



Wisconsin Retirement System

31st Annual Actuarial
Valuation of Retired Lives
December 31, 2013

GRS

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Operation of the System

	Core Annuities	Variable Annuities
Investment Return Hurdle to Trigger Annuity Adjustment	Returns over/under 5%	Returns over/under 5%
Ratio of Assets to Liabilities	If >0.5%, dividend may be granted If <-0.5%, prior dividends reduced	If > 2%, variable annuity increased If <-2%, variable annuity decreased
Increase/Decrease Rounding Conventions	Rounded to nearest 0.1%	Truncated, carried to next year
Adjustment Effective Date	April following 12/31 valuation	April following 12/31 valuation



Smoothing Mechanisms - Core

- ◆ Undesirable for retirees to experience wide swings in monthly benefits from year to year (especially downward swings)
- ◆ Mitigated in Core division by asset smoothing process and portfolio mix
- ◆ Asset smoothing has worked well historically, but could not prevent negative dividends in 2009-2013



Smoothing Mechanisms - Variable

- ◆ Variable fund is marked to market each year and subject to wide swings
- ◆ Dropping fractions from the percent is a form of smoothing
- ◆ Usually has very little effect due to the magnitude of the gains and losses



Summary of Results – December 31, 2013

\$ Millions

	Core	Variable
Number of Annuitants	180,056	40,317
Annual Amount	\$ 3,800.7	\$ 324.5
Fund Balance	44,273.2	4,187.3
Actuarial Reserve	42,300.5	3,347.0
Ratio	1.047	1.251

For Core, the dividend was 4.7%.

For Variable, the adjustment was 25%.



Summary of Results

- ◆ Last year's valuation recognized the last of the scheduled recognition of investment losses from 2008 under the five-year smoothing method
- ◆ As of December 31, 2013, there are now approximately \$5 billion in unrecognized gains
- ◆ Depending on 2014 investment results, a dividend might be expected in 2015



Primary Sources of Core Dividend

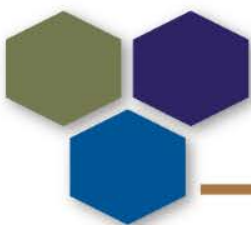
	<u>% of APV</u>
1. SWIB published investment return	13.60%
2. MRA adjustment	<u>(2.70)%</u>
3. Published effective earnings rate	10.90%
4. Adjustment to relate earnings to average core annuity fund balance	<u>(0.51)%</u>
5. Earnings rate based on average balance	10.39%
6. Expected dividend before adjustments: 1.1039/1.05-1	5.13%
7. Adjustment to relate average asset to ending liability	0.00%
8. Carryover from last year due to timing of dividend accounting adjustments and rounding	(0.20)%
9. Adjustments for mortality improvement and data reserve	(0.30)%
10. Experience study	0.00%
11. Experience and other effects	0.03%
12. Statutory adjustment to round to nearest one-tenth percent	<u>0.04%</u>
13. Computed average dividend rate: (6)+(7)+(8)+(9)+(10)+(11)+(12)	4.7%
14. Adjustment for members at or near the statutory floor	0.0%
15. Final maximum computed dividend rate: (13)+(14)	4.7%



