

MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM
ANNUAL ACTUARIAL VALUATION
JUNE 30, 2010

Missouri State Employees' Retirement System

Annual Actuarial Valuation as of June 30, 2010

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September 14, 2010

Board of Trustees
Missouri State Employees'
Retirement System
907 Wildwood Drive
Jefferson City, Missouri 65102

Re: Annual Actuarial Valuation as of June 30, 2010

Dear Board Members:

Presented in this report are the results of the **annual actuarial valuation** of the Missouri State Employees' Retirement System. The purpose of the valuation was to measure the System's funding progress and to determine the level cost employer contribution rate for the fiscal year beginning July 1, 2011.

The date of the valuation was **June 30, 2010**.

The valuation was based upon data, furnished by the MOSERS' staff, concerning active, inactive and retired members along with pertinent financial information. The complete cooperation of the MOSERS' staff in furnishing materials requested is hereby acknowledged with appreciation.

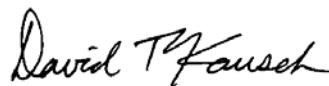
Your attention is directed particularly to the presentation of contribution rates on page 2 and the comments on page 7.

The actuaries submitting this report are Members of the American Academy of Actuaries (M.A.A.A.) as indicated, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,



Norman L. Jones, F.S.A., M.A.A.A.
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NLJ:BLA:sc

VALUATION RESULTS

Computed Employer Contribution Rate
Expressed as Percents of Active Member Payroll
For the Fiscal Year Ending June 30, 2012
Actuarial Valuation Results as of June 30, 2010

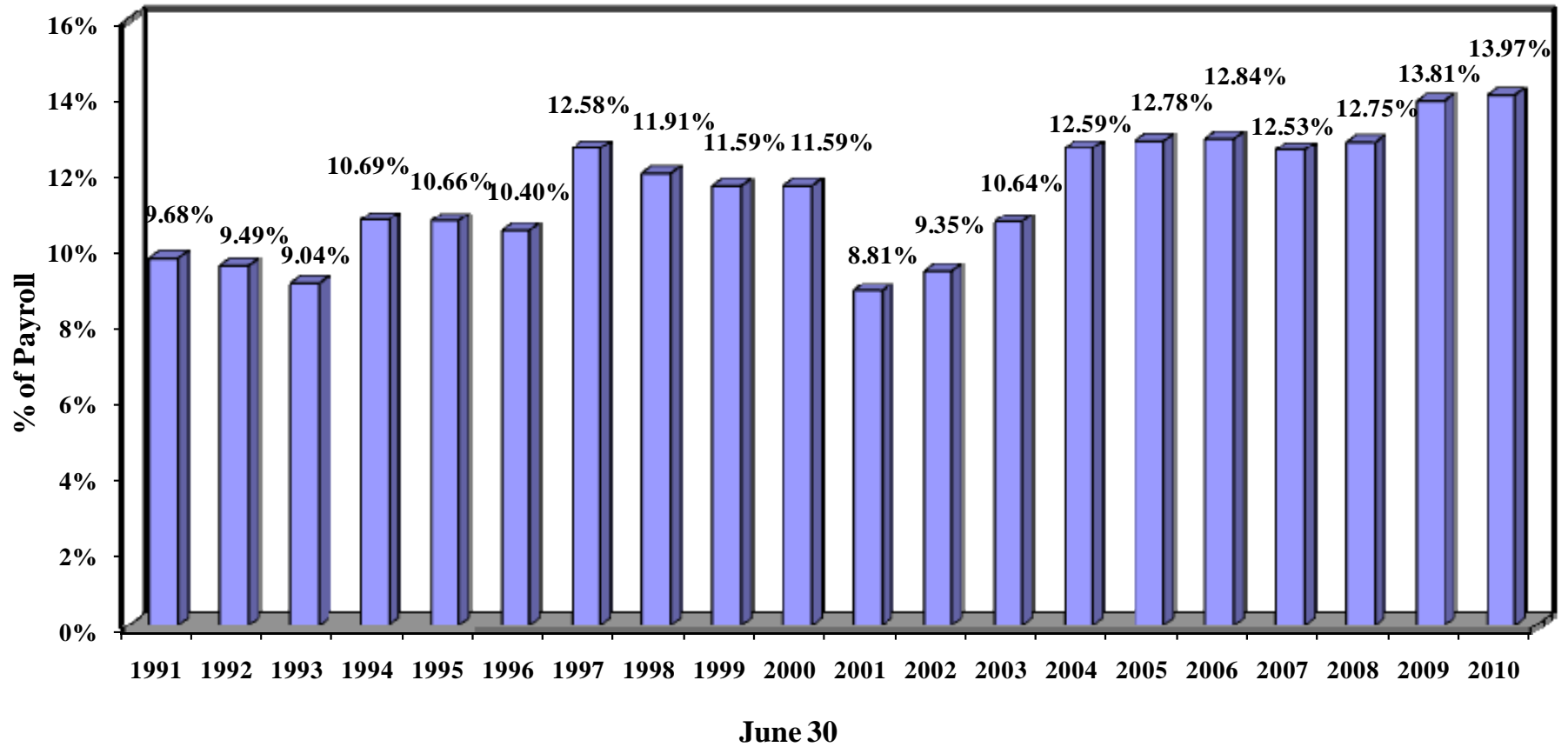
	Contribution Expressed as Percents of Payroll for the Fiscal Year		
	2011/12		
	Pre-2011 Hires	Post-2010 Hires@	Weighted Average
A. Normal Cost			
(1) Service retirement benefits	7.70 %	4.51 %	7.21 %
(2) Disability benefits	0.51	0.68	0.54
(3) Survivor benefits	0.24	0.30	0.25
(4) Administrative expenses	0.36	0.36	0.36
(5) Total [(1) + (2) + (3) + (4)]	8.81	5.85	8.36
B. Less Member Contributions			
(1) Member Contribution Rate	0.00	4.00	0.62
(2) Refunds	0.00	(1.16)	(0.18)
(3) Total [(1) + (2)]	0.00	2.84	0.44
C. Employer Normal Cost [A(5) - B(3)]	8.81	3.01	7.92
D. Unfunded Actuarial Accrued Liabilities (UAAL) (30-year level percent-of-payroll amortization*)			6.05
E. TOTAL COMPUTED EMPLOYER CONTRIBUTION RATE [C. + D.]			13.97 %
ESTIMATED EMPLOYER CONTRIBUTION (\$Millions)#			\$282.6

@ Based on assumptions for new hires. Normal cost for post-2010 hires will depend on future hiring practices and is likely to change as actual experience emerges.

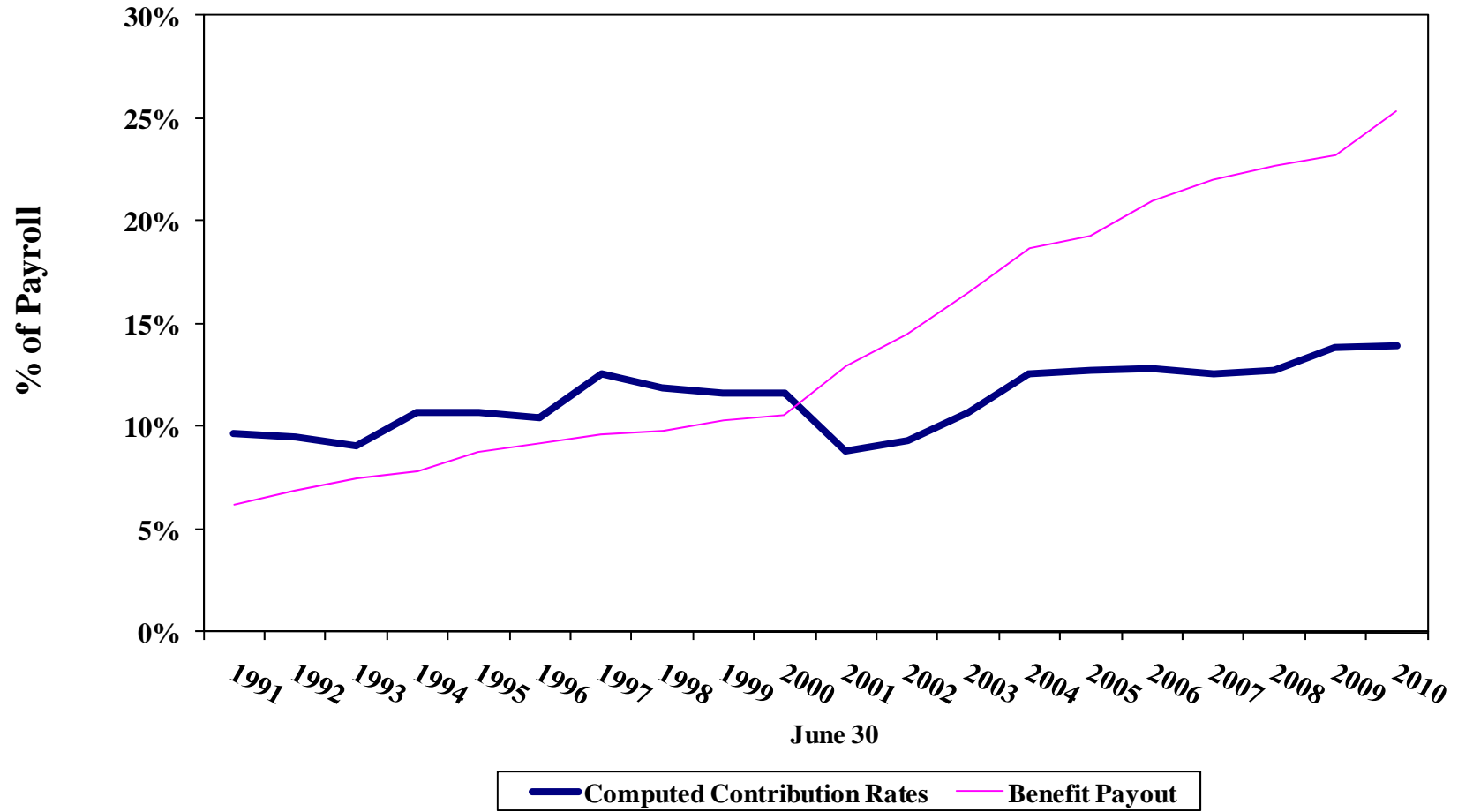
* This corresponds to an amortization factor of 16.65656 applied to the unfunded actuarial accrued liability at the beginning of the applicable fiscal year assuming payroll growth of 4% per year.

Illustrative only. Estimated employer contribution amounts (shown in \$millions) are based on the Total Computed Employer Contribution Rates shown and valuation payroll projected two years to the applicable fiscal year using the valuation assumptions of 0% the first year followed by 4% in the second year. The comparable estimated employer contribution amount from last year's valuation is \$287.6 million.

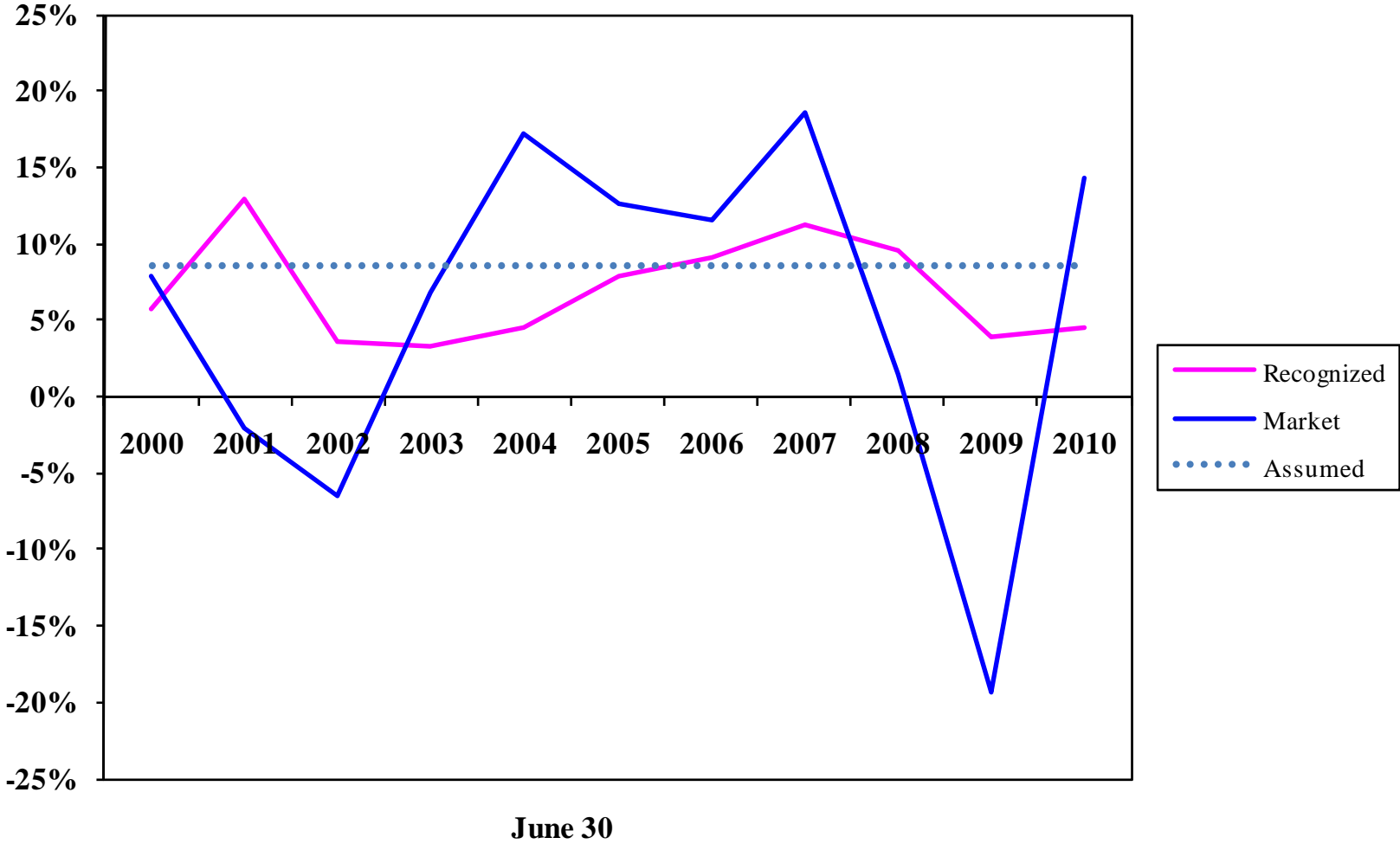
Computed Employer Contribution Rates



Contribution Rates vs. Benefit Payout



Recognized vs. Market Returns



The period of asset smoothing was changed from 3 to 5 years effective June 30, 2001.

Actuarial Present Values June 30, 2010

Actuarial Present Value, June 30, for	(1) Actuarial Present Value	(2) Portion Covered By Future Normal Cost Contributions	(3) Actuarial Accrued Liabilities (1) - (2)
Active Members			
Service retirement benefits based on service rendered before and likely to be rendered after valuation date	\$4,579,062,984	\$ 712,859,880	\$3,866,203,104
Disability benefits likely to be paid to present active members who become totally and permanently disabled	136,922,340	63,084,920	73,837,420
Survivor benefits likely to be paid to widows and children of present active members who die before retiring	110,732,407	28,553,378	82,179,029
Separation benefits likely to be paid to present active members	<u>474,062,155</u>	<u>225,901,116</u>	<u>248,161,039</u>
Active Member Totals	\$5,300,779,886	\$1,030,399,294	\$4,270,380,592
Members on Leave of Absence & LTD			
Service retirement benefits based on service rendered before the valuation date			109,376,026
Terminated Vested Members			
Service retirement benefits based on service rendered before the valuation date			460,721,058
Retired Lives			
			5,012,014,253
BackDROP Installment Payments Incurred, but not yet paid			
			<u>663,516</u>
TOTAL ACTUARIAL ACCRUED LIABILITY			\$9,853,155,445
ACTUARIAL VALUE OF ASSETS			<u>7,923,377,393</u>
UNFUNDED ACTUARIAL ACCRUED LIABILITY			<u><u>\$1,929,778,052</u></u>

Actuarial Valuation as of June 30, 2010

Comments

Computed Contribution Rate. The contribution rate for the fiscal year beginning July 1, 2011 was computed to be 13.97% of payroll, based upon an amortization period for the unfunded actuarial accrued liabilities (UAAL) of 30 years. This represents an increase of 0.16% of payroll compared to the rate computed for the fiscal year beginning July 1, 2010. The Contribution rate increased by 1.31% of payroll due to experience losses including the large recognized loss on valuation assets. The rate decreased by 0.13% of payroll to reflect the State's pay freeze, 0.89% of payroll for the addition of a new tier of benefits for those members hired on or after January 1, 2011, and 0.13% of payroll due to a change in methodology reflecting the timing of contributions between the valuation date and the fiscal year. The computed employer contribution rate is dependent upon timely receipt of both member and employer contributions.

Experience and Development of Actuarial Value of Assets. Experience was unfavorable in the aggregate this year. Areas of larger differences were recognized asset losses, more retiree reserve transfers and BackDROP payments than expected, retiree mortality (by age and gender) and low turnover offset by lower than expected pay increases and COLAs. The funded ratio as of June 30, 2010 is 80.4% (actuarial value of assets as a percentage of actuarial accrued liability), down from 83.0% as of June 30, 2009. (On a market value basis, the funded ratio is 68.3%).

Additional information concerning 2010 experience is presented in the gain/loss section of this report beginning on page 12.

Asset Valuation Method. Market experience during the year ended June 30, 2010 exceeded expectations, however past losses are still being smoothed into the recognized valuation assets. The asset valuation method currently in use by MOSERS smoothes investment gains and losses over 5 years and in addition requires the smoothed value of assets to be within a certain corridor limit of the market value of assets. For the June 30, 2010 valuation, the corridor limit was changed from 30% to 25%, decreasing to 20% for the June 30, 2011 valuation and thereafter. In the absence of offsetting gains, the employer contribution rate is expected to continue increasing over the next three years to a level approaching 17% of payroll.

Conclusion. Based on the results of the June 30, 2010 regular annual actuarial valuation, it is our opinion that the Missouri State Employees' Retirement System continues to be funded in accordance with actuarial principles of level percent-of-payroll financing.

