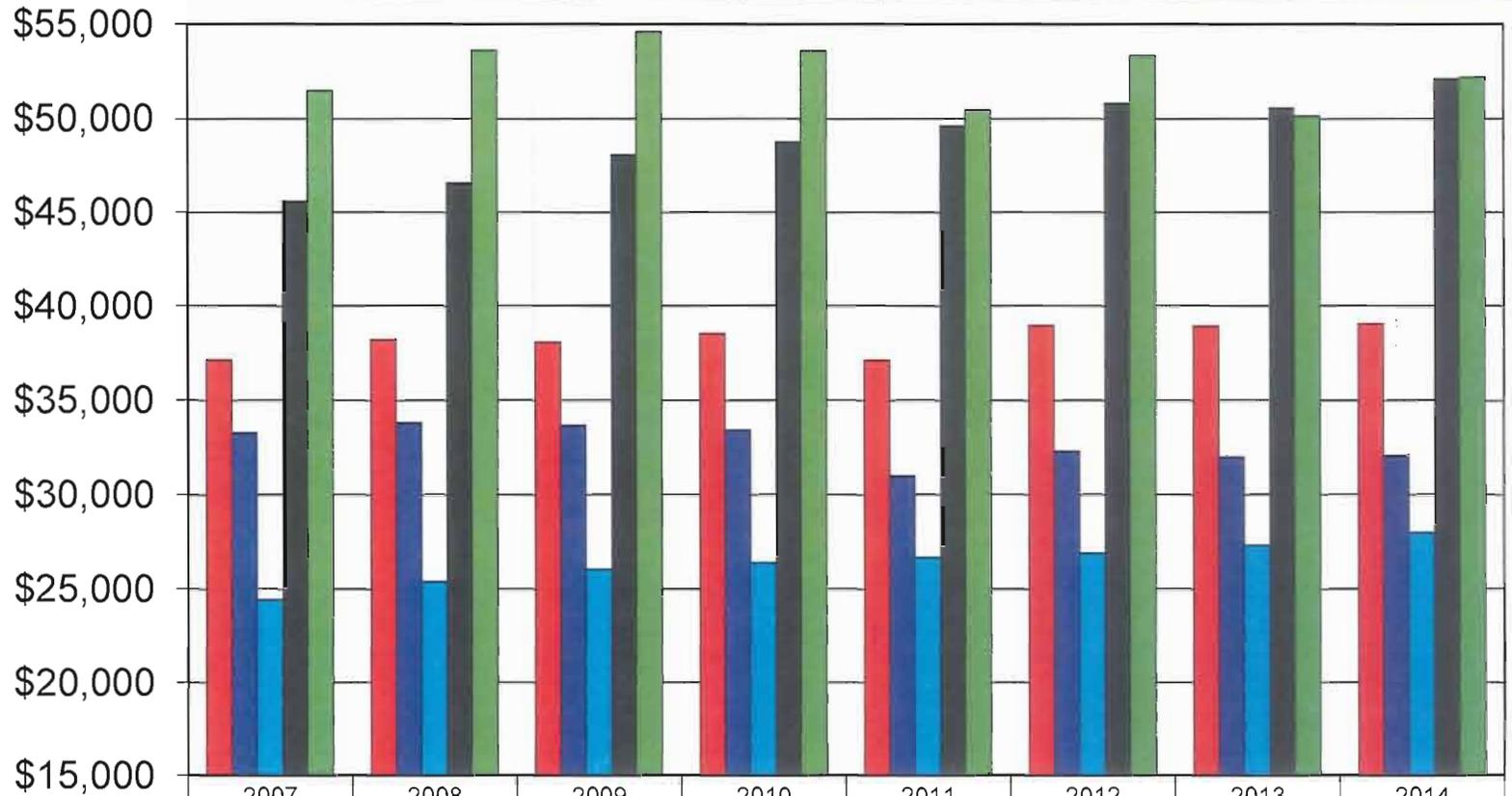
Retired Membership



■ KERS Non-Hazardous	33,849	35,307	37,883	37,945	38,597	39,226	40,194	41,223
■ KERS Hazardous	2,202	2,404	2,648	2,835	3,064	3,253	3,430	3,620
■ CERS Non-Hazardous	35,564	37,579	39,756	41,038	43,211	45,304	47,676	49,935
■ CERS Hazardous	5,159	5,422	5,808	6,068	6,468	6,878	7,293	7,646
■ SPRS	1,105	1,135	1,184	1,223	1,263	1,299	1,346	1,413