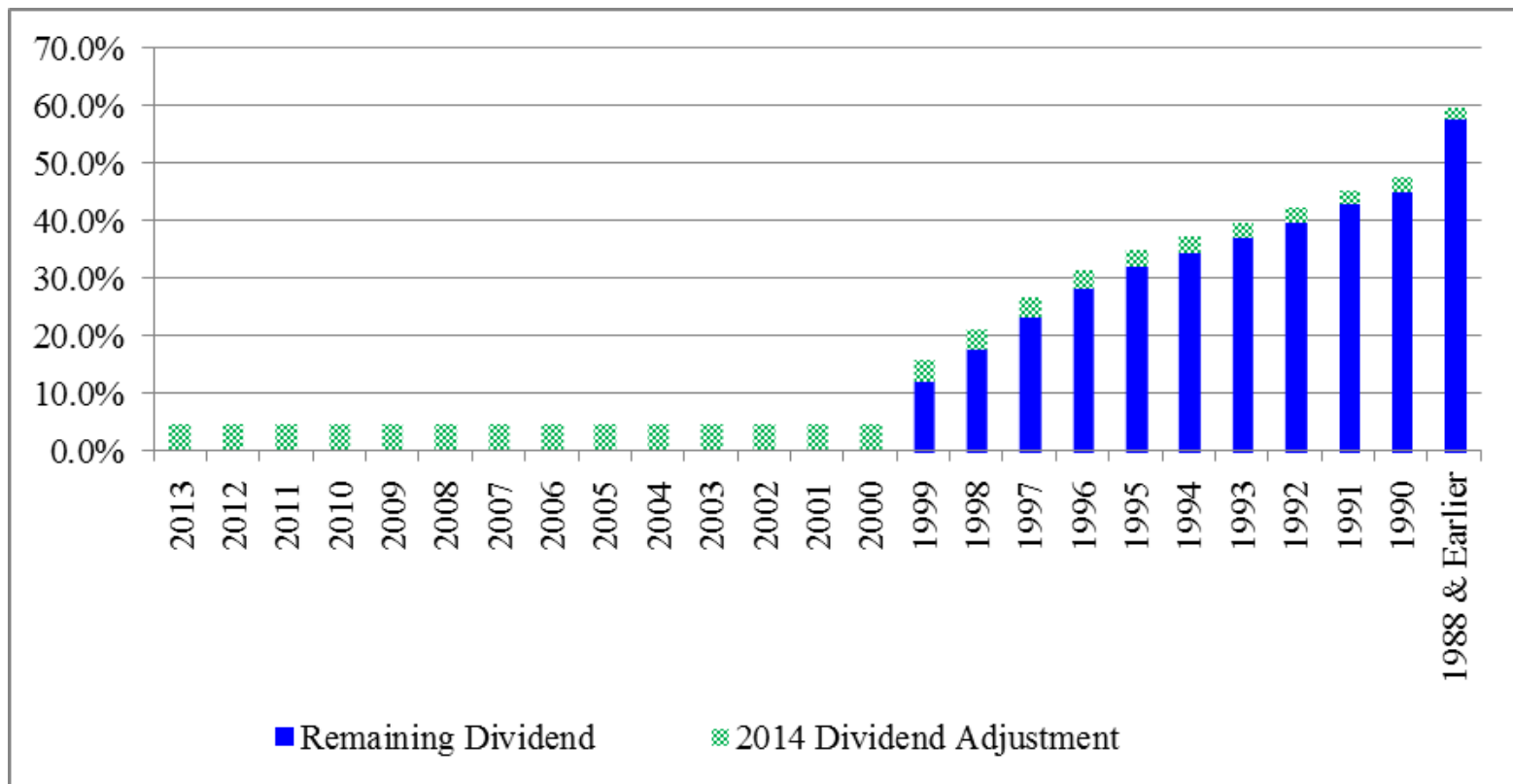
Liability Attributable to Dividends

<u>Valuation</u>	<u>Liability for Dividend Remaining (billions)</u>	<u>Liability for Dividend Adjustment (billions)</u>
12/31/2008	\$9.2	\$(0.8)
12/31/2009	8.1	(0.4)
12/31/2010	7.2	(0.3)
12/31/2011	6.4	(1.7)
12/31/2012	4.5	(1.3)
12/31/2013	3.0	2.0
12/31/2014(est)	4.8	