Comparative Schedule

Valuation Date June 30	Active Members				Retired Lives				Accrued Liability	Valuation Assets	UAAL
	Number	Payroll \$ Millions	Average Salary		Number		Annual Benefits				
			\$	% Incr.	Retired	Active/ Retired	\$ Million	% of Payroll			
											-----million-----
1993	47,954	\$ 1,063	\$22,172	0.3	13,115	3.7	\$ 79.4	7.5 %	\$2,447	\$2,237	\$ 210
1994 (2)	49,436	1,125	22,754	2.6	13,651	3.6	96.2	8.6	2,919	2,425	494
1995	50,524	1,199	23,730	4.3	14,384	3.5	104.9	8.8	3,151	2,649	502
1996 (1)	51,425	1,268	24,650	3.9	15,004	3.4	116.2	9.2	3,440	2,928	512
1997 (1)(2)(3)	52,737	1,360	25,782	4.6	15,609	3.4	130.4	9.6	4,484	3,581	903
1998	54,544	1,460	26,762	3.8	16,251	3.4	142.4	9.8	4,919	4,211	708
1999 (2)	56,158	1,565	27,860	4.1	17,117	3.3	161.3	10.3	5,506	4,909	597
2000 (1)	57,774	1,684	29,143	4.6	18,196	3.2	177.0	10.5	5,921	5,217	704
2001 (1)	58,431	1,758	30,090	3.3	20,237	2.9	227.4	12.9	6,065	5,881	184
2002 (3)	58,616	1,773	30,253	0.5	21,502	2.7	256.6	14.5	6,294	6,033	261
2003 (2) (3)	57,558	1,740	30,229	(0.1)	22,872	2.5	287.1	16.5	6,662	6,057	605
2004 (1)	55,914	1,737	31,074	2.8	24,757	2.3	324.6	18.7	7,230	6,118	1,112
2005 (3)(4)	55,944	1,807	32,293	3.9	25,780	2.2	348.1	19.3	7,578	6,435	1,143
2006	54,493	1,777	32,615	1.0	27,052	2.0	373.6	21.0	8,013	6,837	1,176
2007	54,363	1,847	33,969	4.2	28,692	1.9	406.4	22.0	8,500	7,377	1,123
2008 (1)	54,542	1,917	35,139	3.4	30,132	1.8	434.6	22.7	9,128	7,838	1,290
2009 (1) (3)	55,057	2,002	36,370	3.5	31,637	1.7	465.4	23.2	9,495	7,876	1,619
2010	53,478	1,945	36,372	0.0	33,251	1.6	493.7	25.4	9,968	7,923	2,045
2010 (1)	53,478	1,945	36,372	0.0	33,251	1.6	493.7	25.4	9,853	7,923	1,930

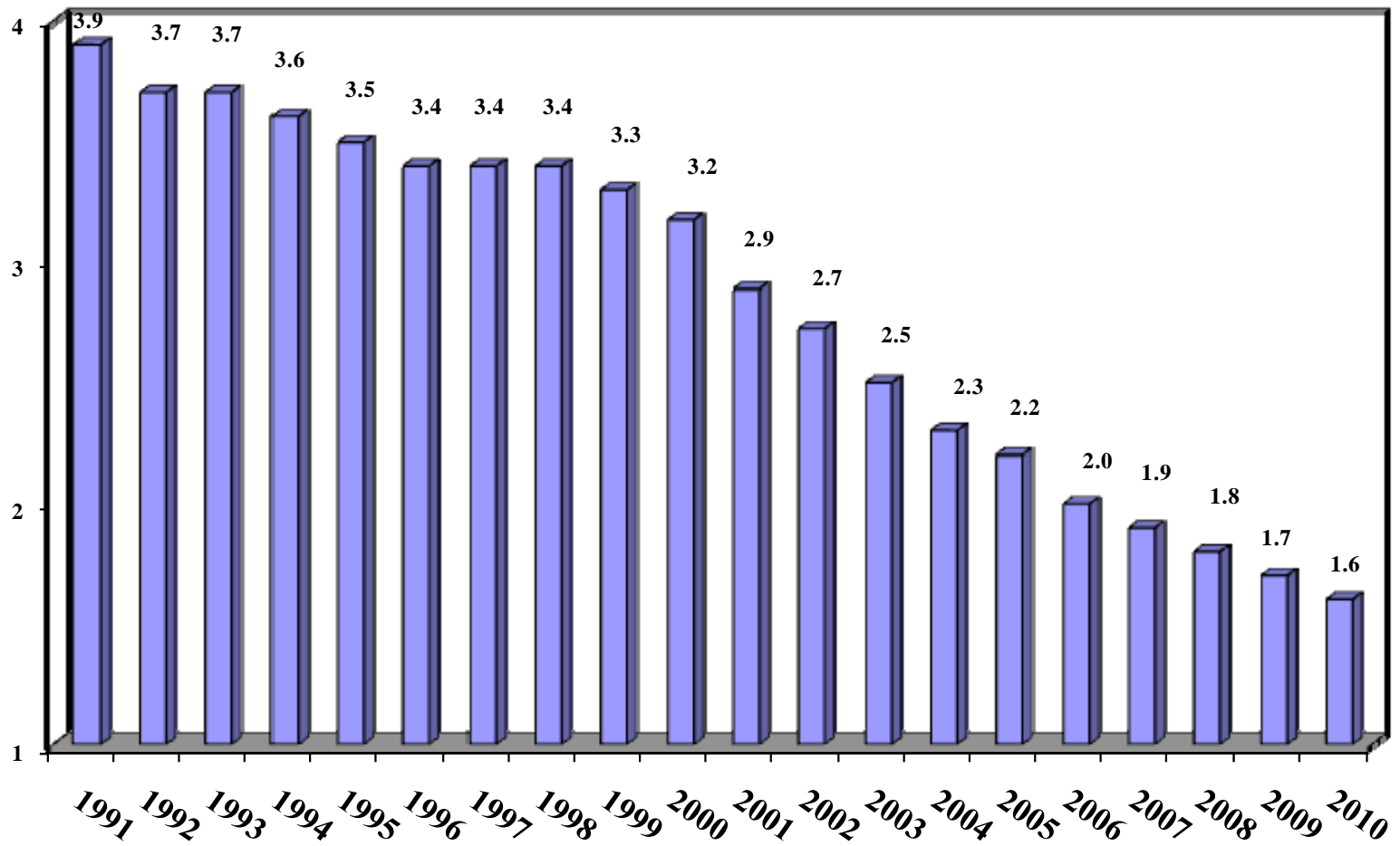
(1) After changes in assumptions.

(2) After changes in benefit provisions.

(3) After changes in methods.

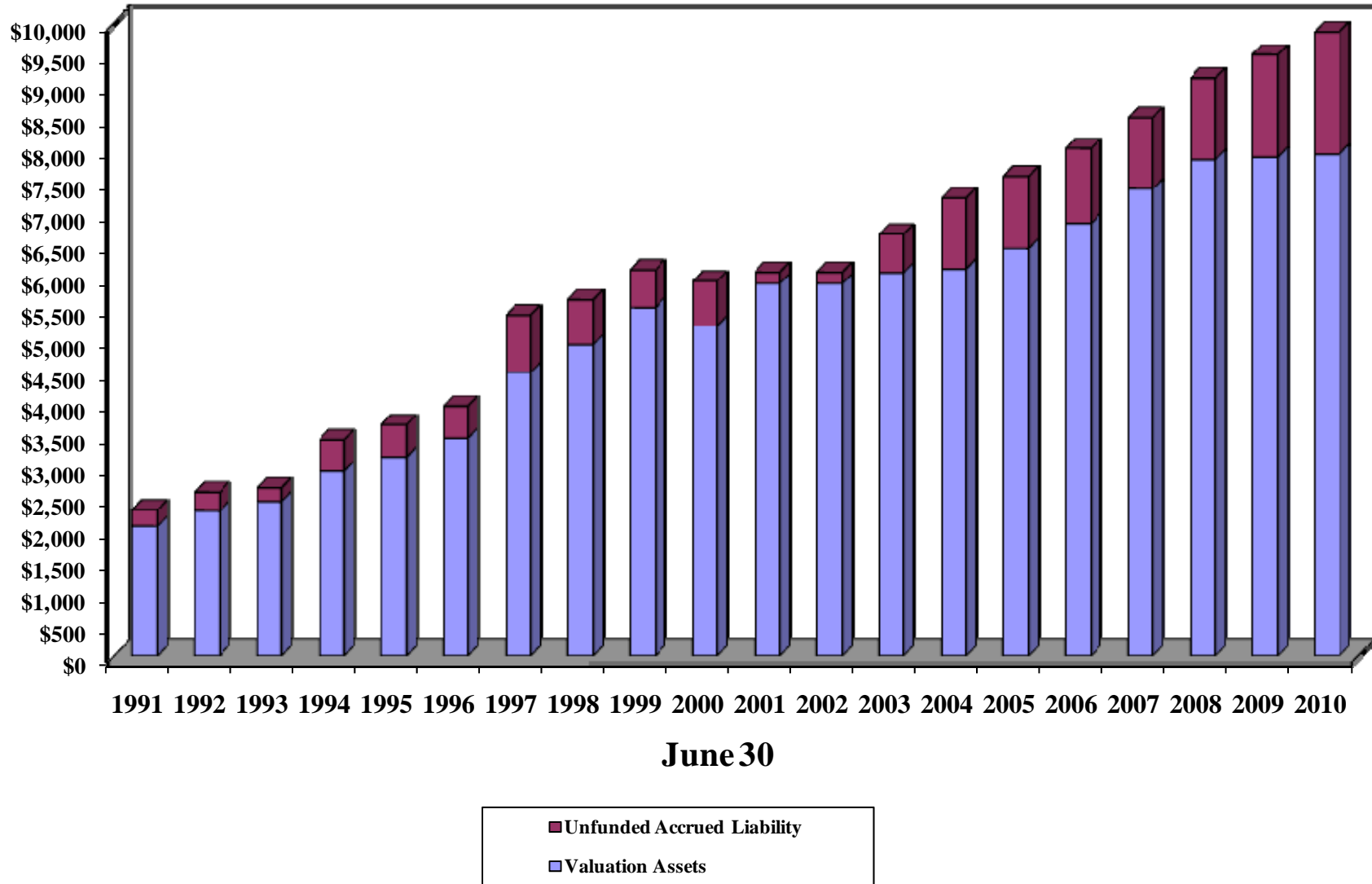
(4) Reflects the addition of the assets, liabilities, and members of the Administrative Law Judges Retirement System.

Number of Active Members Per Benefit Recipient

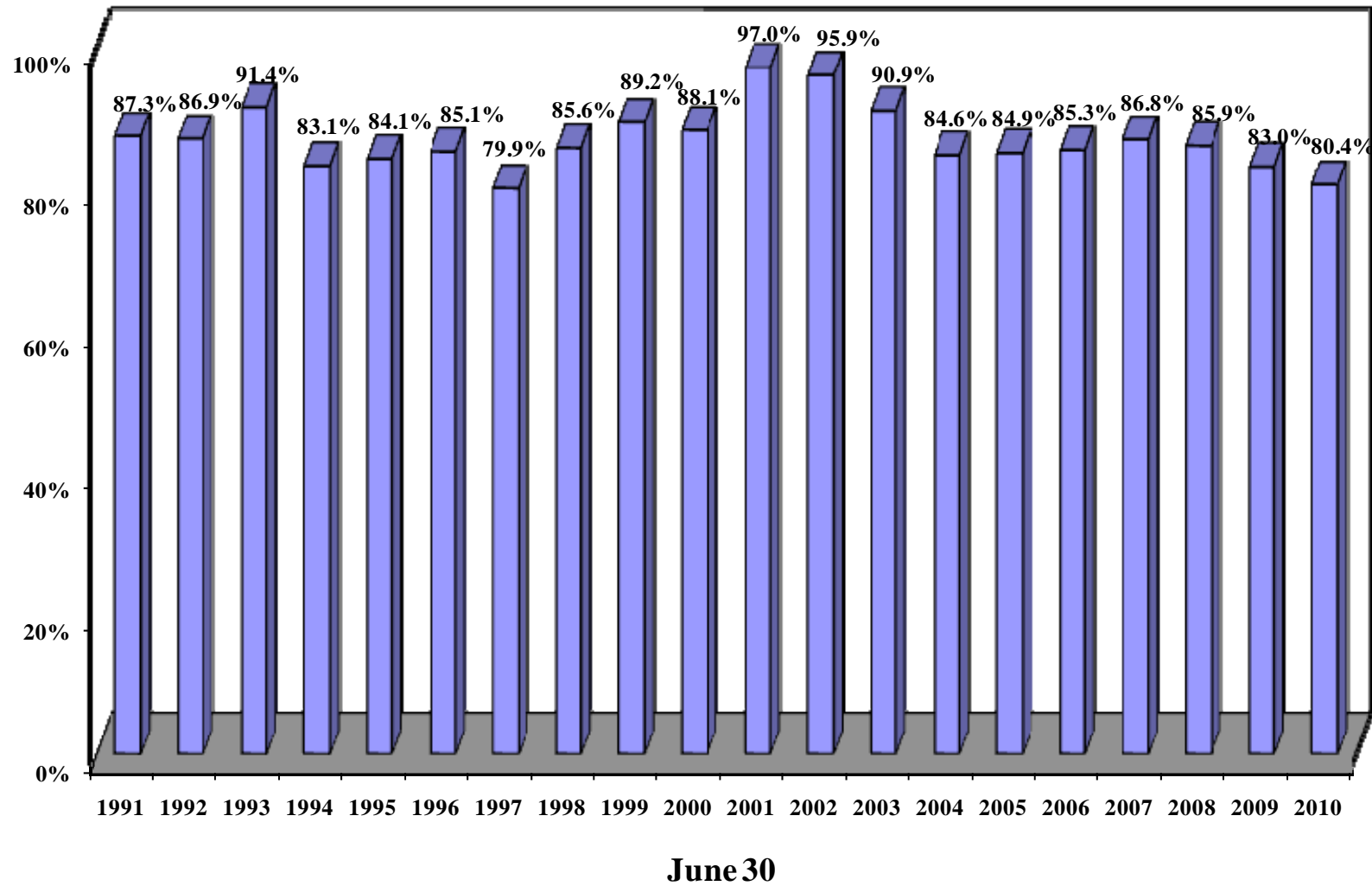


June 30

Actuarial Value of Assets and Actuarial Accrued Liabilities (\$ in millions)



**Actuarial Value of Assets as
Percents of Accrued Liabilities
(Funded Ratio)**



GAIN/LOSS ANALYSIS

Gain/Loss Analysis of Experience During Last Year

COMMENTS

Purpose of Gain/Loss Analysis. Regular actuarial valuations provide valuable information about the composite change in unfunded actuarial accrued liabilities – whether or not the liabilities are increasing or decreasing, and by how much. However, valuations do not show the portion of the change attributable to each risk area within the retirement system financial mechanism: the rate of investment income on plan assets; the rates of withdrawal of active members who leave covered employment; the rates of mortality; the rates of disability; the rates of salary increases; and the assumed ages at actual retirement. In an actuarial valuation, assumptions are made as to what these rates will be for the next year and for decades in the future.

The objective of a gain and loss analysis is to determine the portion of the change in unfunded actuarial accrued liabilities attributable to each risk area.

The fact that actual experience differs from assumed experience is to be expected – the future cannot be predicted with precision. Changes in the valuation assumed experience for a risk area should be made when the differences between assumed and actual experience have been observed to be sizeable and persistent. One year's gain/loss analysis may or may not be indicative of ***long-term trends, which are the basis of financial assumptions.***

2009 and 2010 Data. For the 2009 and 2010 valuations, active and retired member data were reported as of May 31. It was brought forward to June 30 by adding one month of service for all active members, adding the June COLA for certain retirees, and otherwise making no other adjustments. It was assumed for valuation purposes that there was no turnover among members and no new entrants during the month of June. Financial information was reported as of June 30. It is believed that this procedure resulted in a slight overstatement of total liabilities as of June 30, 2009 and June 30, 2010.

The expected and actual numbers of retirements, deaths, and terminations found on pages 20 through 25 reflect experience over the 12 month period from May 31, 2009 through May 31, 2010.

Results from 2010 Plan Year. There was a net experience loss this year, with the largest single identifiable source being pay increases that were on average higher than expected. The table below summarizes historical MOSERS economic experience:

Period	Inflation As Measured By		Market Interest Credited to MOSERS Funds	Real Rate of Return	
	CPI	Increase in Average Salary@		Relative to CPI	Relative to Salaries
July 1, 2000 - June 30, 2001	3.2 %	5.1 %	(2.0) *%	(5.2) %	(7.1) %
July 1, 2001 - June 30, 2002	1.1	(2.1)	(6.4) *	(7.5)	(4.3)
July 1, 2002 - June 30, 2003	2.1	0.6	0.0 *	(2.1)	(0.6)
July 1, 2003 - June 30, 2004	3.3	4.2	17.2 *	13.9	13.0
July 1, 2004 - June 30, 2005	2.5	5.2	12.6 *	10.1	7.4
July 1, 2005 - June 30, 2006	4.3	2.1	11.5 *	7.2	9.4
July 1, 2006 - June 30, 2007	2.7	5.7	18.6 *	15.9	12.9
July 1, 2007 - June 30, 2008	5.0	5.3	1.4 *	(3.6)	(3.9)
July 1, 2008 - June 30, 2009	(1.4)	5.1	(19.3) *	(17.9)	(24.5)
July 1, 2009 - June 30, 2010	1.1	0.7	14.3 *	13.2	13.6

* MOSERS' approximate rate of return based on market value.

@ For members active both at beginning and end of year.

The dollar amount of unfunded actuarial accrued liabilities (UAAL) is large in absolute dollars. However, the size should be viewed in the light of MOSERS' overall financial program. **The ratio of unfunded actuarial accrued liabilities divided by active member payroll is significant.** UAAL represent plan debt, while active member payroll is indicative of the state's capacity to amortize the UAAL – **the ratio thus provides an index of relative condition.** The smaller the ratio, the stronger the financial condition.

	<u>UAAL/Active Member Payroll</u>
June 30, 1997 after changes in benefits, assumptions, methods	.66
June 30, 1998	.49
June 30, 1999 after MSEP 2000	.38
June 30, 2000 after changes in assumptions	.42
June 30, 2001 after changes in assumptions	.10
June 30, 2002 after changes in methods	.15
June 30, 2003 after changes in benefits, methods	.35
June 30, 2004 after changes in assumptions	.64
June 30, 2005 after changes in assumptions	.63
June 30, 2006	.66
June 30, 2007	.61
June 30, 2008	.67
June 30, 2009	.81
June 30, 2010	.99

Derivation of Experience Gain (Loss)

Year Ended June 30, 2010

Actual experience will never coincide exactly with assumed experience (except by coincidence). Gains and losses may offset each other over a period of years, but sizeable year-to-year variations from assumed experience are common. Detail on the derivation of the experience gain (loss) is shown below.