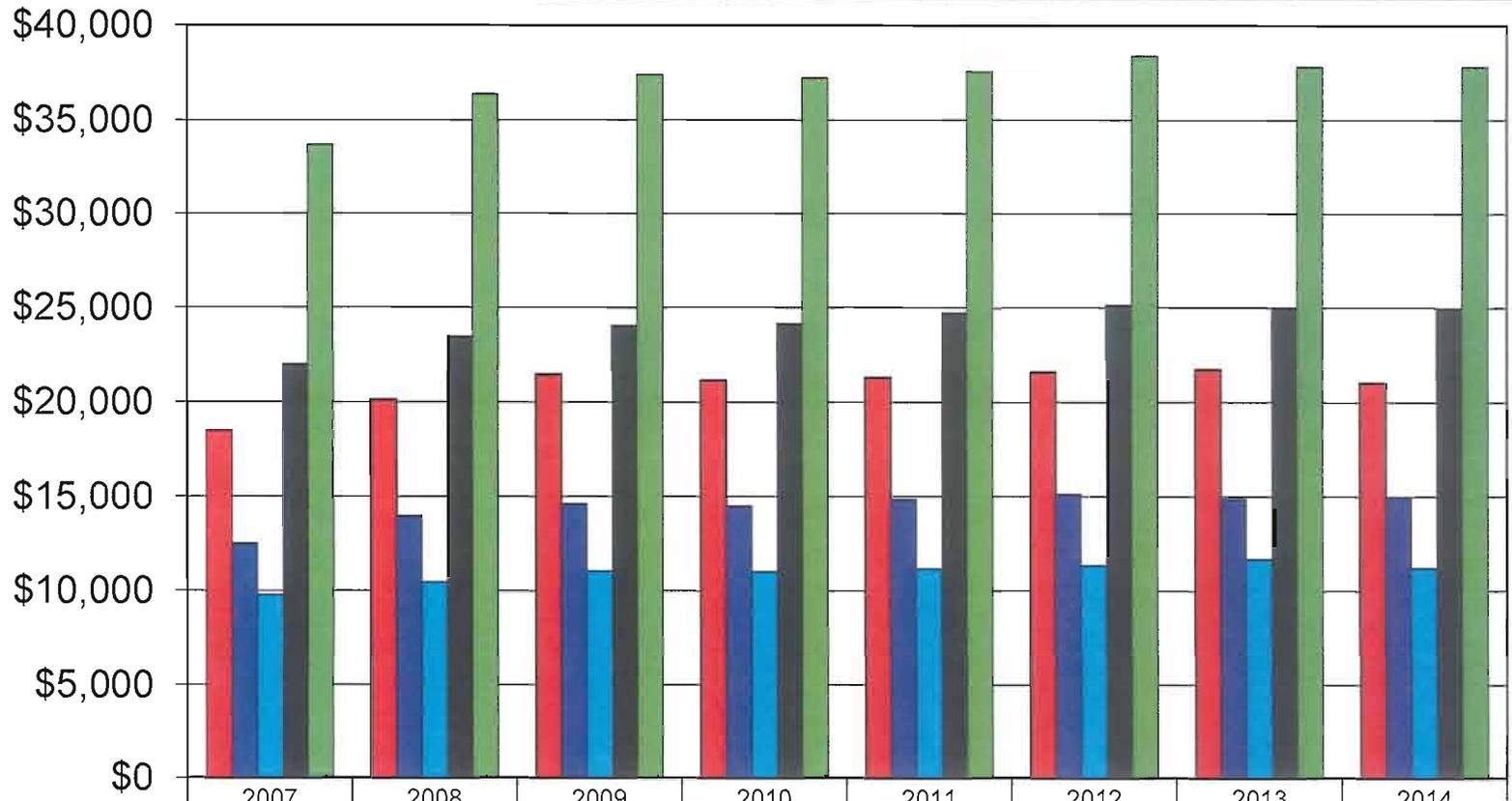
Average Salary



	2007	2008	2009	2010	2011	2012	2013	2014
■ KERS Non-Hazardous	\$37,155	\$38,221	\$38,090	\$38,546	\$37,146	\$38,982	\$38,943	\$39,081
■ KERS Hazardous	\$33,304	\$33,852	\$33,697	\$33,456	\$31,008	\$32,300	\$31,988	\$32,077
■ CERS Non-Hazardous	\$24,457	\$25,423	\$26,081	\$26,415	\$26,694	\$26,929	\$27,333	\$28,013
■ CERS Hazardous	\$45,613	\$46,618	\$48,100	\$48,792	\$49,640	\$50,847	\$50,605	\$52,117
■ SPRS	\$51,460	\$53,645	\$54,609	\$53,597	\$50,459	\$53,332	\$50,173	\$52,182



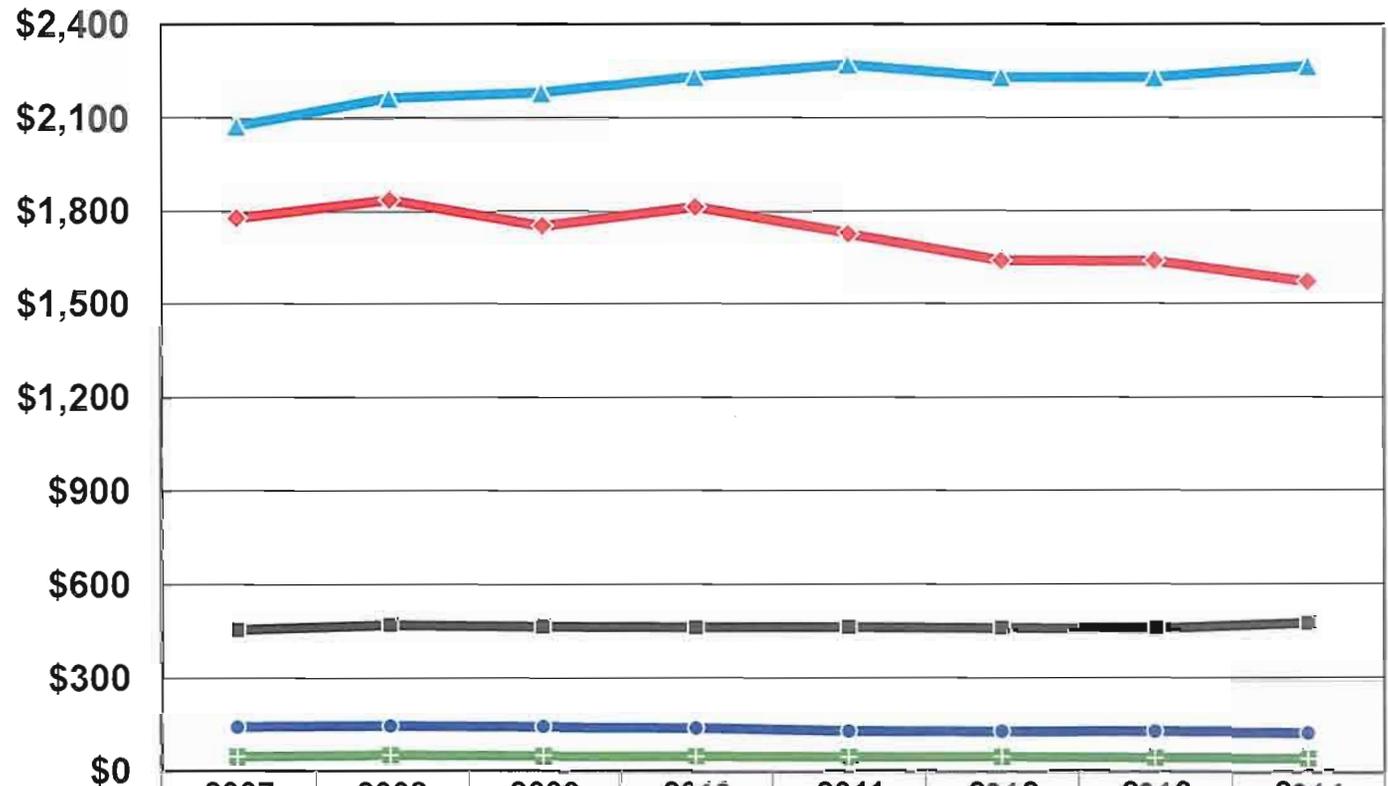
Average Benefits



	2007	2008	2009	2010	2011	2012	2013	2014
■ KERS Non-Hazardous	\$18,472	\$20,124	\$21,449	\$21,133	\$21,276	\$21,539	\$21,698	\$21,009
■ KERS Hazardous	\$12,502	\$13,972	\$14,613	\$14,503	\$14,886	\$15,134	\$14,905	\$14,992
■ CERS Non-Hazardous	\$9,805	\$10,478	\$11,069	\$11,029	\$11,191	\$11,368	\$11,704	\$11,246
■ CERS Hazardous	\$22,046	\$23,511	\$24,085	\$24,212	\$24,777	\$25,185	\$25,042	\$24,981
■ SPRS	\$33,673	\$36,382	\$37,394	\$37,217	\$37,583	\$38,404	\$37,820	\$37,815



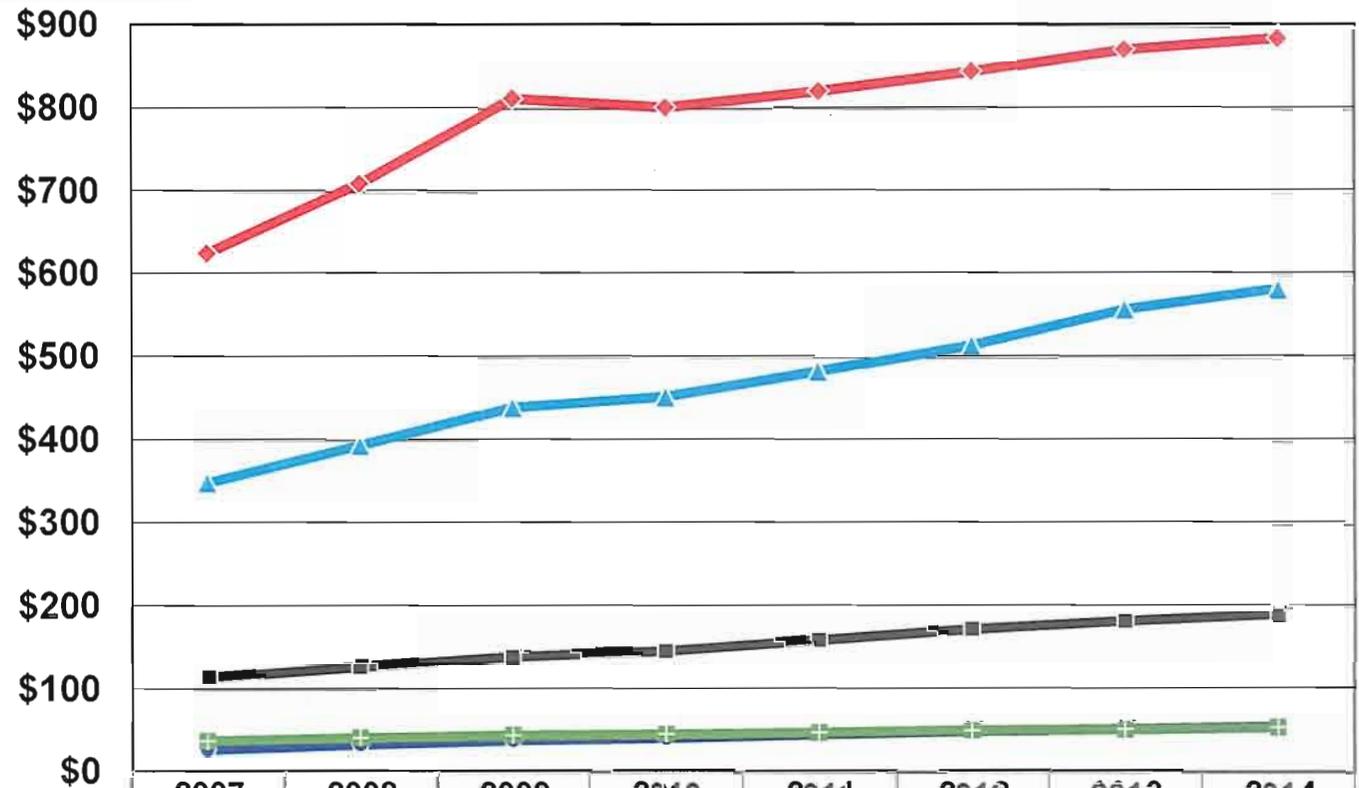
Payroll (\$ Millions)



	2007	2008	2009	2010	2011	2012	2013	2014
◆ KERS Non-Hazardous	\$1,780	\$1,838	\$1,754	\$1,815	\$1,732	\$1,645	\$1,644	\$1,577
● KERS Hazardous	\$145	\$149	\$146	\$144	\$133	\$132	\$132	\$129
▲ CERS Non-Hazardous	\$2,077	\$2,167	\$2,184	\$2,237	\$2,277	\$2,237	\$2,236	\$2,272
■ CERS Hazardous	\$459	\$474	\$469	\$467	\$467	\$464	\$462	\$479
⊕ SPRS	\$49	\$53	\$52	\$52	\$49	\$48	\$45	\$45



Benefits (\$ Millions)



	2007	2008	2009	2010	2011	2012	2013	2014
◆ KERS Non-Hazardous	\$625	\$711	\$813	\$802	\$821	\$845	\$872	\$886
● KERS Hazardous	\$28	\$34	\$39	\$41	\$46	\$49	\$51	\$54
▲ CERS Non-Hazardous	\$349	\$394	\$440	\$453	\$484	\$515	\$558	\$583
■ CERS Hazardous	\$114	\$127	\$140	\$147	\$160	\$173	\$183	\$191
■ SPRS	\$37	\$41	\$44	\$46	\$47	\$50	\$51	\$53



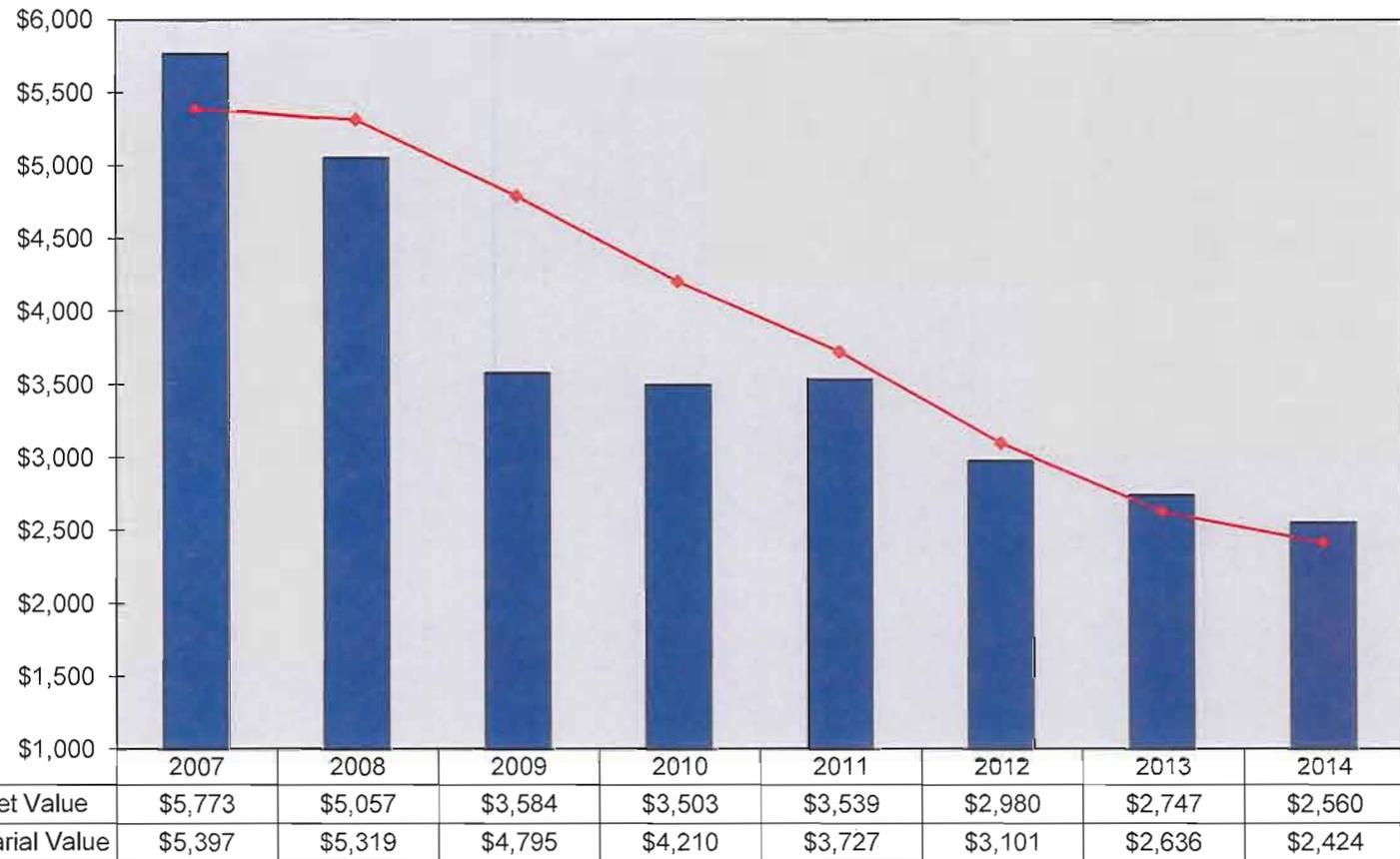
Average Age & Service June 30, 2014



	KERS		CERS		SPRS
	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous	
Average Age Actives	44.8	40.6	48.1	39.2	37.8
Average Service Actives	10.5	7.4	9.6	10.6	10.9
Average Age Retirees	67.7	63.1	69.5	61.0	61.8
Average Age Disabilities	64.6	58.1	64.1	54.9	56.8
Average Age Beneficiaries	71.1	65.1	68.8	56.9	65.3



KERS Non-Hazardous Assets (\$ Millions)



Rate of Return	2007	2008	2009	2010	2011	2012	2013	2014
Market Value	15.2%	(3.9)%	(18.3)%	16.1%	18.3%	0.6%	10.5%	13.6%
Actuarial Value	8.9%	8.2%	1.7%	0.8%	2.3%	(1.1)%	2.4%	13.2%



KERS Hazardous Assets (\$ Millions)



	2007	2008	2009	2010	2011	2012	2013	2014
Rate of Return								
Market Value	18.1%	(4.0)%	(17.6)%	17.1%	18.9%	(1.9)%	10.3%	16.3%
Actuarial Value	10.4%	8.8%	2.4%	2.6%	5.1%	2.2%	4.9%	11.6%