	\$ Millions
(1) UAAL* at start of year	\$1,618.7
(2) Normal cost from last valuation	170.6
(3) Actual employer contributions	254.8
(4) Interest accrual: $(1) \times .085 + [(2) - (3)] \times (.085 / 2)$	134.0
(5) Expected UAAL before changes: $(1) + (2) - (3) + (4)$	1,668.5
(6) Change from any changes in benefits, assumptions, or methods	(114.5)
(7) Expected UAAL after changes: $(5) + (6)$	1,554.0
(8) Actual UAAL at end of year	1,929.8
(9) Gain (loss): $(7) - (8)$	(375.8)
- Gains (losses) in economic risk areas	(262.0)
- Gains (losses) from decrement experience	(113.8)
(10) Gain (loss) as percent of actuarial accrued liabilities at start of year (\$9,495)	(4.0) %

* *Unfunded actuarial accrued liabilities.*

Valuation Date June 30	Actuarial Gain (Loss) as a % of Beginning Accrued Liabilities
2001	(4.4) %
2002	(3.8)
2003	(6.4)
2004	(6.0)
2005	(3.4)
2006	(0.1)
2007	1.0
2008	0.1
2009	(5.2)
2010	(4.0)

Gains & (Losses) in Actuarial Accrued Liabilities During Plan 2009 - 2010

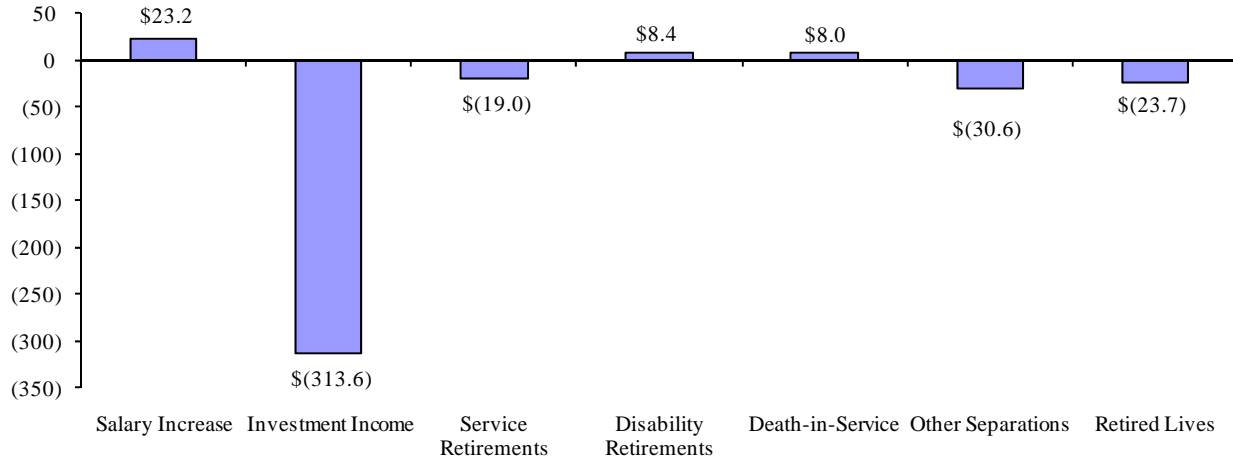
Type of Activity	-- Gain (Loss) for Year --	
	\$ in Millions	% of Accr. Liabilities*
<u>Decrement Experience:</u>		
<i>Service Retirements.</i> If members retire at older ages than assumed, there is a gain. If at younger ages, a loss.	\$ (19.0)	(0.2) %
<i>Disability Retirements.</i> The occurrence of a gain or loss depends upon the age at disability and the incidence of disability.	8.4	0.1
<i>Death-in-Service.</i> If there are fewer survivor claims than assumed at younger ages, there is a gain. If there are fewer survivor claims than assumed at older ages, there can be a loss.	8.0	0.1
<i>Other Separations.</i> If more actuarial liabilities are released by other separations than assumed, there is a gain. If smaller releases, a loss.	(30.6)	(0.3)
<i>Retired Lives.</i> If more deaths than assumed, there is a gain. If fewer deaths, a loss.	(23.7)	(0.2)
<u>Economic Experience:</u>		
<i>Salary Increases.</i> If there are smaller salary increases than assumed, there is a gain. If greater increases, a loss. If long service members have greater salary increases than assumed, there can be a loss even if average salary increases are less than assumed.	23.2	0.2
<i>Investment Income.</i> If there is greater investment income than assumed, there is a gain. If less income, a loss.	(313.6)	(3.3)
<i>COLAs.</i>	28.4	0.3
<u>Other:</u>		
Service credit reinstatements, service transfers, service purchases, rehires, net of contributions.	(16.6)	(0.2)
Larger than expected average compensation for new retirees.	(2.1)	0.0
Change in group size, data adjustments, retroactive benefit payments, option elections, and miscellaneous unidentified changes in the UAAL.	(38.2)	(0.4)
<i>Experience Gain or (Loss) During Year</i>	\$ (375.8)	(3.9) %

* Beginning of year accrued liabilities totaled \$9,495 million.

MOSERS

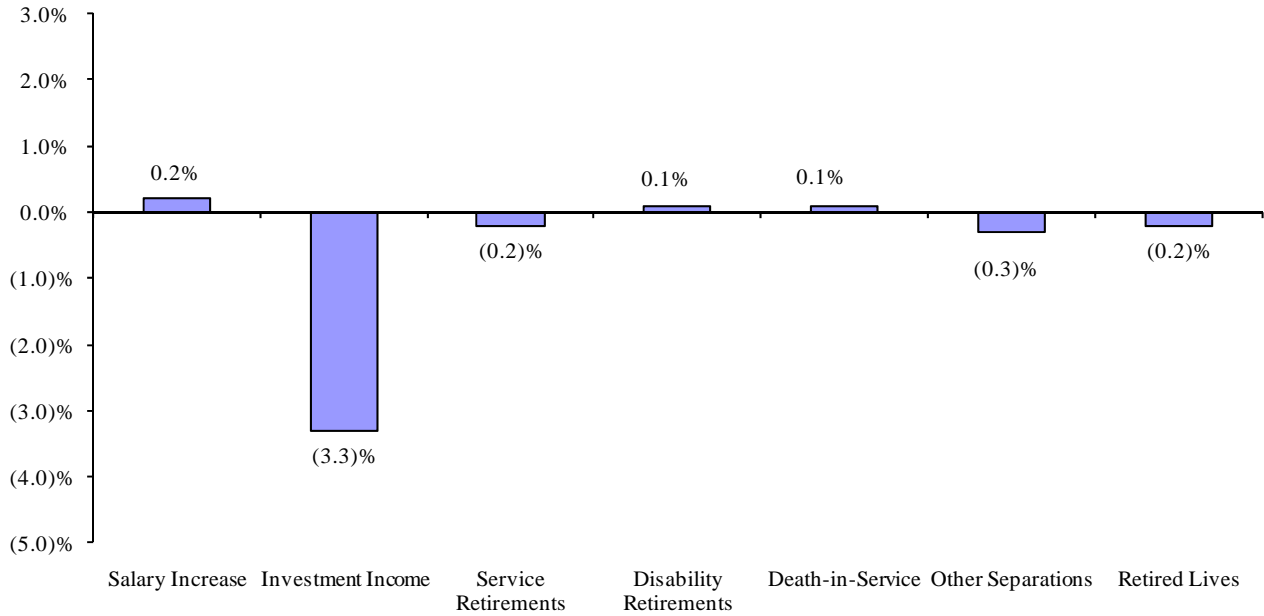
Gain (Loss) Analysis 2009-2010 Experience

Amount in \$ Millions



Type of Risk Area

% of Actuarial Accrued Liabilities



Type of Risk Area

Experience Gains & Losses By Risk Area
Comparative Statement
-----\$ in Millions-----

Year Ending June 30	Gain (Loss) By Risk Area								Total Exper. Gain (Loss)	Exper. Gain (Loss) as % of AAL	Accrued Liability Beginning of Year
	Salary Increases	Investments	Age & Service Retirement	Disability	Death- In- Service	Withdrawal	COLAs & Retired Lives	Other			
1992 *	\$ 79.8	\$ 19.9	\$ (1.8)	\$0.6	\$ 1.6	\$ (5.5)	#	\$ (8.0)	\$ 86.6	4.0 %	\$ 2,165
1993	66.8	54.0	(0.9)	0.8	2.4	(3.9)	#	(27.0)	92.2	4.0	2,292
1994	42.5	(18.1)	(1.0)	0.7	2.3	(7.0)	#	52.0	71.4	2.9	2,447
1995	16.7	12.0	(3.2)	0.5	2.5	(4.0)	#	(7.5)	17.0	0.6	2,919
1996	24.2	63.7	(2.1)	0.6	2.9	(10.2)	\$ 7.4	(74.3) ^	12.2	0.4	3,151
1997 *	(26.3)	260.3	(3.1)	0.5	2.6	(7.1)	14.5	(50.6)	190.8	5.5	3,440
1998	(56.9)	325.9	9.6	0.2	(0.3)	(1.7)	16.3	(48.3)	244.8	5.5	4,484
1999	(21.9)	299.8	(1.3)	(0.3)	(0.9)	1.7	10.5	(58.1)	229.5	4.7	4,919
2000 *	(6.4)	162.0	1.7	(0.5)	(0.7)	8.9	18.5	(34.7)	148.8	2.7	5,506
2001 *	(23.2)	(67.9)	(59.8)	(1.0)	(0.2)	(28.2)	(13.1)	(66.1)	(259.5)	(4.4)	5,921
2002	115.0	(284.6)	(14.4)	(0.5)	(1.3)	(21.4)	37.1	(62.6)	(232.8)	(3.8)	6,065
2003	7.7	(314.1)	(27.2)	(0.6)	(2.6)	(14.6)	9.6	(63.1)	(404.9)	(6.5)	6,294
2004 *	(40.0)	(240.1)	(51.5)	(1.4)	(1.3)	(6.7)	(4.3)	(53.8)	(399.1)	(6.0)	6,662
2005	(3.4)	(196.6)	3.1	(2.0)	(1.7)	(0.9)	(11.7)	(35.5)	(248.7)	(3.4)	7,230
2006	(29.5)	38.0	(1.7)	(2.3)	(2.4)	15.5	(21.1)	(3.6)	(7.1)	(0.1)	7,578
2007	(11.5)	179.4	(17.3)	(2.1)	(2.4)	3.8	(29.7)	(43.0)	77.2	1.0	8,013
2008 *	(10.5)	78.3	(22.9)	(2.0)	(3.4)	6.6	8.7	(49.8)	5.0	0.1	8,500
2009 *	(15.9)	(354.3)	8.8	(1.5)	0.0	(31.3)	(39.8)	(37.6)	(471.6)	(5.2)	9,128
2010	23.2	(313.6)	(19.0)	8.4	8.0	(30.6)	4.7	(56.9)	(375.8)	(3.9)	9,495

* Revision in assumptions.

Not identified as separate risk area. Included in "Other" category.

^ Includes (\$23.0) for legal settlement.

**Development of Gain (Loss)
From Investment Income
During Plan Year 2009 - 2010**

	Market Value	Actuarial Value
	----- \$ in millions -----	
1. Assets at June 30, 2009	\$6,163.1	\$ 7,876.1
2. Contributions and Transfers in	254.8	254.8
3. Investment Income	860.5	343.3
4. Benefit Payments	543.7	543.7
5. Administrative Expenses	7.1	7.1
6. Assets at June 30, 2010 = (1) + (2) + (3) – (4) – (5)	6,727.6	7,923.4
7. Actual Investment Increment/Mean Assets*	14.31 %	4.44 %
8. Expected Investment Increment		8.50 %
9. Investment Gain (Loss):		
a. As a % of mean assets: (7) – (8)		(4.06) %
b. \$ in millions		<u>\$ (313.6)</u>

* Based on the approximation formula: $I/[.5 x (A+B-I)]$, where

I = Investment increment
A = Beginning of year asset value
B = End of year asset value

Salary Increases
To Members Active Both at Beginning & End of Year
During Plan Year 2009 - 2010

Age Groups		Salary Increases	
		Actual*	Expected
Below 20			
20- 24	1,082	2.4%	7.2%
25- 29	3,873	2.4%	6.6%
30- 34	4,686	1.4%	5.9%
35- 39	5,482	1.1%	5.4%
40- 44	6,244	0.8%	5.1%
45- 49	7,667	0.5%	4.8%
50- 54	8,155	0.4%	4.6%
55- 59	6,850	0.3%	4.5%
60-64	4,213	(0.4)%	4.4%
65 & Over	1,318	(0.9)%	4.3%
Total	49,570		
Average		0.7%	5.0%

* Excludes new entrants and terminations.

Assumed Payroll Growth	Actual Payroll Growth		
	2010	2009	2008
4.0%	(2.9)%	4.5%	3.8%

**Active Members Who Retired With
SERVICE OR REDUCED SERVICE RETIREMENT BENEFITS
During Plan Year 2009 - 2010**

Ages	Men		Women		Total	
	Actual	Expected	Actual	Expected	Actual	Expected
Under 50	4	1.4	16	9.2	20	10.5
50	5	5.1	22	25.0	27	30.1
51	9	8.4	15	28.5	24	36.9
52	7	13.5	20	33.5	27	47.0
53	11	15.1	31	35.4	42	50.4
54	22	24.0	27	39.0	49	63.0
55	27	31.6	44	44.9	71	76.5
56	30	36.3	39	49.0	69	85.3
57	31	44.0	49	56.8	80	100.9
58	36	53.0	57	68.1	93	121.1
59	35	47.4	57	61.1	92	108.6
60	52	61.9	55	73.9	107	135.8
61	50	46.5	55	68.4	105	114.9
62	75	92.6	93	115.1	168	207.7
63	73	86.3	69	98.5	142	184.7
64	27	45.4	39	56.3	66	101.7
65	46	61.2	56	61.5	102	122.7
66	30	35.6	39	39.6	69	75.2
67	21	23.6	31	23.4	52	47.0
68	14	14.6	19	17.2	33	31.8
69	15	11.2	15	12.0	30	23.2
70 & Over	32	58.5	41	55.1	73	113.6
Totals	652	817.0	889	1,071.4	1,541	1,888.6

	Men	Women	Total
Average age at retirement	61.8 years	60.9 years	61.3 years
Average service at retirement	21.8 years	21.5 years	21.6 years

**Active Members Who Retired With DISABILITY BENEFITS
During Plan Year 2009 - 2010**

Ages	Men		Women		Total	
	Actual	Expected	Actual	Expected	Actual	Expected
Under 25	-	0.0	-	0.0	-	0.1
25- 29	3.0	0.5	2	1.6	5	2.1
30- 34	1	1.8	4	5.1	5	6.9
35- 39	4	3.4	11	7.7	15	11.0
40- 44	7	5.5	12	10.8	19	16.3
45- 49	8	9.4	21	18.4	29	27.8
50- 54	23	16.4	24	25.6	47	42.0
55- 59	9	22.2	22	29.3	31	51.5
60 & Over	9	7.5	9	11.9	18	19.4
Totals	64	66.6	105	110.5	169	177.1

	Men	Women	Total
Average age at disability	50.6 years	49.4 years	49.9 years
Average service at disability	10.0 years	9.8 years	9.9 years

**Active Members Who Died
During Plan Year 2009 - 2010**

Ages	Men		Women		Total	
	Actual	Expected	Actual	Expected	Actual	Expected
Under 30	1	0	-	0	1	0
30- 34	1	0	1	1	2	1
35- 39	1	1	1	1	2	2
40- 44	3	2	1	2	4	3
45- 49	4	4	5	3	9	7
50- 54	11	7	5	5	16	13
55- 59	10	12	10	8	20	20
60- 64	10	12	7	9	17	21
65 & Over	7	9	3	5	10	14
Totals	48	46.7	33	33.1	81	79.8

	Men	Women	Total
Average age at death	56.1 years	55.7 years	55.9 years
Average service at death	13.0 years	12.6 years	12.8 years

Of the 81 active members who died in service during 2009-2010, 33 members had a benefit payable to a survivor.