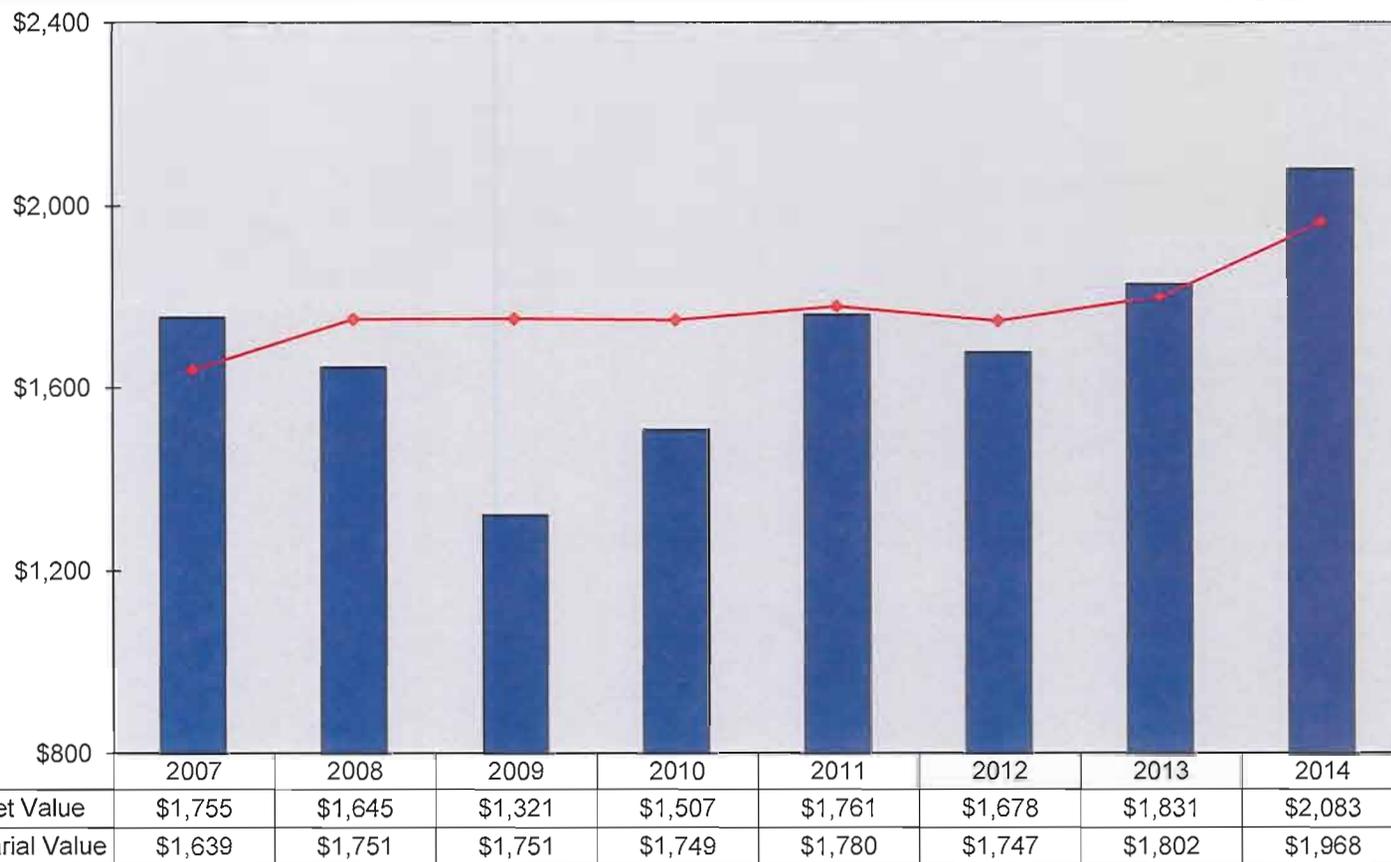
CERS Non-Hazardous Assets (\$ Millions)



	2007	2008	2009	2010	2011	2012	2013	2014
Rate of Return								
Market Value	15.0%	(3.9)%	(17.4)%	15.8%	18.6%	(0.3)%	10.9%	15.7%
Actuarial Value	8.9%	7.8%	1.8%	1.7%	4.1%	2.2%	5.1%	11.7%



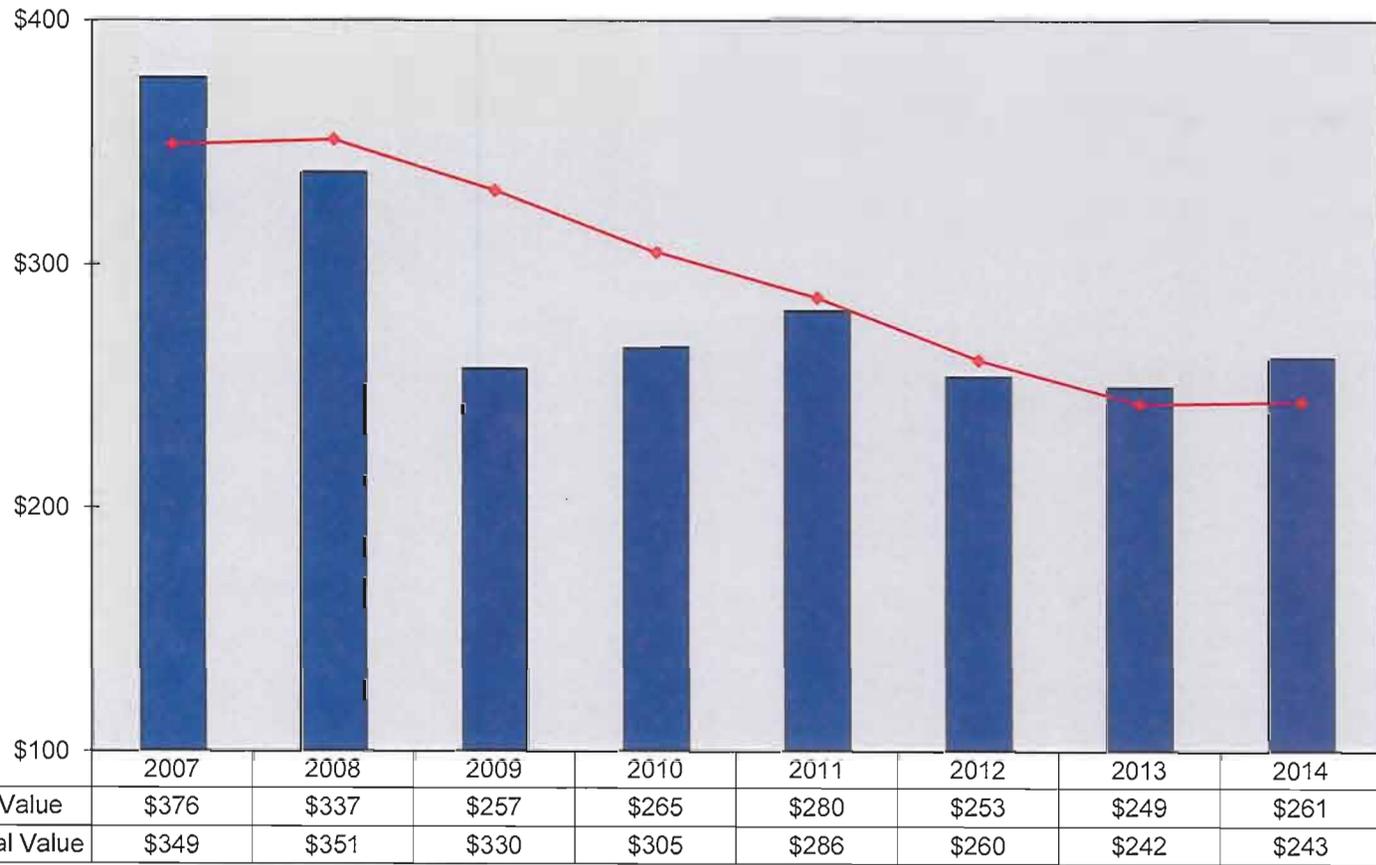
CERS Hazardous Assets (\$ Millions)



	2007	2008	2009	2010	2011	2012	2013	2014
Rate of Return								
Market Value	15.9%	(5.5)%	(18.5)%	15.7%	19.2%	(1.5)%	10.4%	15.9%
Actuarial Value	9.3%	7.7%	1.4%	1.3%	4.5%	1.7%	4.7%	11.3%



SPRS Assets (\$ Millions)



Rate of Return	2007	2008	2009	2010	2011	2012	2013	2014
Market Value	14.7%	(3.3)%	(15.9)%	16.9%	17.6%	0.6%	9.8%	17.2%
Actuarial Value	9.4%	8.7%	2.7%	2.4%	4.9%	1.0%	4.4%	12.8%



Pension Funding Results



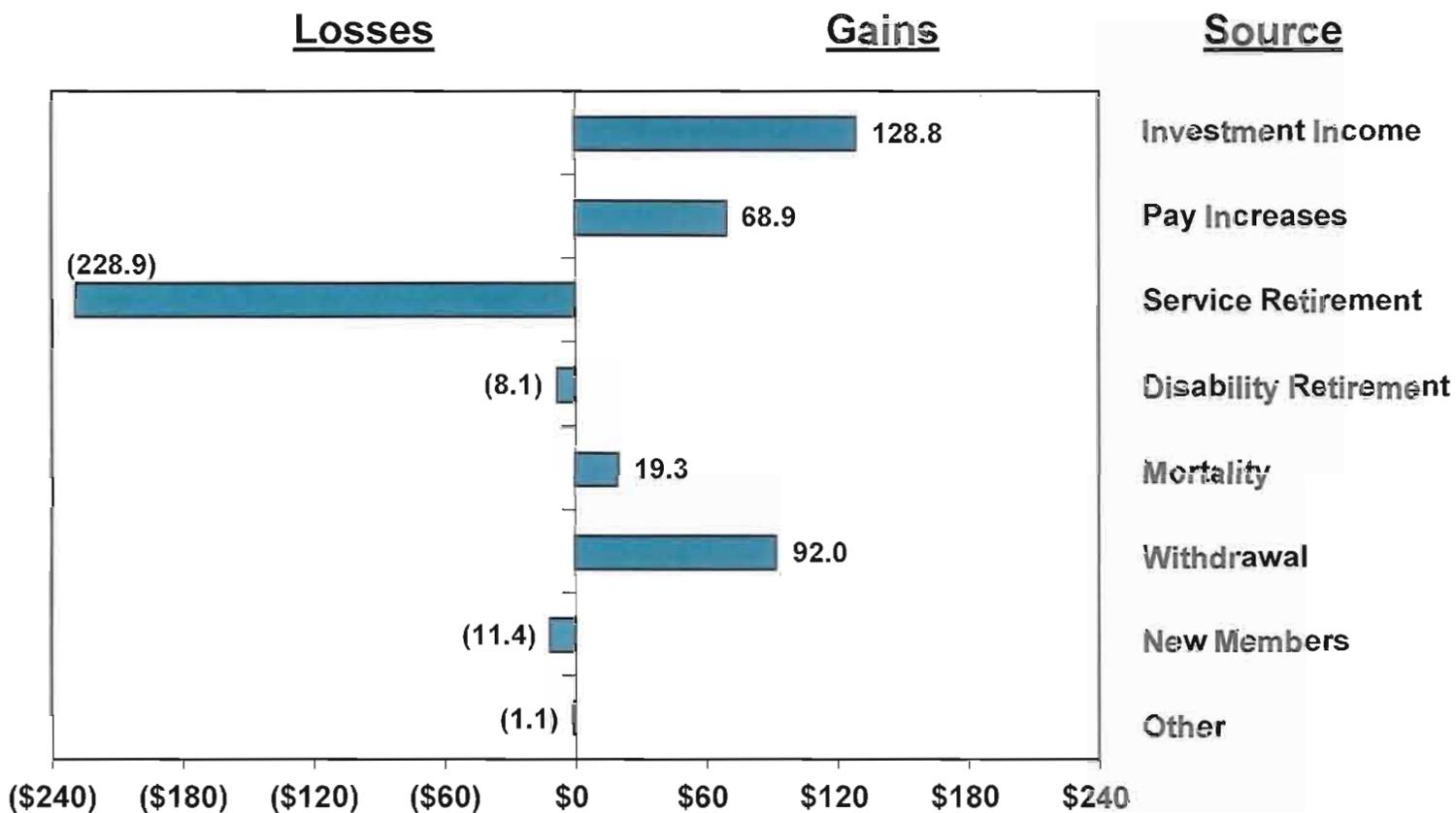
KERS				
	June 30, 2014		June 30, 2013	
	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous
Total Normal Cost Rate	8.40%	13.00%	8.48%	13.24%
Less Member Rate	<u>5.00%</u>	<u>8.00%</u>	<u>5.00%</u>	<u>8.00%</u>
Employer Normal Cost Rate	3.40%	5.00%	3.48%	5.24%
Administrative Expenses	0.70%	0.69%	0.65%	0.55%
Rate to Amortize UAL	<u>29.47%</u>	<u>11.40%</u>	<u>26.71%</u>	<u>10.58%</u>
Total Employer Contribution Rate	33.57%	17.09%	30.84%	16.37%
Unfunded Accrued Liability (\$ millions)	\$9,126.2	\$289.0	\$8,750.5	\$278.3
Funded Ratio	21.0%	64.6%	23.2%	64.5%
Amortization Period	29	29	30	30