**Active Members Who Left Active Status with a DEFERRED BENEFIT
(Retirement with Monthly Payments Beginning At Later Age)
During Plan Year 2009 - 2010**

Ages	Men		Women		Total	
	Actual	Expected	Actual	Expected	Actual	Expected
Under 30	21	41.6	71	74.3	92	116.0
30- 34	66	98.1	147	170.7	213	268.8
35- 39	91	105.8	139	181.3	230	287.1
40- 44	78	99.2	130	170.7	208	269.9
45- 49	77	96.3	125	176.8	202	273.1
50- 54	68	83.6	109	146.3	177	229.9
55- 59	36	56.0	80	91.5	116	147.5
60 & Over	10	15.3	22	25.4	32	40.7
Totals	447	595.8	823	1,037.1	1,270	1,632.9

	Men	Women	Total
Average age at termination	43.3 years	42.6 years	42.9 years
Average service at termination	9.6 years	9.6 years	9.6 years

**Active Members Who Left Active Status with NO BENEFIT PAYABLE
(Other than Deaths)
During Plan Year 2009 - 2010**

Ages	Men		Women		Total	
	Actual	Expected	Actual	Expected	Actual	Expected
Under 20						
20- 24	114	100.6	221	166.4	335	267.0
25- 29	241	237.5	417	376.8	658	614.3
30- 34	143	151.9	253	249.1	396	401.0
35- 39	102	105.2	165	195.1	267	300.3
40- 44	72	93.0	132	163.6	204	256.6
45- 49	62	90.5	116	167.6	178	258.1
50- 54	67	90.6	113	138.8	180	229.4
55- 59	32	68.3	80	103.5	112	171.8
60- 64	23	57.3	37	52.8	60	110.1
65- 69	10	9.5	15	9.3	25	18.8
70 & Over	6	5.3	5	4.3	11	9.6
Totals	872	1,009.7	1,554	1,627.3	2,426	2,637.0

	Men	Women	Total
Average age at termination	36.2 years	36.2 years	36.2 years
Average service at termination	1.9 years	1.9 years	1.9 years

Service at Termination	Men		Women		Total	
	Actual	Expected	Actual	Expected	Actual	Expected
0	294	369.7	539	582.7	833	952.4
1	245	283.0	412	491.9	657	774.9
2	158	196.1	314	336.2	472	532.3
3	117	140.5	180	202.0	297	342.5
4	58	20.4	109	14.5	167	34.9
5 & Over	-	-	-	-	-	-
Totals	872	1,009.7	1,554	1,627.3	2,426	2,637.0

**Comparison of Actual to Expected Deaths
Among Retired Lives
(Service Retirement Only)
As of June 30, 2010**

Age	Male Deaths			Female Deaths			Total Deaths		
	Actual	Expected	Exposure	Actual	Expected	Exposure	Actual	Expected	Exposure
50-54	1		210	2	1	581	3	1	791
55-59	16	13	1,538	13	13	2,500	29	26	4,038
60-64	34	36	2,634	35	31	3,759	69	67	6,393
65-69	49	51	2,314	44	44	3,423	93	95	5,737
70-74	38	60	1,609	50	55	2,512	88	115	4,121
75-79	60	68	1,184	73	65	1,779	133	133	2,963
80-84	43	62	666	86	79	1,363	129	141	2,029
85-89	32	40	293	82	64	704	114	104	997
90-94	23	15	84	45	37	278	68	52	362
95-99	9	3	15	18	10	54	27	13	69
100 & Up	3	1	3		1	4	3	2	7
Totals	308	349	10,550	448	400	16,957	756	749	27,507
Average Ages	75.6	75.3	67.6	78.7	77.9	68.2	77.4	76.7	68.0

DATA USED IN VALUATIONS

**Missouri State Employees' Retirement System
Summary of Benefit Provisions Evaluated
June 30, 2010 Actuarial Valuation**

MSEP (Missouri State Employees' Plan)	MSEP 2000 (Missouri State Employees' Plan 2000)
<p>PARTICIPATION</p> <p>Participants include:</p> <p>All MOSERS members, vested former members, retirees and survivors who first became members prior to July 1, 2000 and who do not elect to transfer to the MSEP 2000 plan. Election is made at the time benefits commence.</p>	<p>Participants include:</p> <ol style="list-style-type: none"> (1) All new employees who first become members on or after July 1, 2000, except full-time teaching and senior administrative personnel of the regional colleges and universities hired on or after July 1, 2002 who will be participants in the Colleges and Universities Retirement Plan. (2) MSEP active members and vested former members who elect to transfer to the MSEP 2000 plan prior to retirement. (3) MSEP retirees who elect to transfer to the MSEP 2000 plan during the election window from July 1, 2000 through July 1, 2001, and their survivors.

MSEP

MSEP 2000

NORMAL RETIREMENT ELIGIBILITY (unreduced benefits)***Members of the General Assembly:***

Age 55 with completion of at least 3 full biennial assemblies.

Statewide Elected Officials: The earliest of attaining:

- (1) Age 65 with at least 4 years of credited service.
- (2) Age 60 with at least 15 years of credited service.
- (3) Age 50 with age plus credited service equal to 80 or more.

General Employees: The earliest of attaining:

- (1) Age 65 and active with at least 4 years of credited service.
- (2) Age 65 with at least five years of credited service.
- (3) Age 60 with at least 15 years of credited service.
- (4) Age 48 with age plus credited service equal to 80 or more.

Uniform Water Patrol Employees: The earliest of attaining:

- (1) Age 55 and active with at least 4 years of credited service.
- (2) Age 55 with at least 5 years of credited service.
- (3) Age 48 with age plus credited service equal to 80 or more.

AVERAGE COMPENSATION USED FOR BENEFIT DETERMINATION

The average annual compensation of a member for the three consecutive years of service during which pay was highest (overtime pay is included for purposes of determining Average Compensation). Lump sum payments are excluded, but unused sick leave may be converted to additional credited service (usable only for benefit computation, not eligibility).

Members of the General Assembly: The earlier of attaining:

- (1) Age 55 with completion of at least 2 full biennial assemblies.
- (2) Age 50 with completion of at least 2 full biennial assemblies and with age plus credited service equal to 80 or more.

Statewide Elected Officials: The earlier of attaining:

- (1) Age 55 with at least 4 years of credited service as a statewide elected official.
- (2) Age 50 with age plus credited service equal to 80 or more.

General Employees: The earlier of attaining:

- (1) Age 62 with at least 5 years of credited service.
- (2) Age 48 with age plus credited service equal to 80 or more.

For Members Hired After January 1, 2011: The earlier of attaining:

- (1) Age 67 with at least 10 years of credited service.
- (2) Age 55 with age plus credited service equal to 90 or more.

The average annual pay of a member for the three consecutive years of service during which pay was highest (overtime pay is included for purposes of determining Average Pay). A lump sum payment is included unless it is for unused vacation or sick leave. However, unused sick leave may be converted to additional credited service (usable only for benefit computation, not eligibility).

BENEFIT AMOUNT***Members of the General Assembly:***

\$150 per month per biennial assembly served.

Statewide Elected Officials:

- (1) Less than 12 years of credited service:
1.6% of Average Compensation times years of credited service.
- (2) 12 or more years of credited service:
50% of pay of the highest elected position held prior to retirement.

General Employees:

1.6% of Average Compensation times years of credited service.

2.1% of Average Compensation times years of credited service for any period of non-social security covered employment transferred from the Public School Retirement System.

Uniformed Water Patrol Employees:

2.13% of Average Compensation times years of credited service.

Members of the General Assembly:

1/24 of pay times first 24 years of credited service as a member of the General Assembly.

Statewide Elected Officials:

1/24 of pay (of the highest elected position held prior to retirement) times the first 12 years of credited service as a statewide elected official.

General Employees:

Life Benefit: 1.7% of Average Pay times years of credited service.

Temporary Benefit: If member retires between ages 50 and 62 with age plus credited service equal to 80 or more (90 or more if hired on or after January 1, 2011), a temporary benefit is payable until the attainment of the minimum age at which reduced social security benefits are payable, in the amount of 0.8% of Average Pay times years of credited service.

Non- Social Security Covered Service: 2.5% of Average Pay times years of credited service for any period of non-social security covered employment transferred from the Public School Retirement System.

MSEP

MSEP 2000

EARLY RETIREMENT FOR GENERAL EMPLOYEES:

Eligibility:

Age 55 with at least 10 years of credited service.

Amount:

- (1) Less than 15 years of service: Normal retirement amount actuarially reduced for years younger than age 65.
- (2) 15 years but less than 20 years of service, and less than the number of years of service necessary for age and service to total 80: Normal retirement amount actuarially reduced for years younger than age 60.
- (3) 20 or more years of service, but less than the number of years of service necessary for age and service to total 80: Normal retirement amount reduced for years younger than the 80 and out eligibility date.

VESTED DEFERRED BENEFITS

Benefits for employees who terminate prior to eligibility for an immediate benefit are considered to be vested in accordance with the following schedule (benefits commence at the age the individual would have been eligible for early or normal retirement, considering years of credited service). Unused sick leave is not converted.

Years of Service	General Assembly	Statewide Elected Officials	General Employees
4 5		100%	100%
6 (3 assemblies)	100%		

Eligibility:

Age 57 with at least 5 years of credited service.

Eligibility (For members hired after January 1, 2011)

Age 62 with at least 10 years of credited service.

Amount:

Normal retirement amount reduced by ½% for each month that retirement precedes eligibility for normal retirement.

Benefits for employees who terminate prior to eligibility for an immediate benefit are considered to be vested in accordance with the following schedule (benefits commence at age 57 and age 62 for members hired on or after January 1, 2011). Unused sick leave is converted to additional credited service.

Years of Service	General Assembly	Statewide Elected Officials	General Employees
4 (2 assemblies) 5 10 (post 1/1/11 hires)	100%	100%	100% 100%
6 (3 Assemblies) HB1455 prospectively	100%		

DEATH PRIOR TO RETIREMENT

- (1) The surviving spouse benefit is computed as if the member had been normal retirement age on the date of death and elected the joint and 100% survivor optional form of payment, provided the member had at least 5 years of credited service and was married for at least two consecutive years immediately prior to the date of death. If no eligible spouse survives, 80% of the member's life income annuity is paid to eligible children until age 21. If the death is duty related, the service requirement is waived, and the minimum spouse benefit is 50% of current pay.

- (2) For members of the General Assembly, the surviving spouse receives 50% of the benefit the member would have received if the member had been normal retirement age on the date of death, provided the member had served in at least 3 biennial assemblies, and was married for at least two consecutive years immediately prior to the date of death. If the death is duty related, the service requirement is waived, and the minimum spouse benefit is 50% of current pay.

The surviving spouse benefit is computed as if the member had been normal retirement age on the date of death and elected the joint and 100% survivor option form of payment, provided the member had at least 5 years of credited service (2 full assemblies for a member of the General Assembly, 4 years of credited service for a statewide elected official). If no eligible spouse survives, 80% of the member's life income annuity is paid to eligible children until age 21. If the death is duty related, the service requirement is waived, and the minimum spouse benefit is 50% of current pay.

MSEP

MSEP 2000

DEATH AFTER RETIREMENT

50% of the benefit the retired member was receiving on the date of death (the normal form of payment), or the benefit payable under the joint and survivor or period certain form of payment, if the member elected an optional form of payment at time of retirement and provided the member was married for at least two consecutive years prior to the date of retirement. Effective July 1, 2000, a member who is not married at retirement but marries thereafter may designate a spouse as beneficiary upon completion of one year of marriage. Additionally, a member may designate a new spouse as beneficiary upon completion of one year of marriage in the event of the death of the spouse the member was married to at the date of retirement (this provision does not apply to period certain annuities).

DISABILITY (RECIPIENTS OF LTD BENEFITS)

Normal retirement benefits become payable at the time the member is eligible for normal retirement, and are computed based on: i) the service that would have accrued to the member if active employment had continued; and ii) the member's rate of pay at the time of disability (if the member retires on or after August 28, 1999, the member's rate of pay is based on the rate of pay at the time of disability indexed to the time of benefit commencement). An exception is Uniformed Water Patrol employees who are eligible for an immediate occupational disability benefit equal to 50% of pay at time of disability.

The benefit payable under the joint and survivor or period certain form of payment, if the member elected an optional form of payment at time of retirement. A member who is not married at retirement but marries thereafter may designate a spouse as beneficiary upon completion of one year of marriage. Additionally, a member may designate a new spouse as beneficiary upon completion of one year of marriage in the event of the death of the spouse the member was married to at the date of retirement (this provision does not apply to period certain annuities).

Normal retirement benefits become payable at the time the member is eligible for normal retirement, and are computed based on: i) the service that would have accrued to the member if active employment had continued; and ii) the member's rate of pay at the time of disability indexed to the time of benefit commencement. The annual percentage increase in the pay used to compute benefits is the lesser of: i) 80% of the CPI increase and ii) 5%.

MSEP

MSEP 2000

POST-RETIREMENT BENEFIT ADJUSTMENTS

Benefits are increased to retired members (including survivors) annually in accordance with the following formulas:

Increase in CPI	Formula 1 Benefit Increase	Formula 2 Benefit Increase
5.00% or less	4%	80% of CPI increase
5.01% - 6.24%	80% of CPI increase	80% of CPI increase
6.25% or more	5%	5%

Members first hired prior to August 28, 1997 receive COLAs based on Formula 1 until an aggregate increase of 65% is reached. At that point subsequent COLAs based on Formula 2 are granted.

Members first hired on or after August 28, 1997 receive COLAs based solely on Formula 2.

Statewide Elected Officials with 12 or more years of service have their benefit adjusted annually based on the increase in the pay for an active statewide elected official in the member's highest elected position.

Members who are fully vested and work beyond age 65 will have their monthly benefit increased upon retirement. The percentage increase in benefit is equal to all COLAs for the years between age 65 and date of retirement, not to exceed 65% and counts toward the Formula 1 65% maximum.

Benefits are increased to retired members (including survivors) annually in accordance with the following:

Members of the General Assembly: Benefit is adjusted annually based on the increase in the pay for an active member of the General Assembly.

Statewide Elected Officials: Benefit is adjusted annually based on the increase in the pay for an active statewide elected official in the retired member's highest elected position.

General Employees: Annual benefit percentage increase equal to the lesser of: i) 80% of the CPI increase, and ii) 5%.

CPI: For the basis of determining CPI, the average monthly reported CPI for the prior calendar year is divided by the average monthly reported CPI for the second prior calendar year to determine the current year increases, if any. If this amount is less than one, benefits are not reduced, nor is there any cumulative effect on future years determination of CPI.

Timing of Increase: Benefits are adjusted on the anniversary of the effective date of retirement for most members. Members retiring under the BackDROP provisions have an anniversary based on the retroactive starting date for the BackDROP.

MSEP	MSEP 2000
<p>POP-UP PROVISION</p> <p>Benefits to members who choose a survivor form of payment and whose spouse precedes the member in death, will "pop-up" or revert to the amount the member would have received had he/she not elected a survivor option.</p> <p>PORTABILITY</p> <p>Purchase/Transfer Provisions (in addition to military). Effective August 28, 1999, a member may purchase up to four years of non-federal full-time Missouri public service, provided the member is not vested in another retirement system for that same service.</p> <p>MEMBER CONTRIBUTIONS. None.</p> <p>BACKDROP. See following page.</p>	<p>Same.</p> <p>Purchase/Transfer Provisions (in addition to military). A member may purchase up to four years of non-federal full-time Missouri public service, provided the member is not vested in another retirement system for that same service. Local vested service credit granted after 10 years of state service if the other retirement plan agrees to transfer assets equal to the accrued liability to MOSERS.</p> <p>Members hired prior to January 1, 2011: Same as MSEP.</p> <p>Members hired on or after January 1, 2011: 4.0% of salary, with 4.0% interest credited to member contributions.</p> <p>Members hired prior to January 1, 2011: Same as MSEP.</p> <p>Members hired on or after January 1, 2011: Not eligible for the BackDROP.</p>

BACKDROP

To be eligible to participate in the BackDROP, a member must have been eligible to retire under normal age and/or service conditions for at least two years. A retroactive starting date is established for BackDROP purposes which is the later of: 1) the member's normal retirement date or 2) five years prior to the annuity starting date under the retirement plan selected by the member.

A member may elect the back DROP period for the accumulation of the BackDROP account in 12 month increments prior to their actual retirement date or back to the earliest possible date. This results in a BackDROP period of two to five years depending upon the individual situation.

A theoretical BackDROP account is accumulated that includes 90% of the value of the benefit payments that would have been paid during the BackDROP period had the member retired at the retroactive starting date with their respective option election. These payments include applicable post-retirement benefit increases.

The member is paid the resulting lump sum value of the BackDROP account as of the annuity starting date or as three equal annual installments beginning at the annuity starting date.

The annuity benefit payable from the actual retirement date is computed with years of service and average pay as of the retroactive starting date for the BackDROP. Post-retirement benefit increases that occurred during the BackDROP period are applied in the calculation of the monthly annuity.

Members hired prior to January 1, 2011: Same as MSEP.

Members hired on or after January 1, 2011: Not eligible for the BackDROP.

**Retirants & Beneficiaries as of June 30, 2010
Tabulated by Plan Year of Retirement**

Calendar Year Ended 12/31	No.	Total Annual Benefits	Average Monthly Benefit
2010 *	1,110	\$ 15,992,209	\$1,201
2009	2,467	34,761,300	1,174
2008	2,422	34,577,556	1,190
2007	2,304	32,230,812	1,166
2006	2,180	31,671,720	1,211
2005	1,984	28,878,228	1,213
2004	1,460	20,592,132	1,175
2003	2,717	44,954,208	1,379
2002	1,999	31,357,176	1,307
2001	1,688	27,843,192	1,375
2000	2,215	37,029,216	1,393
1999	1,202	18,734,088	1,299
1998	1,167	18,998,196	1,357
1997	1,003	16,295,364	1,354
1996	878	13,367,040	1,269
1995	951	15,356,460	1,346
1994	689	9,520,968	1,152
1993	723	10,953,168	1,262
1992	613	8,742,828	1,189
1991	588	9,046,464	1,282
1990	437	6,308,052	1,203
1989	408	5,410,308	1,105
1988	420	5,657,568	1,123
1987	302	3,330,132	919
1986	284	2,635,356	773
1985	206	2,044,572	827
1984	156	1,507,884	805
1983	163	1,635,288	836
1982	126	1,177,140	779
1981	107	953,796	743
1980	61	562,500	768
1979	43	311,412	604
1978	51	348,516	569
1977	43	330,600	641
1976	35	241,044	574
1975	19	127,308	558
1974	14	69,996	417
1973	11	70,104	531
1972	0	0	0
1971	3	13,416	373
1966	1	6,156	513
1964 & PRIOR	1	8,760	730
Totals	33,251	\$493,652,233	\$1,237

* Five months ended May 31, 2010.

**Benefits Payable June 30, 2010
Tabulated by Option and Type of Benefit**

MSEP Benefits

Type of Benefit	No.	Annual Benefits
Service Retirement		
Life Annuity	4,898	\$ 57,079,846
50% Joint and Survivor	5,160	80,109,451
75% Joint and Survivor	2	41,616
100% Joint and Survivor	2,519	46,058,649
5 Year Certain and Life	121	1,288,563
10 Year Certain and Life	119	1,129,113
Survivor Beneficiary	2,062	21,860,298
Total	14,881	207,567,536
Disability Retirement	10	33,876
Death-in-Service	1,354	12,910,655
Total	16,245	\$ 220,512,067

MSEP 2000 Benefits

Type of Benefit	No.	Annual Benefits
Service Retirement		
Life Annuity	10,674	\$ 160,359,447
50% Joint and Survivor	2,565	54,386,019
100% Joint and Survivor	2,536	45,919,174
5 Year Certain and Life	39	569,613
10 Year Certain and Life	427	5,101,557
15 Year Certain and Life	310	2,776,066
Survivor Beneficiary	396	3,868,438
Total	16,947	272,980,314
Disability Retirement	0	0
Death-in-Service	59	159,852
Total	17,006	\$ 273,140,166

Total Benefits Payable June 30, 2010
Tabulated by Attained Ages of Benefit Recipients

Attained Ages	Service Retirement		Disability Retirement		Survivors and Beneficiaries		Totals	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 20					69	\$ 282,372	69	\$ 282,372
20-24					24	89,137	24	89,137
25-29					8	46,548	8	46,548
30-34					25	193,992	25	193,992
35-39					37	199,643	37	199,643
40-44					71	501,805	71	501,805
45-49	5	\$ 185,484			110	799,628	115	985,112
50-54	596	17,248,287	1	\$ 2,016	196	1,736,156	793	18,986,459
55-59	3,616	79,801,352	4	13,788	311	3,002,352	3,931	82,817,492
60-64	7,005	107,396,834	5	18,072	447	4,644,835	7,457	112,059,741
65-69	6,312	81,375,201			454	5,431,495	6,766	86,806,696
70-74	4,555	66,683,976			506	5,838,391	5,061	72,522,367
75-79	3,240	49,687,956			610	6,740,957	3,850	56,428,913
80-84	2,241	31,484,720			548	5,085,553	2,789	36,570,273
85-89	1,217	14,778,430			317	3,049,897	1,534	17,828,327
90-94	471	5,203,196			112	970,903	583	6,174,099
95	39	342,305			13	107,664	52	449,969
96	30	291,537			6	21,672	36	313,209
97	13	121,935			3	45,660	16	167,595
98	15	98,880			2	5,587	17	104,467
99	6	47,237					6	47,237
100	3	32,892			1	2,424	4	35,316
101	5	29,880					5	29,880
102					1	2,572	1	2,572
103	1	9,012					1	9,012
Totals	29,370	\$ 454,819,114	10	\$ 33,876	3,871	\$ 38,799,243	33,251	\$ 493,652,233

Average age at Retirement: 60.2 years.