2014 Pension Gain/Loss Analysis (\$ Millions)



KERS Non-Hazardous

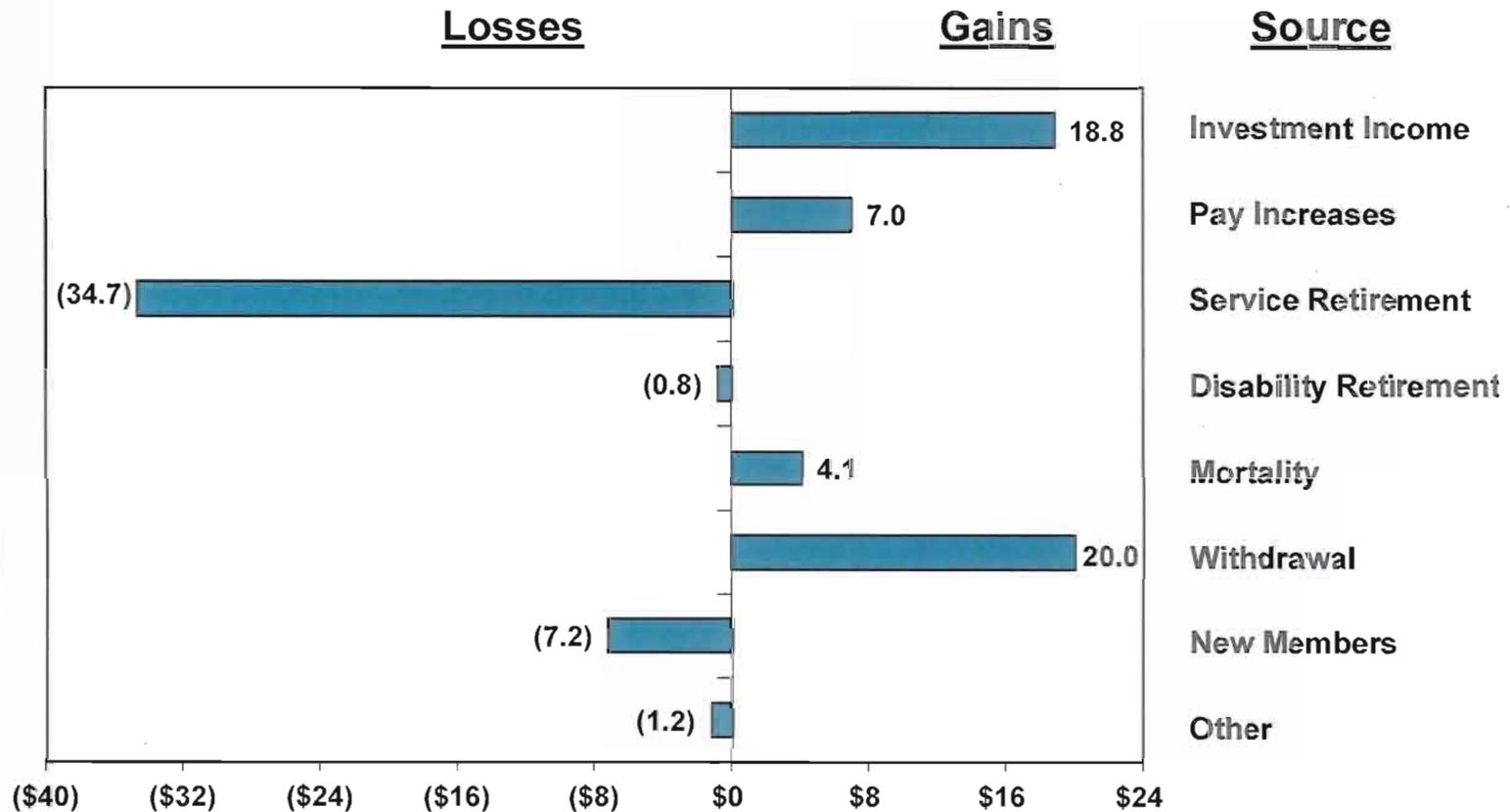




2014 Pension Gain/Loss Analysis (\$ Millions)



KERS Hazardous





Pension Funding Results



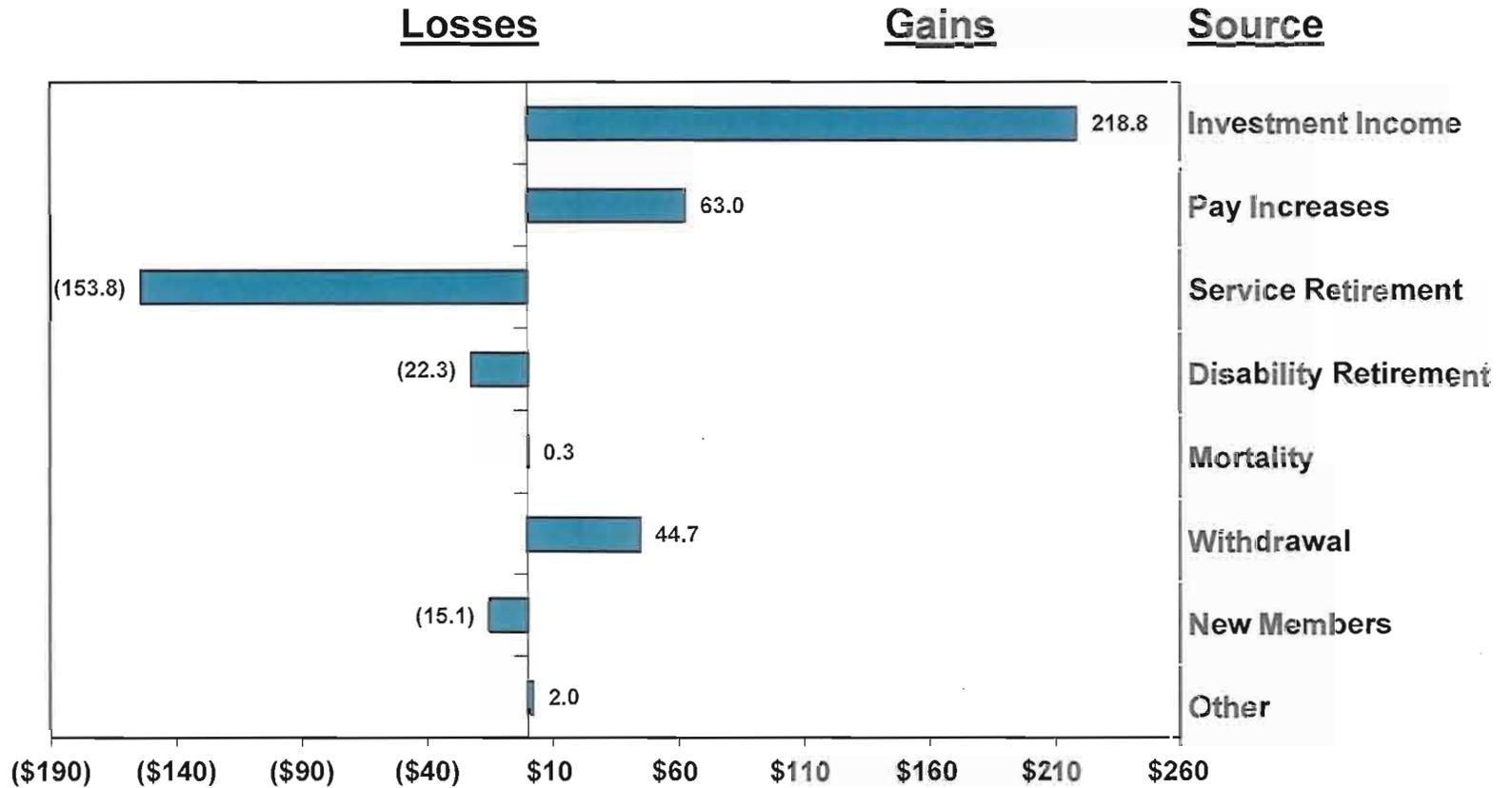
CERS				
	June 30, 2014		June 30, 2013	
	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous
Total Normal Cost Rate	8.42%	13.85%	8.56%	14.09%
Less Member Rate	<u>5.00%</u>	<u>8.00%</u>	<u>5.00%</u>	<u>8.00%</u>
Employer Normal Cost Rate	3.42%	5.85%	3.56%	6.09%
Administrative Expenses	0.81%	0.36%	0.79%	0.26%
Rate to Amortize UAL	<u>8.19%</u>	<u>14.05%</u>	<u>8.40%</u>	<u>14.38%</u>
Total Employer Contribution Rate	12.42%	20.26%	12.75%	20.73%
Unfunded Accrued Liability (\$ millions)	\$3,655.4	\$1,321.2	\$3,741.8	\$1,322.5
Funded Ratio	62.6%	59.8%	60.1%	57.7%
Amortization Period	29	29	30	30