Average age now: 69.2 years.

Summary of Member Data Included in Valuation

June 30, 2010

Active Members

Valuation Group	Number	Payroll	Group Averages		
			Salary	Age(yrs.)	Service(yrs.)
Regular State Employees	49,865	\$ 1,747,311,866	\$ 35,041	45.4	10.8
Elected Officials	6	659,978	109,996	48.8	5.5
Legislative Clerks	39	1,278,336	32,778	58.7	20.2
Legislators	196	7,051,594	35,978	51.4	5.8
Uniformed Water Patrol	93	5,649,221	60,744	41.0	16.0
Conservation Department	1,445	60,698,031	42,006	45.0	14.7
School-Term Salaried Employees	1,799	119,014,228	66,156	54.3	19.4
Administrative Law Judges	35	3,432,067	98,059	54.8	16.6
Total MOSERS*	53,478	\$ 1,945,095,321	\$ 36,372	45.7	11.2
Judges*	402	\$ 46,112,730	\$ 114,708	56.0	12.2

Retired Lives

Type of Benefit Payment	No.	Annual Benefit	Group Averages	
			Benefit	Age(yrs.)
Retirement	29,370	\$ 454,819,114	\$ 15,486	69.2
Disability	10	33,876	3,388	59.5
Survivor of Active Member	1,413	13,070,507	9,250	60.5
Survivor of Retired Member	2,458	25,728,736	10,467	74.6
Total MOSERS*	33,251	\$ 493,652,233	\$ 14,846	69.2
Judges*	465	\$ 24,538,904	\$ 52,772	75.2

This valuation also includes 17,399 terminated vested members, 327 members on leave and 964 members on long-term disability.

* Total covered by MOSERS excluding Judges. Judges assets, liabilities, contribution rates and other valuation results are included in a separate report covering only Judges.

Active Members in Funding Program as of June 30, 2010

By Age and Years of Service#*

Near Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 plus	No.	Valuation
									Payroll
15-19	28							28	\$ 564,072
20-24	1,365	5						1,370	34,387,435
25-29	3,634	725	18					4,377	130,569,657
30-34	2,622	2,062	526	11				5,221	170,104,117
35-39	1,926	1,707	1,737	398	14			5,782	199,938,944
40-44	1,646	1,470	1,681	1,262	485	26		6,570	238,151,759
45-49	1,733	1,543	1,551	1,186	1,272	608	62	7,955	297,535,674
50-54	1,485	1,436	1,569	1,104	1,290	962	626	8,472	324,937,357
55-59	1,128	1,251	1,426	1,078	1,215	629	661	7,388	293,421,356
60	185	229	212	205	196	105	83	1,215	47,216,552
61	185	208	225	196	167	87	76	1,144	44,977,419
62	149	200	175	141	137	61	68	931	35,685,473
63	115	178	153	141	106	38	61	792	32,298,346
64	87	128	142	112	74	48	60	651	27,138,413
65	39	87	88	69	54	25	32	394	17,061,148
66	24	55	75	43	47	23	27	294	12,585,428
67	19	56	52	37	26	17	31	238	10,616,021
68	22	44	38	19	18	10	20	171	7,229,686
69	11	16	39	14	21	2	13	116	4,429,750
70 & Over	55	63	77	49	50	23	52	369	16,246,714
Totals	16,458	11,463	9,784	6,065	5,172	2,664	1,872	53,478	\$ 1,945,095,321

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 45.7 years.

Service: 11.2 years.

Annual Pay: \$36,372

Includes 35 ALJ members.

* A breakdown by gender is included on pages 67 and 68.

Development of Actuarial Value of Assets

Valuation Date:	2009	2010	2011	2012	2013	2014
A. Actuarial Value Beginning of Year	\$7,838,495,768	\$7,876,079,342				
B. Market Value End of Year	6,163,086,700	6,727,623,355				
C. Market Value Beginning of Year	7,934,030,312	6,163,086,700				
D. Cash Flow						
D1. Contributions	255,369,082	254,813,150				
D2. Benefit Payments	(511,466,554)	(543,750,365)				
D3. Administrative Expenses	(7,088,483)	(7,064,544)				
D4. Net	(263,185,955)	(296,001,759)				
E. Investment Income						
E1. Market Total: B - C - D4	(1,507,757,657)	860,538,414				
E2. Assumed Rate	8.5%	8.5%				
E3. Amount for Immediate Recognition: E2*(A+D4*.5)	655,086,737	656,886,669				
E4. Amount for Phased-In Recognition: E1 - E3	(2,162,844,394)	203,651,745				
F. Phased-In Recognition of Investment Income						
F1. Current Year: 0.2 * E4	(432,568,879)	40,730,349				
F2. First Prior Year	(101,183,608)	(432,568,879)	\$40,730,349			
F3. Second Prior Year	141,398,417	(101,183,608)	(432,568,879)	\$40,730,349		
F4. Third Prior Year	38,036,862	141,398,417	(101,183,608)	(432,568,879)	\$40,730,349	
F5. Fourth Prior Year		38,036,862	141,398,417	(101,183,608)	(432,568,879)	\$40,730,351
F6. Total Recognized Investment Gain: Sum(F1:F5)	(354,317,208)	(313,586,859)	(351,623,721)	(493,022,138)	(391,838,530)	40,730,351
G. Adjustment	-	-				
H. Actuarial Value End of Year:						
H1. Preliminary Value: A + D4 + E3 + F6 + G	\$7,876,079,342	\$7,923,377,393				
H2. Corridor Percent	30%	25%				
H3. Upper Corridor Limit: (100% + H2) x B	8,012,012,710	8,409,529,194				
H4. Lower Corridor Limit: (100% - H2) x B	4,314,160,690	5,045,717,516				
H5. Corridor Adjustment	0	0				
H6. Funding Value End of Year: H1 + H5	7,876,079,342	7,923,377,393				
I. Difference Between Market & Actuarial Values: B-H5	(1,712,992,642)	(1,195,754,038)	(844,130,317)	(351,108,179)	40,730,351	-
J. Recognized Rate of Return	3.90%	4.44%				
K. Market Value Rate of Return	(19.32)%	14.31%				
L. Actuarial Value as a % of Market Value: H5 / B	128%	118%				

The actuarial value of assets recognizes assumed investment income (line E3) fully each year. Differences between actual and assumed investment income (line E4) are phased-in over a closed 5-year period. During periods when investment performance exceeds the assumed rate, the actuarial value of assets will tend to be less than market value. During periods when investment performance is less than assumed, the actuarial value will tend to be greater than market value. If assumed rates are exactly realized for four consecutive years, the actuarial value will become equal to market value.

Asset Summary

June 30, 2010

	Market Value	Actuarial Value
1. Assets at June 30, 2009	\$6,163,086,700	\$7,876,079,342
2. Contributions and Transfers in	254,813,150	254,813,150
3. Investment Increment*	860,538,414	343,299,810
4. Benefit Payments and Transfers out	543,750,365	543,750,365
5. Administrative and Misc. Expenses	7,064,544	7,064,544
6. Assets at June 30, 2010 (1) + (2) + (3) - (4) - (5)	\$6,727,623,355	\$7,923,377,393
7. Investment Increment/Mean Assets**	14.31%	4.44%

* *Net of investment expenses.*

** *Based on the approximation formula: $I / [.5 \times (A+B-I)]$, where*

I = Investment Increment

A = Beginning of year asset value

B = End of year asset value

CASH FLOW PROJECTION

The Nature of Actuarial Projections

Regular actuarial valuations measure the Retirement System's present financial position and contributions adequacy by calculating and financing the liabilities created by the present benefit program. This process involves discounting to present values the future benefit payments on behalf of present active and retired members and their survivors. However, valuations do not produce information regarding future changes in the makeup of the covered group or the amounts of benefits to be paid or investment income to be received--actuarial projections do.

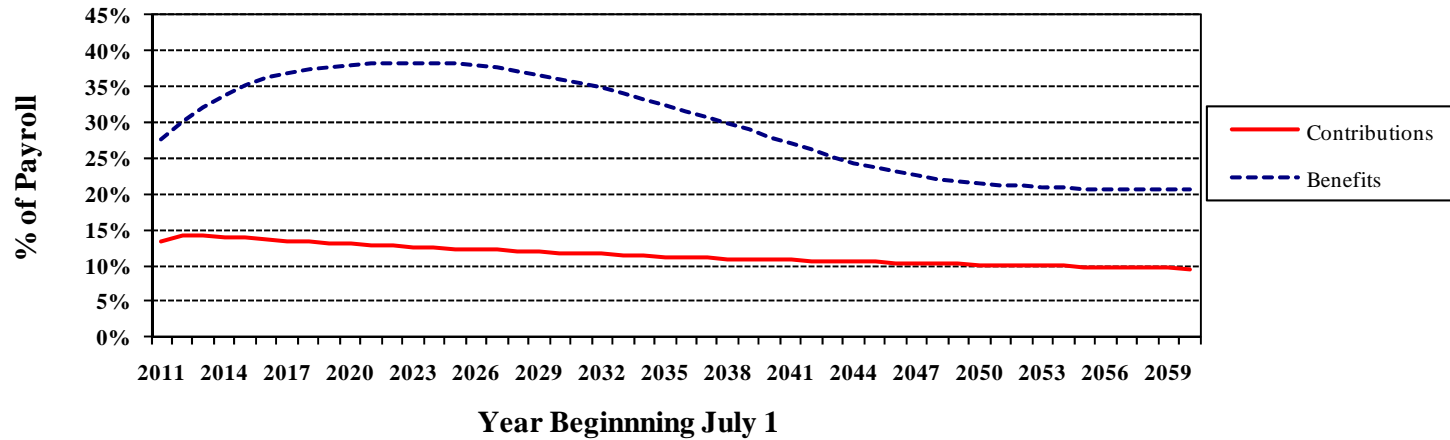
Whereas valuations provide a snapshot of the retirement system as of a given date, projections provide a moving picture. Projected active and retired groups are developed from year to year by the application of assumptions regarding pre-retirement withdrawal from service, retirements, deaths, disabilities, and the addition of new members. Projected information regarding the retired life group leads to assumed future benefit payout. Combining future benefit payments with assumed contributions and expected investment earnings produces the net cash flow of the System each year, and thus end of year asset levels.

Projections are used for many purposes. Among them are (i) developing cash flow patterns for investment policy and asset mix consideration, (ii) exploring the effect of alternative assumptions about future experience, (iii) analyzing the impact on system funding progress of changes in the workforce, and (iv) examining the potential effect of changes in benefits on system financial activity.

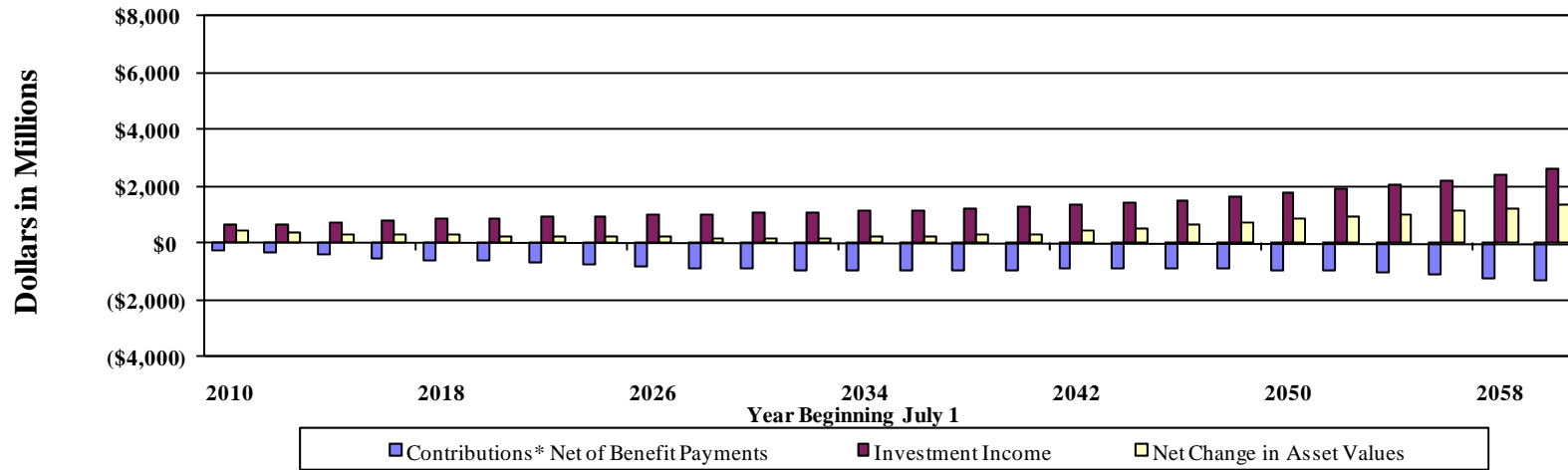
Projection results are useful in demonstrating changing relationships among key elements affecting system financial activity. For example: how benefits payable and system assets will grow in future decades. Projections are not predictions of specific future events and do not provide numeric precision in absolute terms. For instance, cash flow projected to occur 10 years in the future will not be exact (except by coincidence), but understanding the changed relationships between future benefit payout and future investment income can be very useful.

50-Year Cash Flow Projection Based on Valuation Assumptions

Projected Contributions* and Benefits Expressed as Percents of Active Member Payroll



Net Change in Asset Values



* Does not include contributions for administrative expenses. Includes member contributions.

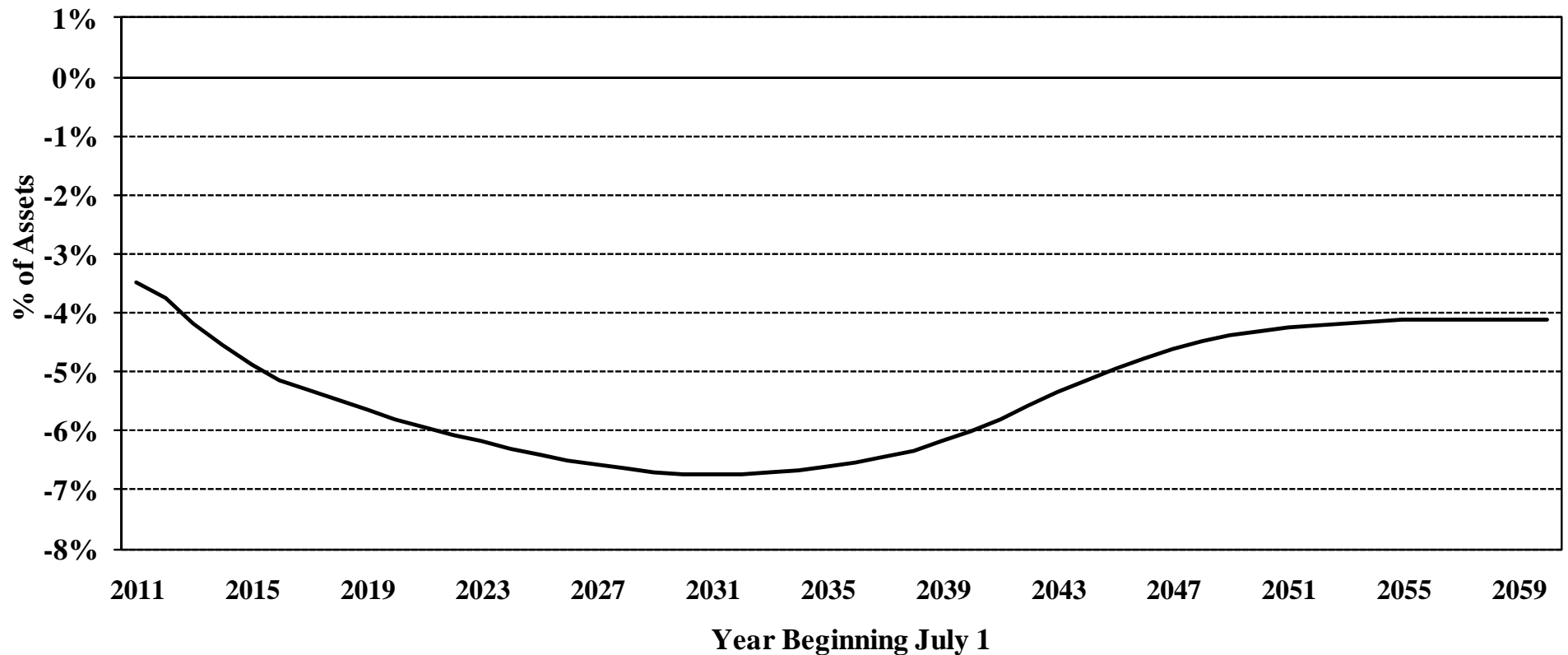
Fifty-Year Cash Flow Projection (in Thousands)

Year Ended June 30	Assets BOY	Contributions*			Benefits	Investment Income	Assets EOY	
		Normal	UAAL	Total			Inflated	2011 \$
2011	\$ 7,923,377	\$ 162,509	\$ 98,033	\$ 260,542	\$ 537,405	\$ 661,720	\$ 8,308,234	\$8,308,234
2012	8,308,234	161,526	119,573	281,099	593,046	692,942	8,689,229	8,355,028
2013	8,689,229	164,051	122,257	286,308	650,316	723,114	9,048,335	8,365,694
2014	9,048,335	166,264	125,001	291,265	704,042	751,566	9,387,124	8,345,119
2015	9,387,124	168,832	127,807	296,639	753,925	778,470	9,708,308	8,298,702
2016	9,708,308	171,778	130,675	302,453	801,582	803,995	10,013,174	8,230,099
2017	10,013,174	175,056	133,609	308,665	841,441	828,476	10,308,874	8,147,253
2018	10,308,874	178,711	136,608	315,319	881,062	852,210	10,595,341	8,051,588
2019	10,595,341	182,703	139,674	322,377	921,118	875,158	10,871,758	7,943,887
2020	10,871,758	187,058	142,809	329,867	960,084	897,315	11,138,856	7,826,013
2021	11,138,856	191,735	146,015	337,750	998,743	918,711	11,396,574	7,699,117
2022	11,396,574	196,761	149,293	346,054	1,036,390	939,370	11,645,608	7,564,765
2023	11,645,608	202,126	152,644	354,770	1,074,009	959,308	11,885,677	7,423,759
2024	11,885,677	207,865	156,070	363,935	1,111,857	978,497	12,116,252	7,276,707
2025	12,116,252	213,989	159,573	373,562	1,149,605	996,900	12,337,109	7,124,373
2026	12,337,109	220,513	163,155	383,668	1,186,238	1,014,544	12,549,083	6,968,061
2027	12,549,083	227,452	166,818	394,270	1,220,800	1,031,545	12,754,098	6,809,517
2028	12,754,098	234,828	170,562	405,390	1,253,762	1,048,042	12,953,768	6,650,118
2029	12,953,768	242,654	174,391	417,045	1,285,027	1,064,181	13,149,967	6,491,193
2030	13,149,967	250,919	178,305	429,224	1,314,940	1,080,104	13,344,355	6,333,797
2031	13,344,355	259,657	182,307	441,964	1,342,467	1,095,999	13,539,851	6,179,411
2032	13,539,851	268,848	186,400	455,248	1,368,310	1,112,082	13,738,871	6,029,078
2033	13,738,871	278,538	190,584	469,122	1,392,090	1,128,577	13,944,480	5,883,949
2034	13,944,480	288,734	194,862	483,596	1,415,001	1,145,697	14,158,772	5,744,587
2035	14,158,772	299,448	199,236	498,684	1,436,195	1,163,651	14,384,912	5,611,863
2036	14,384,912	310,741	203,708	514,449	1,455,713	1,182,713	14,626,361	5,486,594
2037	14,626,361	322,606	208,281	530,887	1,474,310	1,203,145	14,886,083	5,369,250
2038	14,886,083	335,111	212,956	548,067	1,490,050	1,225,283	15,169,383	5,260,993
2039	15,169,383	348,282	217,736	566,018	1,502,972	1,249,576	15,482,005	5,162,900
2040	15,482,005	362,120	222,623	584,743	1,513,349	1,276,504	15,829,903	5,075,881
2041	15,829,903	376,628	227,621	604,249	1,521,206	1,306,571	16,219,517	5,000,780
2042	16,219,517	391,803	232,730	624,533	1,528,533	1,340,239	16,655,756	4,937,770
2043	16,655,756	407,631	237,954	645,585	1,536,969	1,377,856	17,142,228	4,886,528
2044	17,142,228	424,113	243,295	667,408	1,547,795	1,419,672	17,681,513	4,846,400
2045	17,681,513	441,236	248,756	689,992	1,563,100	1,465,823	18,274,228	4,816,211
2046	18,274,228	458,994	254,340	713,334	1,583,575	1,516,324	18,920,311	4,794,699
2047	18,920,311	477,394	260,049	737,443	1,610,261	1,571,131	19,618,624	4,780,445
2048	19,618,624	496,464	265,886	762,350	1,643,716	1,630,126	20,367,384	4,772,014
2049	20,367,384	516,249	271,855	788,104	1,683,195	1,693,187	21,165,480	4,768,274
2050	21,165,480	536,790	277,957	814,747	1,728,210	1,760,244	22,012,261	4,768,309
2051	22,012,261	558,128	284,196	842,324	1,778,446	1,831,258	22,907,397	4,771,360
2052	22,907,397	580,304	290,576	870,880	1,833,637	1,906,211	23,850,851	4,776,799
2053	23,850,851	603,358	297,098	900,456	1,893,791	1,985,105	24,842,621	4,784,066
2054	24,842,621	627,330	303,767	931,097	1,958,852	2,067,943	25,882,809	4,792,673
2055	25,882,809	652,260	310,585	962,845	2,028,867	2,154,733	26,971,520	4,802,181
2056	26,971,520	678,189	317,557	995,746	2,103,797	2,245,487	28,108,956	4,812,209
2057	28,108,956	705,158	324,685	1,029,843	2,183,509	2,340,232	29,295,522	4,822,449
2058	29,295,522	733,209	331,973	1,065,182	2,267,880	2,439,005	30,531,829	4,832,656
2059	30,531,829	762,386	339,425	1,101,811	2,356,781	2,541,869	31,818,728	4,842,644
2060	31,818,728	792,736	347,044	1,139,780	2,450,159	2,648,901	33,157,250	4,852,269

* Does not include contributions for administrative expenses. Includes member contributions.

50-Year Cash Flow Projection

Projected Net External Cash Flow Expressed as a Percent of Assets



Net External Cash Flow equals: i) Contributions to the plan, less ii) Benefits paid by the plan. A negative Net External Cash Flow means that benefits are being partly funded by investment income --- a natural consequence of advance funding.

Fifty-Year Cash Flow Projection
Analysis of Projected Net Cash Flow (In Thousands)

Year Ended June 30	External Cash Flow		Net External Cash Flow		Year Ended June 30	External Cash Flow		Net External Cash Flow	
	Inflow*	Outflow	\$	% of Assets		Inflow*	Outflow	\$	% of Assets
2011	\$ 260,542	\$ 537,405	\$ (276,863)	(3.49)%	2036	\$ 514,449	\$ 1,455,713	\$ (941,264)	(6.54)%
2012	281,099	593,046	(311,947)	(3.75)%	2037	530,887	1,474,310	(943,423)	(6.45)%
2013	286,308	650,316	(364,008)	(4.19)%	2038	548,067	1,490,050	(941,983)	(6.33)%
2014	291,265	704,042	(412,777)	(4.56)%	2039	566,018	1,502,972	(936,954)	(6.18)%
2015	296,639	753,925	(457,286)	(4.87)%	2040	584,743	1,513,349	(928,606)	(6.00)%
2016	302,453	801,582	(499,129)	(5.14)%	2041	604,249	1,521,206	(916,957)	(5.79)%
2017	308,665	841,441	(532,776)	(5.32)%	2042	624,533	1,528,533	(904,000)	(5.57)%
2018	315,319	881,062	(565,743)	(5.49)%	2043	645,585	1,536,969	(891,384)	(5.35)%
2019	322,377	921,118	(598,741)	(5.65)%	2044	667,408	1,547,795	(880,387)	(5.14)%
2020	329,867	960,084	(630,217)	(5.80)%	2045	689,992	1,563,100	(873,108)	(4.94)%
2021	337,750	998,743	(660,993)	(5.93)%	2046	713,334	1,583,575	(870,241)	(4.76)%
2022	346,054	1,036,390	(690,336)	(6.06)%	2047	737,443	1,610,261	(872,818)	(4.61)%
2023	354,770	1,074,009	(719,239)	(6.18)%	2048	762,350	1,643,716	(881,366)	(4.49)%
2024	363,935	1,111,857	(747,922)	(6.29)%	2049	788,104	1,683,195	(895,091)	(4.39)%
2025	373,562	1,149,605	(776,043)	(6.40)%	2050	814,747	1,728,210	(913,463)	(4.32)%
2026	383,668	1,186,238	(802,570)	(6.51)%	2051	842,324	1,778,446	(936,122)	(4.25)%
2027	394,270	1,220,800	(826,530)	(6.59)%	2052	870,880	1,833,637	(962,757)	(4.20)%
2028	405,390	1,253,762	(848,372)	(6.65)%	2053	900,456	1,893,791	(993,335)	(4.16)%
2029	417,045	1,285,027	(867,982)	(6.70)%	2054	931,097	1,958,852	(1,027,755)	(4.14)%
2030	429,224	1,314,940	(885,716)	(6.74)%	2055	962,845	2,028,867	(1,066,022)	(4.12)%
2031	441,964	1,342,467	(900,503)	(6.75)%	2056	995,746	2,103,797	(1,108,051)	(4.11)%
2032	455,248	1,368,310	(913,062)	(6.74)%	2057	1,029,843	2,183,509	(1,153,666)	(4.10)%
2033	469,122	1,392,090	(922,968)	(6.72)%	2058	1,065,182	2,267,880	(1,202,698)	(4.11)%
2034	483,596	1,415,001	(931,405)	(6.68)%	2059	1,101,811	2,356,781	(1,254,970)	(4.11)%
2035	498,684	1,436,195	(937,511)	(6.62)%	2060	1,139,780	2,450,159	(1,310,379)	(4.12)%

* Does not include contributions for administrative expenses.

The portion of investment income needed to pay benefits (the negative external cash flow) increases gradually and begins to level off at the end of the amortization of the unfunded accrued liabilities. After this period, it then approaches the assumed rate of 4.33% (1.085/1.040, minus 1). The remainder of the expected investment income is needed to preserve the purchasing power of the trust fund.

SUPPLEMENTAL DISCLOSURE INFORMATION

This information is presented in draft form for review by the System's auditor. Please let us know if there are any items the auditor changes so that we may maintain consistency with the System's financial statements.

Supplemental Disclosure Information
June 30, 2010

Actuarial Accrued Liability

The actuarial accrued liability is a measure intended to (i) help users assess the plan's funding status on a going-concern basis, and (ii) assess progress being made in accumulating sufficient assets to pay benefits when due. The actuarial value of assets is based on a method that fully recognizes expected investment return and averages unanticipated market return over a five-year period. Allocation of the actuarial present value of projected benefits between past and future service was based on service using the entry age actuarial cost method. Assumptions, including projected pay increases, were the same as used to determine the System's annual required contribution between entry age and assumed exit age. Entry age was established by subtracting credited service from current age on the valuation date.

The entry age actuarial accrued liability was determined as part of an actuarial valuation of the System as of June 30, 2010. Significant actuarial assumptions used in determining the entry age actuarial accrued liability include (a) a rate of return on the investment of present and future assets of 8.5% per year compounded annually, (b) projected salary increases of 4.0% per year compounded annually, attributable to inflation, (c) additional projected salary increases ranging from 0.4% to 3.5% per year, depending on age, attributable to seniority/merit, and (d) the assumption that benefits will increase after retirement (i) at 4.00% per year for approximately the first 12 years, 3.1% for the 13th year and 2.56% per year thereafter, or (ii) at 2.56% per year, depending upon date of hire and benefit election.

At June 30, 2010, the unfunded actuarial accrued liability of the System was determined as follows:

Actuarial Accrued Liability of System:	<u>\$ in Thousands</u>
Active members (37,020 vested, 16,458 non-vested)	\$ 4,270,381
Retirees and beneficiaries currently receiving benefits (33,251 vested)	5,012,014
Terminated members not yet receiving benefits (17,399 vested)	570,097
Future BackDROP Payments	<u>664</u>
Total Actuarial Accrued Liability	9,853,155
Actuarial Value of Assets	7,923,377
Unfunded Actuarial Accrued Liability	<u>\$ 1,929,778</u>

During the year ended June 30, 2010, the System experienced a net change of \$358,348,730 in the actuarial accrued liability. Of this change, \$(114,466,477) was due to changes in assumptions. The changes in benefit provisions had no impact on the actuarial accrued liability.

Supplemental Disclosure Information
June 30, 2010

(continued)

Contributions Required and Contributions Made

The System's funding policy provides for periodic employer contributions at actuarially determined rates that, expressed as percentages of annual covered payroll, are designed to accumulate sufficient assets to pay benefits when due. In developing the annual required contribution shown below, the normal cost and actuarial accrued liability are determined using the entry age actuarial cost method. The unfunded actuarial accrued liability is being amortized on an open basis as a level percent of payroll over a period of 30 years. The corresponding amortization factor is 16.65656.

During the year ended June 30, 2010 contributions totaling \$251,226,187 were made by the employer.

Schedule of Employer Contributions

Fiscal Year 7-1/6-30	Valuation Date 6/30	Annual Required Contribution		
		Percent	Dollar Amount	Percentage Contributed
1991-92	1990	9.65 %	\$ 100,672,145	100 %
1992-93	1991	9.68	102,988,219	100
1993-94	1992	9.49	106,681,308	100
1994-95	1993	9.04	108,902,372	100
1995-96	1994	10.69	137,007,112	100
1996-97	1995	10.66	146,383,371	100
1997-98	1996	10.40	152,090,687	100
1998-99	1997	12.58	197,909,834	100
1999-00	1998	11.91	202,330,547	100
2000-01	1999	11.59	215,750,128	100
2001-02	2000	11.59	209,515,026	100
2002-03	2001	8.81	156,576,150	100
2003-04	2002	9.35	164,691,836	100
2004-05	2003	10.64	195,648,983	100
2005-06	2004	12.59	227,233,195	100
2006-07	2005	12.78	239,488,751	100
2007-08	2006	12.84	249,770,156	100
2008-09	2007	12.53	252,105,008	100
2009-10	2008	12.75	251,226,187	100
2010-11	2009	13.81		
2011-12	2010	13.97		

Supplemental Disclosure Information
June 30, 2010
(concluded)

Schedule of Funding Progress

Plan Year Ended	(1) Actuarial Value of Assets	(2) Actuarial Accrued Liability (AAL) Entry Age	(3) Percent Funded (1) / (2)	(4) Unfunded AAL (2) - (1)	(5) Annual Covered Payroll	(6) Unfunded AAL as a Percentage of Covered Payroll (4) / (5)
6/30/1998	\$4,210,635,094	\$4,918,887,183	85.6 %	\$ 708,252,089	\$1,459,712,203	48.5 %
6/30/1999 #	4,908,820,033	5,505,968,629	89.2	597,148,596	1,564,551,532	38.2
6/30/2000 *	5,216,897,196	5,920,684,192	88.1	703,786,996	1,683,697,080	41.8
6/30/2001 *@	5,881,232,850	6,065,166,716	97.0	183,933,866	1,758,190,269	10.5
6/30/2002 &	6,033,133,598	6,294,272,275	95.9	261,138,677	1,773,283,484	14.7
6/30/2003 # &	6,057,329,072	6,662,291,406	90.9	604,962,334	1,739,895,364	34.8
6/30/2004 *	6,118,214,495	7,230,010,928	84.6	1,111,796,433	1,737,454,454	64.0
6/30/2005 &@	6,435,344,102	7,578,028,017	84.9	1,142,683,915	1,806,600,560	63.3
6/30/2006	6,836,567,188	8,013,205,414	85.3	1,176,638,226	1,777,277,138	66.2
6/30/2007	7,377,289,283	8,500,428,641	86.8	1,123,139,358	1,846,643,330	60.8
6/30/2008 *	7,838,495,768	9,128,347,470	85.9	1,289,851,702	1,916,527,398	67.3
6/30/2009 *@	7,876,079,342	9,494,806,715	83.0	1,618,727,373	2,002,402,087	80.8
6/30/2010	7,923,377,393	9,967,621,922	79.5	2,044,244,529	1,945,095,321	105.1
6/30/2010 *#	7,923,377,393	9,853,155,445	80.4	1,929,778,052	1,945,095,321	99.2

After changes in benefit provisions.

* After a change in assumptions.

@ After a change in asset method.

& After changes in methods other than the asset method.

Analysis of the dollar amounts of the actuarial value of assets, actuarial accrued liability, or unfunded actuarial accrued liability in isolation can be misleading. Expressing the actuarial value of assets as a percentage of the actuarial accrued liability provides one indication of the plan's funded status on a going-concern basis. Analysis of this percentage over time indicates whether the plan is becoming financially stronger or weaker. Generally, the greater this percentage, the stronger the plan. The unfunded actuarial accrued liability and annual covered payroll are both affected by inflation. Usually expressing the unfunded actuarial accrued liability as a percentage of annual covered payroll approximately adjusts for the effects of inflation and aids analysis of the progress being made in accumulating sufficient assets to pay benefits when due. Generally, the smaller this percentage, the stronger the plan.

APPENDIX

Financial Principles and Operational Techniques

Promises Made, and Eventually Paid. As each year is completed, MOSERS in effect hands an "IOU" to each member then acquiring a year of service credit --- the "IOU" says: "The Missouri State Employees' Retirement System owes you certain retirement benefits -- payments in cash commencing when you qualify for retirement."

The related key financial question is, which generation of taxpayers contributes the money to cover the IOU?

The present taxpayers, who receive the benefit of the member's present year of service?

Or the future taxpayers, who happen to be in Missouri at the time the IOU becomes a cash demand?

The law governing MOSERS' financing intends that this year's taxpayers contribute the money to cover the IOUs being handed out this year. By following this principle, *funds will be accumulated during members' working years, which, combined with income on invested assets, will be sufficient to pay benefits throughout retirement.*

An inevitable by-product of this financing design is the accumulation of reserve assets, for decades, and the income produced when the assets are invested. Over time, *investment income becomes the largest contributor* toward benefits, and directly influences the contribution amount required from the employer.

In actuarial terminology, the minimum level percent of payroll contribution rate consists of:

Normal Cost (the cost of members' service being rendered this year)

... plus ...

Interest on Unfunded Actuarial Accrued Liabilities (unfunded actuarial accrued liabilities are the difference between: actuarial liabilities for members' service already rendered; and the actuarial value of MOSERS' accrued assets).