2014 Pension Gain/Loss Analysis (\$ Millions)



CERS Non-Hazardous

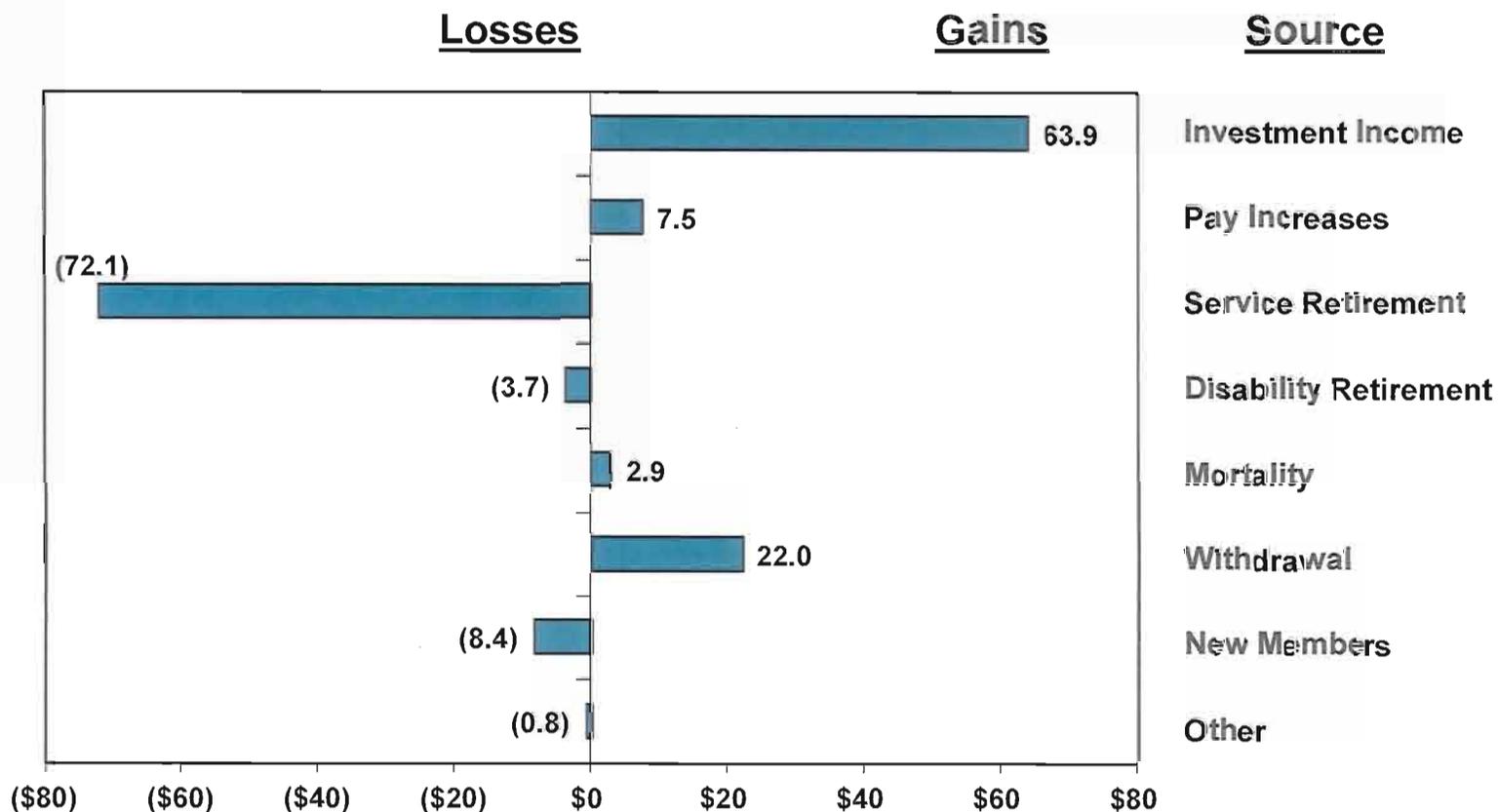




2014 Pension Gain/Loss Analysis (\$ Millions)



CERS Hazardous





Pension Funding Results



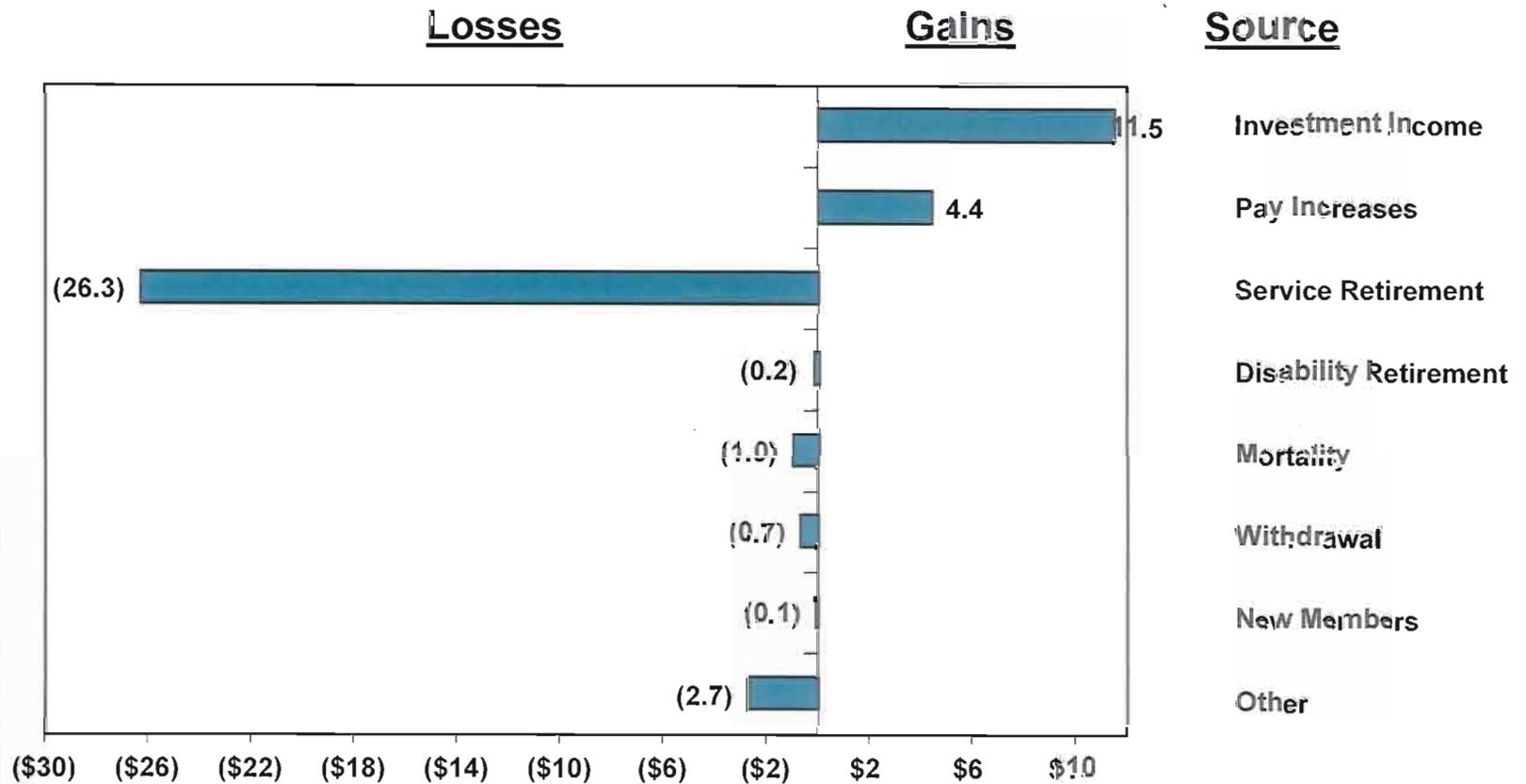
SPRS		
	June 30, 2014	June 30, 2013
Total Normal Cost Rate	15.91%	16.05%
Less Member Rate	<u>8.00%</u>	<u>8.00%</u>
Employer Normal Cost Rate	7.91%	8.05%
Administrative Expenses	0.48%	0.41%
Rate to Amortize UAL	<u>50.05%</u>	<u>45.44%</u>
Total Employer Contribution Rate	58.44%	53.90%
Unfunded Accrued Liability (\$ millions)	\$438.4	\$409.8
Funded Ratio	35.6%	37.1%
Amortization Period	29	30



2013 Pension Gain/Loss Analysis (\$ Millions)



SPRS





Insurance Results



Comments on Insurance Valuation



- Market value investment return was greater than anticipated for all Funds
- Actuarial value investment return was greater than expected for all Funds
- Increase in funded ratios for all Funds
- Per statute, amortization period reset to 30 years effective June 30, 2013
- Amortization of 29 years for June 30, 2014
- Recommended KERS and SPRS contribution rates are set biennially beginning with 14/15 and 15/16 fiscal years based on the July 1, 2013 valuation results
- KERS and SPRS contribution rates as of June 30, 2014 are for informational purposes only.