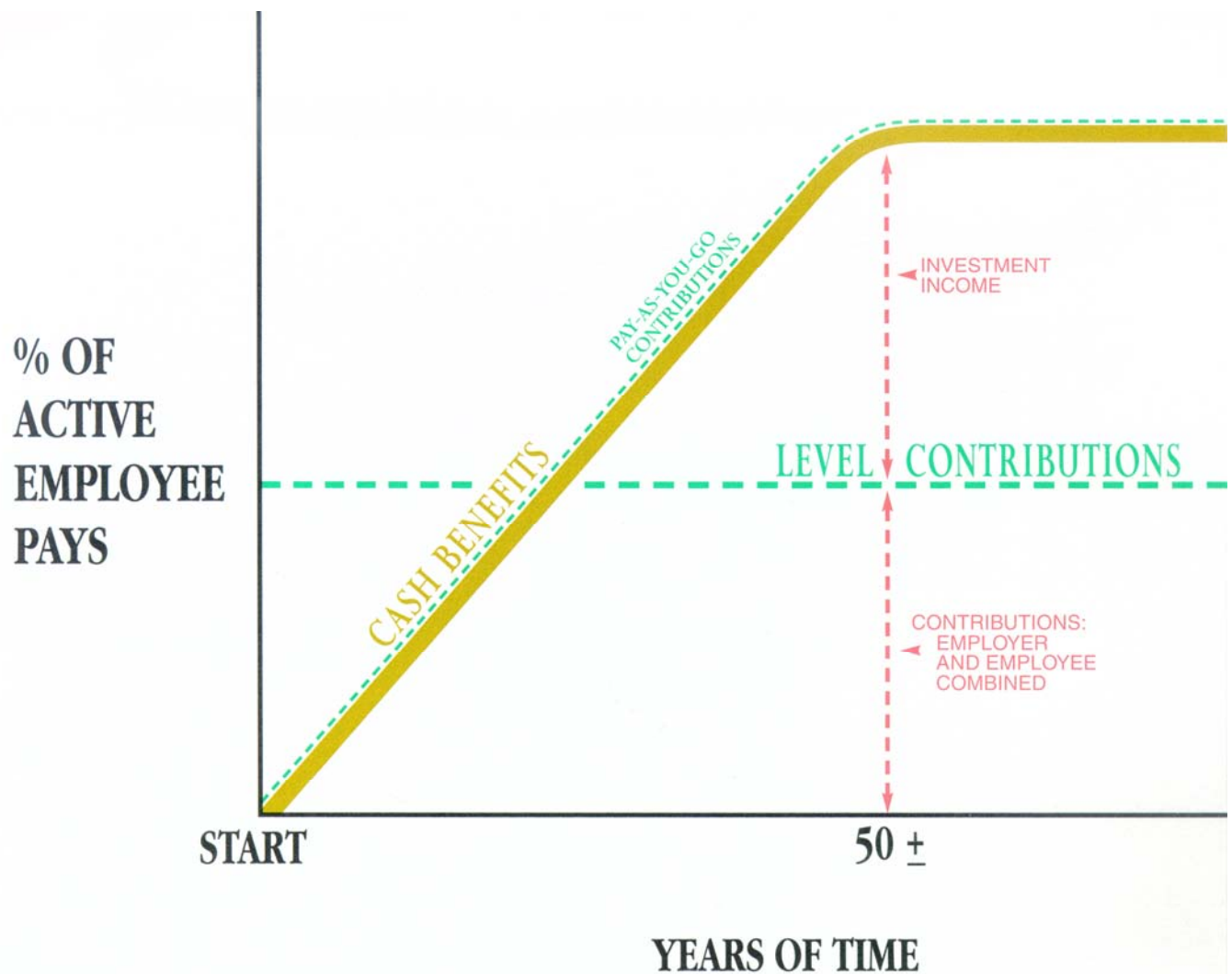
Computing Contributions To Support Funded Benefits. From a given schedule of benefits and from the member data and asset data provided, the actuary determines the contribution rates to support the benefits, by means of ***an actuarial valuation and a funding method.***

An actuarial valuation has a number of ingredients such as: the rate of investment income which plan assets will earn; the rates of withdrawal of active members who leave covered employment before qualifying for any monthly benefit; the rates of mortality; the rates of disability; the rates of salary increases; and the assumed age or ages at actual retirement.

In an actuarial valuation, assumptions are made as to what the above rates will be, for the next year and for decades in the future. Only the subsequent actual experience of the plan can indicate the degree of accuracy of the assumptions.

Reconciling Differences Between Assumed Experience and Actual Experience. Once actual experience has occurred and been observed, it will not coincide exactly with assumed experience, regardless of the wisdom of those who developed the assumptions, or the skill of the actuary and the many calculations made. The future cannot be predicted with precision.

MOSERS copes with these continually changing differences by having annual actuarial valuations. Each actuarial valuation is a complete recalculation of assumed future experience, taking into account all past differences between assumed and actual experience. The result is ***continuing adjustments in financial position, and contribution rates.***



CASH BENEFITS LINE. This relentlessly increasing line is the fundamental reality of retirement plan financing. It happens each time a new benefit is added for future retirements (and happens regardless of the design for contributing for benefits).

LEVEL CONTRIBUTION LINE. Determining the level contribution line requires detailed assumptions concerning a variety of experiences in future decades, including:

Economic Risk Areas

- Rates of investment return
- Rates of pay increase
- Changes in active member group size

Non-Economic Risk Areas

- Ages at actual retirement
- Rates of mortality
- Rates of withdrawal of active members (turnover)
- Rates of disability

The Actuarial Valuation Process

An *actuarial valuation* is the mathematical process by which actuarial present values and contribution rates are determined. The flow of activity constituting the valuation may be summarized as follows:

- A. ***Census Data***, furnished by the system administrative staff, including:
 - Retired lives now receiving benefits
 - Former members with vested benefits not yet payable
 - Active members
- + B. ***Benefit Provisions*** governing future payments from the retirement system.
- + C. ***Asset data*** (cash & investments), furnished by the system administrative staff.
- + D. ***Assumptions concerning future experiences*** in various risk areas, which assumptions are established by the Board of Trustees after consulting with the actuary.
- + E. ***The funding method*** for employer contributions (the long-term planned pattern for employer contributions).
- + F. ***Mathematically combining the assumptions, the funding method, and the data.***
- = G. ***Determination of:***
 - Plan financial position and***
 - The employer contribution rate.***

Meaning of "Unfunded Actuarial Accrued Liabilities"

"Actuarial accrued liabilities" are the portion of the present value of plan promises to pay benefits in the future which are not covered by future normal cost contributions --- a liability has been established ("accrued") because the service has been rendered but the resulting monthly cash benefit may not be payable until years in the future. Actuarial accrued liabilities are the result of complex mathematical calculations, which are made annually by the plan's actuary.

If "actuarial accrued liabilities" at any time exceed the actuarial value of the plan's accrued assets, the difference is *"unfunded actuarial accrued liabilities."* This is the common condition. If the plan's assets equaled the plan's "actuarial accrued liabilities," the plan would be termed "fully funded."

Each time a plan adds a new benefit which applies to service already rendered, an "actuarial accrued liability" is created, which is also an "unfunded actuarial accrued liability" because the plan can't print instant cash to cover the value of the new benefit promises. Payment for such unfunded actuarial accrued liabilities is spread over a period of years, commonly in the 20-30 year range.

Unfunded actuarial accrued liabilities can occur in another way: if actual financial experience is less favorable than assumed financial experience, the difference is added to unfunded actuarial accrued liabilities. In plans where benefits are directly related to an employee's pay near time of retirement, unfunded actuarial accrued liabilities increase when unexpected rates of pay increase create additional actuarial accrued liabilities which are not offset by favorable experience in other areas.

The existence of unfunded actuarial accrued liabilities is not bad, but the changes from year to year in the amount of unfunded actuarial accrued liabilities are important and should be monitored.

Unfunded actuarial accrued liabilities are not a bill payable immediately but it is important that policy-makers prevent the amount from becoming unreasonably high and *it is vital for plans to have a sound method for making payments toward them* so that they will be controlled.

**Summary of Assumptions Used
for the June 30, 2010 Actuarial Valuation**

-----*Economic Assumptions*-----

The investment return rate used in the valuations was 8.5% per year, compounded annually (net after investment expenses). This assumption is used to account for the fact that equal amounts of money payable at different points in time in the future do not have the same value presently.

Pay increase assumptions for individual active members are shown for sample ages on page 57. Part of the assumption for each age is for merit and/or seniority increase, and the other 4.0% recognizes wage inflation. This assumption is used to project a member's current salary to the salaries upon which benefits will be based.

The active member payroll is assumed to increase 4.0% annually, which is the portion of the individual pay increase assumptions attributable to wage inflation. For the 2010 valuation only, payroll is assumed to grow 0.0% the first year, then 4.0% annually thereafter to reflect the statewide temporary pay freeze.

The annual cost-of-living adjustment (COLA) is assumed to be 4.00%, on a compounded basis, when a minimum COLA of 4% is in effect. When no minimum COLA is in effect, price inflation is assumed to be 3.2% and the annual COLA is assumed to be 2.56% (80% of 3.2%), on a compounded basis.

-----*Non-Economic Assumptions*-----

The mortality table, for post-retirement mortality, used in evaluating allowances to be paid was the 1971 Group Annuity Mortality Table, projected to the year 2000, with a two year setback for men and a six year age setback for women. Related values are shown on page 55. This assumption is used to measure the probabilities of each benefit payment being made after retirement.

Summary of Assumptions Used for the June 30, 2010 Actuarial Valuation

The probabilities of age and service retirement are shown on page 59 and 60. It was assumed that each member will be granted one half year of service credit for unused leave upon retirement and military service purchases.

The probabilities of withdrawal from service, disability and death-in-service are shown for sample ages on page 57. For disability retirement, impaired longevity was recognized by use of special mortality tables.

The entry age normal actuarial cost method of valuation was used in determining liabilities and normal cost. The normal cost was based on the benefit provisions affecting new employees (MSEP 2000). Differences in the past between assumed experience and actuarial experience ("actuarial gains and losses") become part of actuarial accrued liabilities. Unfunded actuarial accrued liabilities are amortized to produce payments, (principal & interest) which are level percents of payroll contributions.

The amortization of the unfunded actuarial accrued liability is based on a 30-year amortization period, level percent of payroll amortization. The amortization is based on the projected unfunded actuarial accrued liability at the beginning of the fiscal year. This method was first used in the June 30, 2010 valuation.

Employer contribution dollars were assumed to be *paid in equal installments* throughout the employer's fiscal year.

Actuarial value of assets. Valuation assets recognize assumed investment return fully each year. Differences between actual and assumed investment return are phased in over a closed five-year period. Valuation assets are not permitted to deviate from the market value by more than 25% for the June 30, 2010 valuation. This limit will change to 20% thereafter.

The data about persons now covered and about present assets were furnished by the System's administrative staff. Although examined for general reasonableness, the data was not audited by the Actuary.

It is assumed that among active members 80% are married at retirement, 70% of those dying in active service are married, and men are three years older than their spouses.

The liabilities for active members hired on or after July 1, 2000 (April 26, 2005 for Administrative Law Judges) were based on MSEP 2000 benefits. The liabilities for active members hired before July 1, 2000 for Elected Officials, General Assembly, and Uniformed Water Patrol were based on MSEP benefits. All others were based on MSEP 2000 benefits. The backDROP was only explicitly valued for those assumed to receive MSEP 2000 benefits for members hired prior to January 1, 2011.

The actuarial valuation computations were made by or under the supervision of a Member of the American Academy of Actuaries (M.A.A.A.).

**Separations From Active Employment Before Service Retirement
& Individual Pay Increase Assumptions**

June 30, 2010

Sample Ages	Years of Service	Percent of Active Members ----- Separating within the Next Year -----						Pay Increase Assumptions -- For An Individual Employee --		
		Withdrawal		Death*		Disability		Merit & Seniority**	Base (Economy)	Increase Next Year
		Men	Women	Men	Women	Men	Women			
	0	23.8 %	26.9 %							
	1	18.9	20.5							
	2	15.3	15.4							
	3	12.8	12.5							
	4	11.8	10.9							
20	5+	11.8	10.9	0.04 %	0.03 %	0.16 %	0.30 %	3.5 %	4.0 %	7.5 %
25		11.8	10.9	0.05	0.04	0.16	0.30	2.9	4.0	6.9
30		10.0	10.0	0.06	0.04	0.16	0.30	2.2	4.0	6.2
35		7.5	7.6	0.08	0.05	0.21	0.30	1.6	4.0	5.6
40		5.6	5.6	0.11	0.07	0.26	0.32	1.2	4.0	5.2
45		4.2	4.4	0.17	0.09	0.34	0.38	0.9	4.0	4.9
50		3.4	3.9	0.31	0.14	0.49	0.57	0.7	4.0	4.7
55		3.0	3.3	0.54	0.24	1.07	0.89	0.5	4.0	4.5
60		2.6	3.0	0.83	0.44	1.50	1.50	0.4	4.0	4.4
65		2.5	3.0	1.31	0.71	1.60	1.70	0.3	4.0	4.3

* 2% of the deaths in active service are assumed to be duty related.

** Does not apply to members of the General Assembly.

Post-Retirement Mortality Rates

The mortality tables were the 1971 Group Annuity Mortality Table, projected to the year 2000, with a two year age setback for men and a six year age setback for women. Disabled mortality tables are the healthy mortality tables set forward 10 years.

Age	Service		Disability	
	Men	Women	Men	Women
45	0.0019	0.0012	0.0059	0.0039
50	0.0035	0.0021	0.0090	0.0065
55	0.0059	0.0039	0.0144	0.0099
60	0.0090	0.0065	0.0245	0.0159
65	0.0144	0.0099	0.0411	0.0274
70	0.0245	0.0159	0.0646	0.0446
75	0.0411	0.0274	0.1029	0.0714
80	0.0646	0.0446	0.1495	0.1117
85	0.1029	0.0714	0.2069	0.1601

Retirement Values June 30, 2010

Sample Attained Ages	Present Value of \$1/Month the First Year (with 50% Joint & Survivor) Increasing 4.0% / 2.56% Yearly				Present Value of \$1/Month the First Year Increasing 2.56% Yearly			
	Service		Disability		Service		Disability	
	Men	Women	Men	Women	Men	Women	Men	Women
40	\$212.00	\$213.63	\$199.71	\$201.13	\$181.06	\$186.39	\$162.92	\$171.00
45	204.46	206.44	189.78	190.96	172.85	179.57	151.37	160.74
50	195.12	197.32	177.89	178.76	162.92	171.00	137.98	148.85
55	183.85	186.16	163.79	164.21	151.37	160.74	122.55	135.04
60	170.40	178.76	147.78	147.15	137.98	148.85	105.68	119.26
65	154.52	157.00	130.73	128.15	122.55	135.04	88.88	102.25
70	136.51	138.80	112.73	108.63	105.68	119.26	72.36	85.58
75	117.44	119.04	94.96	89.08	88.88	102.25	57.73	69.20
80	97.96	99.30	78.49	71.52	72.36	85.58	45.83	55.16
85	79.72	80.24	63.33	56.81	57.73	69.20	35.81	43.70

Sample Attained Ages	Future Life Expectancy (Years)			
	Service		Disability	
	Men	Women	Men	Women
40	39.41	43.25	30.06	33.73
45	34.67	38.46	25.67	29.17
50	30.06	33.73	21.50	24.82
55	25.67	29.17	17.57	20.70
60	21.50	24.82	13.99	16.82
65	17.57	20.70	10.91	13.32
70	13.99	16.82	8.29	10.36
75	10.91	13.32	6.23	7.83
80	8.29	10.36	4.70	5.89
85	6.23	7.83	3.51	4.44

Percent of Eligible Active Members Retiring Next Year (For Members Hired Prior to January 1, 2011)

Normal Retirement Pattern							
Grandfathered Groups				MSEP 2000			
Age	Year of Eligibility			Age	Year of Eligibility		
	1st Year	2nd Year	3rd Year		1st Year	2nd Year	3rd Year
48	20%			48	27%		
49	20%	10%		49	27%	14%	
50	20%	10%	8%	50	27%	14%	18%
51	20%	10%	8%	51	27%	14%	18%
52	20%	10%	8%	52	27%	14%	18%
53	20%	10%	8%	53	27%	14%	18%
54	20%	10%	8%	54	27%	14%	18%
55	25%	10%	12%	55	27%	14%	25%
56	20%	10%	12%	56	27%	14%	25%
57	20%	10%	12%	57	22%	14%	20%
58	20%	10%	30%	58	22%	14%	20%
59	20%	10%	30%	59	22%	14%	20%
60	25%	10%	30%	60	25%	14%	25%
61	20%	10%	30%	61	20%	14%	20%
62	30%	15%	50%	62	20%	22%	35%
63	20%	12%	40%	63	15%	20%	30%
64	20%	12%	40%	64	20%	20%	20%
65	30%	15%	50%	65	25%	20%	30%
66	20%	12%	40%	66	20%	20%	25%
67	20%	12%	40%	67	20%	20%	20%
68	20%	12%	40%	68	20%	20%	20%
69	20%	12%	40%	69	20%	20%	20%
70	20%	12%	40%	70	20%	20%	20%
71	20%	12%	40%	71	20%	20%	20%
72	20%	12%	40%	72	20%	20%	20%
73	20%	12%	40%	73	20%	20%	20%
74	20%	12%	40%	74	20%	20%	20%
75	100%	100%	100%	75	50%	50%	50%
76	100%	100%	100%	76	50%	50%	50%
77	100%	100%	100%	77	75%	75%	75%
78	100%	100%	100%	78	100%	100%	100%

Early Retirement Pattern	
MSEP and MSEP 2000	
Age	Rate
57	3%
58	4%
59	4%
60	5%
61	7%
62	10%
63	10%
64	10%
65	50%
66	50%
67	50%
68	50%
69	50%
70	50%
71	50%
72	50%
73	50%
74	50%
75	50%
76	100%

**Percent of Eligible Active Members Retiring Next Year
(For Members Hired On or After January 1, 2011)**

Normal Retirement	
Age	Year of Eligibility
55	45%
56	45%
57	35%
58	35%
59	30%
60	35%
61	25%
62	40%
63	30%
64	20%
65	30%
66	25%
67	20%
68	20%
69	20%
70	20%
71	20%
72	20%
73	20%
74	20%
75	50%
76	50%
77	75%
78	100%

Early Retirement	
Age	Year of Eligibility
62	10%
63	10%
64	10%
65	50%
66	50%

Summary of Assumptions Used June 30, 2010 Miscellaneous and Technical Assumptions

Pay Increase Timing:	Middle of (Fiscal) year.
Decrement Timing:	Decrements of all types are assumed to occur mid-year.
Eligibility Testing:	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
Benefit Service:	Exact fractional service is used to determine the amount of the benefit payable.
Decrement Relativity:	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
Decrement Operation:	Disability and mortality decrements do not operate during the first five years of service. Disability and withdrawal do not operate during normal retirement eligibility.
Normal Form of Benefit:	The assumed normal form of benefit is the straight life form for MSEP 2000 with 50% continuing to an eligible surviving spouse for MSEP. No adjustment has been made for post-retirement option election changes.
Other Liability Adjustments:	<p><i>MSEP 2000 Benefits for Active Employees</i></p> <ul style="list-style-type: none"> - Normal retirement form of payment adjustment: 0.994 - Early retirement form of payment adjustment: 0.993

Pre-Retirement Survivor Benefits for Spouse of Terminated Vested Member

<u>Age</u>	<u>Male/Female</u>
<30	3.20/2.32
30-39	1.89/1.52
40-49	1.32/1.18
>50	1.07/1.04

The number of active members is assumed to remain constant although certain new hires on or after July 1, 2002 will participate in the Colleges and Universities Retirement Plan. Active and retired member data is reported as of May 31. It is assumed for valuation purposes that there is no turnover among members and no new entrants during the month of June. New entrants assumed demographics patterns are based on the demographics of active members hired within the last five years.