Comments on Insurance Valuation



Health Care Trend Assumption

Fiscal Year Ending	Under Age 65	Age 65 and Over
2015	7.75%	6.00%
2016	6.75%	5.75%
2017	6.25%	5.50%
2018	5.75%	5.25%
2019	5.25%	5.00%
2020 and beyond	5.00%	5.00%

- 2015 pre-Medicare rates less than 2014 rates with assumed trend.
- 2015 Medicare-eligible Premium and Essential plans rate larger than 2014 rate with assumed trend.
- Overall impact a gain for non-hazardous systems and a loss for hazardous systems because hazardous employees retiree earlier and have more liability as pre-Medicare.



Insurance Funding Results



KERS				
	June 30, 2014		June 30, 2013	
	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous
Total Normal Cost Rate	2.71%	8.31%	2.89%	9.58%
Less Member Rate	<u>0.24%</u>	<u>0.36%</u>	<u>0.20%</u>	<u>0.31%</u>
Employer Normal Cost Rate	2.47%	7.95%	2.69%	9.27%
Administrative Expenses	0.05%	0.06%	0.26%	0.14%
Rate to Amortize UAL	<u>5.22%</u>	<u>(0.89)%</u>	<u>4.98%</u>	<u>0.56%</u>
Total Employer Contribution Rate	7.74%	7.12%	7.93%	9.97%
Unfunded Accrued Liability (\$ millions)	\$1,605.5	(\$22.4)	\$1,631.2	\$14.7
Funded Ratio	27.9%	105.6%	23.4%	96.2%
Amortization Period	29	29	30	30



Insurance Funding Results



CERS				
	June 30, 2014		June 30, 2013	
	Non-Hazardous	Hazardous	Non-Hazardous	Hazardous
Total Normal Cost Rate	3.36%	8.26%	3.55%	9.07%
Less Member Rate	<u>0.27%</u>	<u>0.21%</u>	<u>0.23%</u>	<u>0.17%</u>
Employer Normal Cost Rate	3.09%	8.05%	3.32%	8.90%
Administrative Expenses	0.02%	0.06%	0.20%	0.15%
Rate to Amortize UAL	<u>1.77%</u>	<u>5.31%</u>	<u>1.83%</u>	<u>5.92%</u>
Total Employer Contribution Rate	4.88%	13.42%	5.35%	14.97%
Unfunded Accrued Liability (\$ millions)	\$785.7	\$496.1	\$815.6	\$544.6
Funded Ratio	70.0%	66.8%	66.6%	62.1%
Amortization Period	29	29	30	30



Insurance Funding Results



SPRS		
	June 30, 2013	June 30, 2013
Total Normal Cost Rate	10.15%	12.03%
Less Member Rate	<u>0.15%</u>	<u>0.12%</u>
Employer Normal Cost Rate	10.00%	11.91%
Administrative Expenses	0.13%	0.41%
Rate to Amortize UAL	<u>9.04%</u>	<u>9.54%</u>
Total Employer Contribution Rate	19.17%	21.86%
Unfunded Accrued Liability (\$ millions)	\$78.7	\$86.0
Funded Ratio	66.4%	61.3%
Amortization Period	29	30



CERS Insurance Contribution Rates



- Continuation of ten-year phase-in from 2007 mandated by the Legislature last year.

Fiscal Year Ending June 30	Non-Hazardous Members (Full-funding Rate 4.88%)	Hazardous Members (Full-funding Rate 13.42%)
2016	4.64%	12.69%
2017	4.83%	13.26%
2018 and later	5.02%	13.83%



Combined Employer Contribution Rates



Fund	June 30, 2014			June 30, 2013		
	Pension	Insurance	Combined	Pension	Insurance	Combined
Results Before CERS Insurance Phase-In						
CERS Non-Hazardous	12.42%	4.88%	17.30%	12.75%	5.35%	18.10%
CERS Hazardous	20.26%	13.42%	33.68%	20.73%	14.97%	35.70%
Results After CERS Insurance Phase-In						
CERS Non-Hazardous	12.42%	4.64%	17.06%	12.75%	4.92%	17.67%
CERS Hazardous	20.26%	12.69%	32.95%	20.73%	13.58%	34.31%



Experience Study Results



Demographic Assumptions



- Funds reviewed (pension and healthcare)
 - KERS Non-Hazardous
 - KERS Hazardous
 - CERS Non-Hazardous
 - CERS Hazardous
 - SPRS



Demographic Assumptions



- Study compares what actually happened during the study period (7/01/2008 through 6/30/2013) with what was expected to happen.
- Assumption changes recommended if actual experience differs significantly from expected.
- Judgment required to extrapolate future experience from past experience.



Demographic Assumptions



- Recommended Demographic Assumption Changes
 - Adjust withdrawal, retirement and mortality decrements for all Systems to better match experience
 - Adjust disability decrements for KERS Non-Hazardous, KERS Hazardous, and CERS Non-Hazardous to better match experience
 - Adjust certain coverage assumptions for retiree healthcare benefits to better match experience. Participation for those hired before 7/1/2003 based on service at retirement.



Economic Assumptions



- Assumptions reviewed
 - Price inflation
 - Investment return
 - Wage inflation
- Recommendations

Item	Current	Proposed
Price Inflation	3.50%	3.25%
Real Rate of Return	<u>4.25%</u>	<u>4.25%</u>
Investment Return	7.75%	7.50%
Price Inflation	3.50%	3.25%
Real Wage Growth	<u>1.00%</u>	<u>0.75%</u>
Wage Inflation	4.50%	4.00%



Impact of Recommendations



Financial Impact on 6/30/2014 KERS Non-Hazardous Valuation

System	Before Change	After Change
KERS Non-Hazardous Pension:		
UAL	\$9,126,153,508	\$9,714,405,621
Funding Ratio	20.99%	19.97%
Employer Rate	33.57%	36.17%
KERS Non-Hazardous Insurance:		
UAL	\$1,605,523,279	\$1,838,281,690
Funding Ratio	27.90%	25.26%
Employer Rate	7.74%	8.63%
Total Employer Rate	41.31%	44.80%



Impact of Recommendations



Financial Impact on 6/30/2014 KERS Hazardous Valuation

System	Before Change	After Change
KERS Hazardous Pension:		
UAL	\$288,952,802	\$331,552,270
Funding Ratio	64.63%	61.42%
Employer Rate	17.09%	20.19%
KERS Hazardous Insurance:		
UAL	\$(22,409,047)	\$(45,657,315)
Funding Ratio	105.64%	112.22%
Employer Rate	7.12%	4.83%
Total Employer Rate	24.21%	25.02%



Impact of Recommendations



Financial Impact on 6/30/2014 CERS Non-Hazardous Valuation

System	Before Change	After Change
CERS Non-Hazardous Pension:		
UAL	\$3,655,388,924	\$4,098,530,958
Funding Ratio	62.60%	59.88%
Employer Rate	12.42%	13.47%
CERS Non-Hazardous Insurance:		
UAL	\$785,715,135	\$1,068,016,155
Funding Ratio	69.98%	63.16%
Employer Rate	4.88%	5.48%
Total Employer Rate	17.30%	18.95%



Impact of Recommendations



Financial Impact on 6/30/2014 CERS Hazardous Valuation

System	Before Change	After Change
CERS Hazardous Pension:		
UAL	\$1,321,185,726	\$1,438,716,894
Funding Ratio	59.83%	57.76%
Employer Rate	20.26%	19.30%
CERS Hazardous Insurance:		
UAL	\$496,131,142	\$474,450,342
Funding Ratio	66.79%	67.77%
Employer Rate	13.42%	11.01%
Total Employer Rate	33.68%	30.31%



Impact of Recommendations



Financial Impact on 6/30/2014 SPRS Valuation

System	Before Change	After Change
SPRS Pension:		
UAL	\$438,376,667	\$474,118,742
Funding Ratio	35.64%	33.86%
Employer Rate	58.44%	65.10%
SPRS Insurance:		
UAL	\$78,676,367	\$89,204,135
Funding Ratio	66.42%	63.56%
Employer Rate	19.17%	20.56%
Total Employer Rate	77.61%	85.66%