Summary of Assumptions Used
June 30, 2010
Miscellaneous and Technical Assumptions
(Concluded)

- Incidence of Contributions:** Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made. New entrant normal cost contributions are applied to the funding of new entrant benefits.
- MSEP 2000 Election:** All regular state employees are assumed to elect MSEP 2000 at retirement. Elected Officials, General Assembly, and Uniformed Water Patrol Members hired before July 1, 2000 and Administrative Law Judges hired before April 26, 2005 are assumed to elect MSEP at retirement.
- Service Adjustment:** It is assumed that each member will be granted one half year of service credit, 2 months for unused leave upon retirement and 4 months for military service purchases.
- Forfeitures:** For those hired on or after January 1, 2011, 50% of state employees terminating at first vesting eligibility are assumed to take a refund and forfeit their deferred pension. This percentage decreases to 0% at first retirement eligibility.

Active and retired member data was reported as of May 31, 2010. It was brought forward to June 30, 2010 by adding one month of service for all active members and the June COLA for certain retired members. It is expected that this procedure resulted in a slight overstatement of total liabilities as of June 30, 2010. Financial information continues to be reported as of June 30. This procedure was instituted to provide sufficient time for the Board of Trustees to certify the appropriate contribution rate prior to the October 1 statutory deadline.

June 30, 2010 Actuarial Valuation

Glossary

Actuarial Accrued Liability. The difference between (i) the actuarial present value of future plan benefits, and (ii) the actuarial present value of future normal cost. Sometimes referred to as "accrued liability" or "past service liability."

Accrued Service. The service credited under the plan which was rendered before the date of the actuarial valuation.

Actuarial Assumptions. Estimates of future plan experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Actuarial Cost Method. A mathematical budgeting procedure for allocating the dollar amount of the "actuarial present value of future plan benefits" between the actuarial present value of future normal cost and the actuarial accrued liability. Sometimes referred to as the "actuarial funding method."

Actuarial Equivalent. A series of payments is called an actuarial equivalent of another series of payments if the two series have the same actuarial present value.

Actuarial Present Value. The amount of funds presently required to provide a payment or series of payments in the future. It is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Actuarial Value of Assets. Also referred to as funding value of assets, smoothed market value of assets, or valuation assets.

Valuation assets recognize assumed investment return fully each year. Differences between actual and assumed investment return are phased in over a closed 5-year period. This treatment helps remove the timing of investment activities from the valuation process. During periods when investment performance exceeds the assumed rate, valuation assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, valuation assets will tend to be greater than market value. If assumed rates are exactly realized for 4 consecutive years, valuation assets will become equal to market value.

Amortization. Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.

Experience Gain (Loss). A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions during the period between two actuarial valuation dates, in accordance with the actuarial cost method being used.

Normal Cost. The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as "current service cost." Any payment toward the unfunded actuarial accrued liability is not part of the normal cost.

(continued on following page)

June 30, 2010 Actuarial Valuation

Glossary

(concluded)

Plan Termination Liability. The actuarial present value of future plan benefits based on the assumption that there will be no further accruals for future service and salary. The termination liability will generally be less than the liabilities computed on a "going concern" basis and is not normally determined in a routine actuarial valuation.

Reserve Account. An account used to indicate that funds have been set aside for a specific purpose and are not generally available for other uses.

Unfunded Actuarial Accrued Liability. The difference between the actuarial accrued liability and actuarial value of assets. Sometimes referred to as "unfunded accrued liability."

The existence of unfunded actuarial accrued liabilities is not in itself bad, any more than a mortgage on a house is bad. Unfunded actuarial accrued liabilities do not represent a debt that is payable today. What is important is the ability to amortize the unfunded actuarial accrued liabilities and the trend in their amount (after due allowance for devaluation of the dollar).

Valuation Payroll. Active member payroll that is intended to reflect the annual salary considered as covered compensation for Retirement System benefits.

**Financing Unfunded Actuarial Accrued Liabilities
Which Were Calculated Using a Wage Inflation Assumption of 4.00% and
an Investment Return Assumption of 8.50% Compounded Annually**

*Level % of Payroll Amortization:
Open Amortization over 30 years**

Year	Active Member Payroll	Unfunded Actuarial Accrued Liability	UAAL Adjusted for Wage Inflation	Annual Contributions		UAAL as % of Payroll
				Dollars	% of Payroll	
-----\$ in millions-----						
1	\$1,945	\$1,930	\$1,930	\$118	6.05 %	99.21 %
2	1,945	1,971	1,895	123	6.31	101.34
3	2,023	2,011	1,859	125	6.19	99.40
4	2,104	2,051	1,823	128	6.07	97.50
5	2,188	2,092	1,789	130	5.96	95.63
6	2,275	2,134	1,754	133	5.84	93.80
7	2,367	2,177	1,721	136	5.73	92.01
8	2,461	2,221	1,688	138	5.62	90.24
9	2,560	2,266	1,656	141	5.51	88.52
10	2,662	2,311	1,624	144	5.41	86.82
11	2,768	2,358	1,593	147	5.31	85.16
12	2,879	2,405	1,562	150	5.20	83.53
13	2,994	2,453	1,532	153	5.10	81.93
14	3,114	2,503	1,503	156	5.01	80.36
15	3,239	2,553	1,474	159	4.91	78.83
16	3,368	2,604	1,446	162	4.82	77.32
17	3,503	2,657	1,418	165	4.72	75.84
18	3,643	2,710	1,391	169	4.63	74.39
19	3,789	2,764	1,365	172	4.55	72.96
20	3,940	2,820	1,338	176	4.46	71.57

* Reflects the state pay freeze for 2010-11.

**Financing Unfunded Actuarial Accrued Liabilities
Which Were Calculated Using a Wage Inflation Assumption of 4.00% and
an Investment Return Assumption of 8.50% Compounded Annually**

*Level % of Payroll Amortization:
Open Amortization over 30 years
(concluded)*

Year	Active Member Payroll	Unfunded Actuarial Accrued Liability	UAAL Adjusted for Wage Inflation	Annual Contributions		UAAL as % of Payroll
				Dollars	% of Payroll	
-----\$ in millions-----						
21	\$4,098	\$2,877	\$1,313	\$179	4.37 %	70.20 %
22	4,262	2,934	1,288	183	4.29	68.85
23	4,432	2,993	1,263	186	4.21	67.53
24	4,610	3,054	1,239	190	4.13	66.24
25	4,794	3,115	1,215	194	4.05	64.97
26	4,986	3,177	1,192	198	3.97	63.73
27	5,185	3,241	1,169	202	3.89	62.51
28	5,393	3,306	1,147	206	3.82	61.31
29	5,608	3,373	1,125	210	3.75	60.14
30	5,833	3,441	1,103	214	3.67	58.99

Active Members in Funding Program as of June 30, 2010

By Age and Years of Service

Male

Near Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 plus	No.	Valuation Payroll
Under 20	7							7	\$ 137,016
20-24	539	1						540	14,383,983
25-29	1,468	272	3					1,743	53,360,131
30-34	1,028	800	148	3				1,979	67,481,883
35-39	751	695	611	121	2			2,180	80,113,685
40-44	648	576	631	474	132	3		2,464	96,763,503
45-49	628	581	575	460	524	163	9	2,940	121,590,171
50-54	587	529	624	405	572	354	127	3,198	135,628,719
55-59	467	505	535	400	558	277	274	3,016	133,909,197
60	87	90	82	74	77	54	40	504	22,469,117
61	97	106	79	71	71	37	43	504	22,246,748
62	77	80	66	50	51	31	38	393	17,227,930
63	68	79	57	57	44	17	35	357	16,563,694
64	48	51	58	44	35	17	40	293	14,643,213
65	17	47	28	31	33	13	21	190	9,731,750
66	12	27	34	19	21	17	19	149	7,542,506
67	6	29	23	19	10	8	19	114	5,745,589
68	11	24	19	9	9	3	15	90	4,305,445
69	7	7	19	7	9	1	8	58	2,583,228
70 & Over	29	38	42	23	20	10	32	194	9,986,154
Totals	6,582	4,537	3,634	2,267	2,168	1,005	720	20,913	\$836,413,662

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 46.1 years.

Service: 11.2 years.

Annual Pay: \$39,995

Active Members in Funding Program as of June 30, 2010

By Age and Years of Service

Female

Near Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 plus	No.	Valuation Payroll
Under 20	21							21	\$ 427,056
20-24	826	4						830	20,003,452
25-29	2,166	453	15					2,634	77,209,526
30-34	1,594	1,262	378	8				3,242	102,622,234
35-39	1,175	1,012	1,126	277	12			3,602	119,825,259
40-44	998	894	1,050	788	353	23		4,106	141,388,256
45-49	1,105	962	976	726	748	445	53	5,015	175,945,503
50-54	898	907	945	699	718	608	499	5,274	189,308,638
55-59	661	746	891	678	657	352	387	4,372	159,512,159
60	98	139	130	131	119	51	43	711	24,747,435
61	88	102	146	125	96	50	33	640	22,730,671
62	72	120	109	91	86	30	30	538	18,457,543
63	47	99	96	84	62	21	26	435	15,734,652
64	39	77	84	68	39	31	20	358	12,495,200
65	22	40	60	38	21	12	11	204	7,329,398
66	12	28	41	24	26	6	8	145	5,042,922
67	13	27	29	18	16	9	12	124	4,870,432
68	11	20	19	10	9	7	5	81	2,924,241
69	4	9	20	7	12	1	5	58	1,846,522
70 & Over	26	25	35	26	30	13	20	175	6,260,560
Totals	9,876	6,926	6,150	3,798	3,004	1,659	1,152	32,565	\$1,108,681,659

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 45.4 years.

Service: 11.3 years.

Annual Pay: \$34,045

Basic Series

Year-by-Year Total Returns (1926-2009)

For a type of investment,
Red means a REAL Return less than 3%
[(Total Return - Inflation) < 3%]

For Inflation,
RED means a purchasing power loss

Year	Large Company Stocks	Small Company Stocks	Long-Term Corporate Bonds	Long-Term Government Bonds	Intermed.-Term Government Bonds	U.S. Treasury Bills	Inflation *
1926	11.62	0.28	7.37	7.77	5.38	3.27	-1.49
1927	37.49	22.10	7.44	8.93	4.52	3.12	-2.08
1928	43.61	39.69	2.84	0.10	0.92	3.56	-0.97
1929	-8.42	-51.36	3.27	1.17	6.01	4.75	0.20
1930	-24.90	-38.15	7.98	4.66	6.72	2.41	-6.03
1931	-43.34	-49.75	-1.85	-5.31	-2.32	1.07	-9.52
1932	-8.19	-5.39	10.32	16.84	8.81	0.96	-10.30
1933	53.99	142.87	10.38	-0.07	1.83	0.30	0.51
1934	-1.44	24.22	13.84	10.03	9.00	0.16	2.03
1935	47.67	40.19	9.61	4.98	7.01	0.17	2.99
1936	33.92	64.80	6.74	7.52	3.06	0.18	1.21
1937	-35.03	-58.01	2.75	0.23	1.56	0.31	3.10
1938	31.12	32.80	6.13	5.53	6.23	-0.02	-2.78
1939	-0.41	0.35	3.97	5.94	4.52	0.02	-0.48
1940	-9.78	-5.16	3.39	6.09	2.96	0.00	0.96
1941	-11.59	-9.00	2.73	0.93	0.50	0.06	9.72
1942	20.34	44.51	2.60	3.22	1.94	0.27	9.29
1943	25.90	88.37	2.83	2.08	2.81	0.35	3.16
1944	19.75	53.72	4.73	2.81	1.80	0.33	2.11
1945	36.44	73.61	4.08	10.73	2.22	0.33	2.25
1946	-8.07	-11.63	1.72	-0.10	1.00	0.35	18.16
1947	5.71	0.92	-2.34	-2.62	0.91	0.50	9.01
1948	5.50	-2.11	4.14	3.40	1.85	0.81	2.71
1949	18.79	19.75	3.31	6.45	2.32	1.10	-1.80
1950	31.71	38.75	2.12	0.06	0.70	1.20	5.79
1951	24.02	7.80	-2.69	-3.93	0.36	1.49	5.87
1952	18.37	3.03	3.52	1.16	1.63	1.66	0.88
1953	-0.99	-6.49	3.41	3.64	3.23	1.82	0.62
1954	52.62	60.58	5.39	7.19	2.68	0.86	-0.50
1955	31.56	20.44	0.48	-1.29	-0.65	1.57	0.37
1956	6.56	4.28	-6.81	-5.59	-0.42	2.46	2.86
1957	-10.78	-14.57	8.71	7.46	7.84	3.14	3.02
1958	43.36	64.89	-2.22	-6.09	-1.29	1.54	1.76
1959	11.96	16.40	-0.97	-2.26	-0.39	2.95	1.50
1960	0.47	-3.29	9.07	13.76	11.76	2.66	1.48
1961	26.89	32.09	4.82	0.97	1.85	2.13	0.67
1962	-8.73	-11.90	7.95	6.89	5.56	2.73	1.22
1963	22.80	23.57	2.19	1.21	1.64	3.12	1.65
1964	16.48	23.52	4.77	3.51	4.04	3.54	1.19
1965	12.45	41.75	-0.46	0.71	1.02	3.93	1.92
1966	-10.06	-7.01	0.20	3.65	4.69	4.76	3.35
1967	23.98	83.57	-4.95	-9.18	1.01	4.21	3.04
1968	11.06	35.97	2.57	-0.26	4.54	5.21	4.72
1969	-8.50	-25.05	-8.09	-5.07	-0.74	6.58	6.11
1970	4.01	-17.43	18.37	12.11	16.86	6.52	5.49
1971	14.31	16.50	11.01	13.23	8.72	4.39	3.36
1972	18.98	4.43	7.26	5.69	5.16	3.84	3.41
1973	-14.66	-30.90	1.14	-1.11	4.61	6.93	8.80
1974	-26.47	-19.95	-3.06	4.35	5.69	8.00	12.20
1975	37.20	52.82	14.64	9.20	7.83	5.80	7.01
1976	23.84	57.38	18.65	16.75	12.87	5.08	4.81
1977	-7.18	25.38	1.71	-0.69	1.41	5.12	6.77
1978	6.56	23.46	-0.07	-1.18	3.49	7.18	9.03
1979	18.44	43.46	-4.18	-1.23	4.09	10.38	13.31
1980	32.42	39.88	-2.62	-3.95	3.91	11.24	12.40
1981	-4.91	13.88	-0.96	1.86	9.45	14.71	8.94
1982	21.41	28.01	43.79	40.36	29.10	10.54	3.87
1983	22.51	39.67	4.70	0.65	7.41	8.80	3.80
1984	6.27	-6.67	16.39	15.48	14.02	9.85	3.95
1985	32.16	24.66	30.09	30.97	20.33	7.72	3.77
1986	18.47	6.85	19.85	24.53	15.14	6.16	1.13
1987	5.23	-9.30	-0.27	-2.71	2.90	5.47	4.41
1988	16.81	22.87	10.70	9.67	6.10	6.35	4.42
1989	31.49	10.18	16.23	18.11	13.29	8.37	4.65
1990	-3.17	-21.56	6.78	6.18	9.73	7.81	6.11
1991	30.55	44.63	19.89	19.30	15.46	5.60	3.06
1992	7.67	23.35	9.39	8.05	7.19	3.51	2.90
1993	9.99	20.98	13.19	18.24	11.24	2.90	2.75
1994	1.31	3.11	-5.76	-7.77	-5.14	3.90	2.67
1995	37.43	34.46	27.20	31.67	16.80	5.60	2.54
1996	23.07	17.62	1.40	-0.93	2.10	5.21	3.32
1997	33.36	22.78	12.95	15.85	8.38	5.26	1.70
1998	28.58	-7.31	10.76	13.06	10.21	4.86	1.61
1999	21.04	29.79	-7.45	-8.96	-1.77	4.68	2.68
2000	-9.11	-3.59	12.87	21.48	12.59	5.89	3.39
2001	-11.88	22.77	10.65	3.70	7.62	3.83	1.55
2002	-22.10	-13.28	16.33	17.84	12.93	1.65	2.38
2003	28.70	60.70	5.27	1.45	2.40	1.02	1.88
2004	10.87	18.39	8.72	8.51	2.25	1.20	3.26
2005	4.91	5.69	5.87	7.81	1.36	2.98	3.42
2006	15.80	16.17	3.24	1.19	3.14	4.80	2.54
2007	5.49	-5.22	2.60	9.88	10.05	4.66	4.08
2008	-37.00	-36.72	8.78	25.87	13.11	1.60	0.09
2009	26.46	28.09	3.02	-14.90	-2.40	0.10	2.72

GABRIEL, ROEDER, SMITH & COMPANY from SBBI Yearbook * Calculated using December to December CPI-U (1982-84=100, when available), not seasonally adjusted.

September 14, 2010

Mr. Gary W. Findlay
Executive Director
Missouri State Employees'
Retirement System
907 Wildwood
P.O. Box 209
Jefferson City, Missouri 65109

Re: MOSERS – Final Valuation Report

Dear Gary:

Enclosed are 20 copies of the June 30, 2010 actuarial valuation report of the Missouri State Employees' Retirement System.

Sincerely,



Brad Lee Armstrong

BLA:bd
Enclosures

cc: Amanda Gaither
Williams-Keepers, LLC (+1 report copy)

**Amanda Gaither
Williams Keepers LLC
3220 West Edgewood, Suite E
Jefferson City MO 65109
(+1 report copy)**

Updated 10/7/09