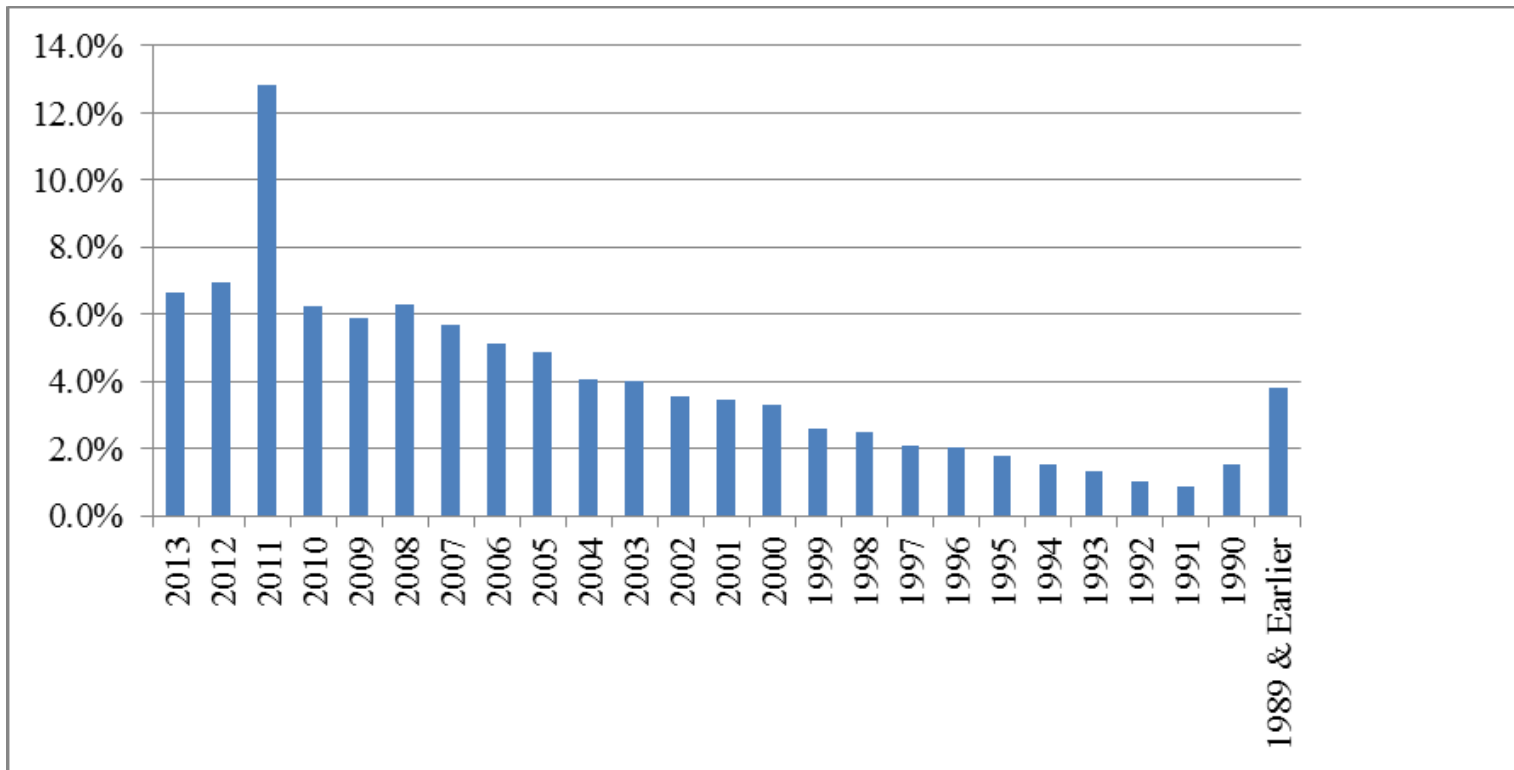
- ◆ Liability for Dividend Remaining represents the value of all previously granted dividends
- ◆ Due to recent series of negative dividends, the complete depletion of the dividend has become a real possibility
- ◆ Potential implications of such an event is being investigated



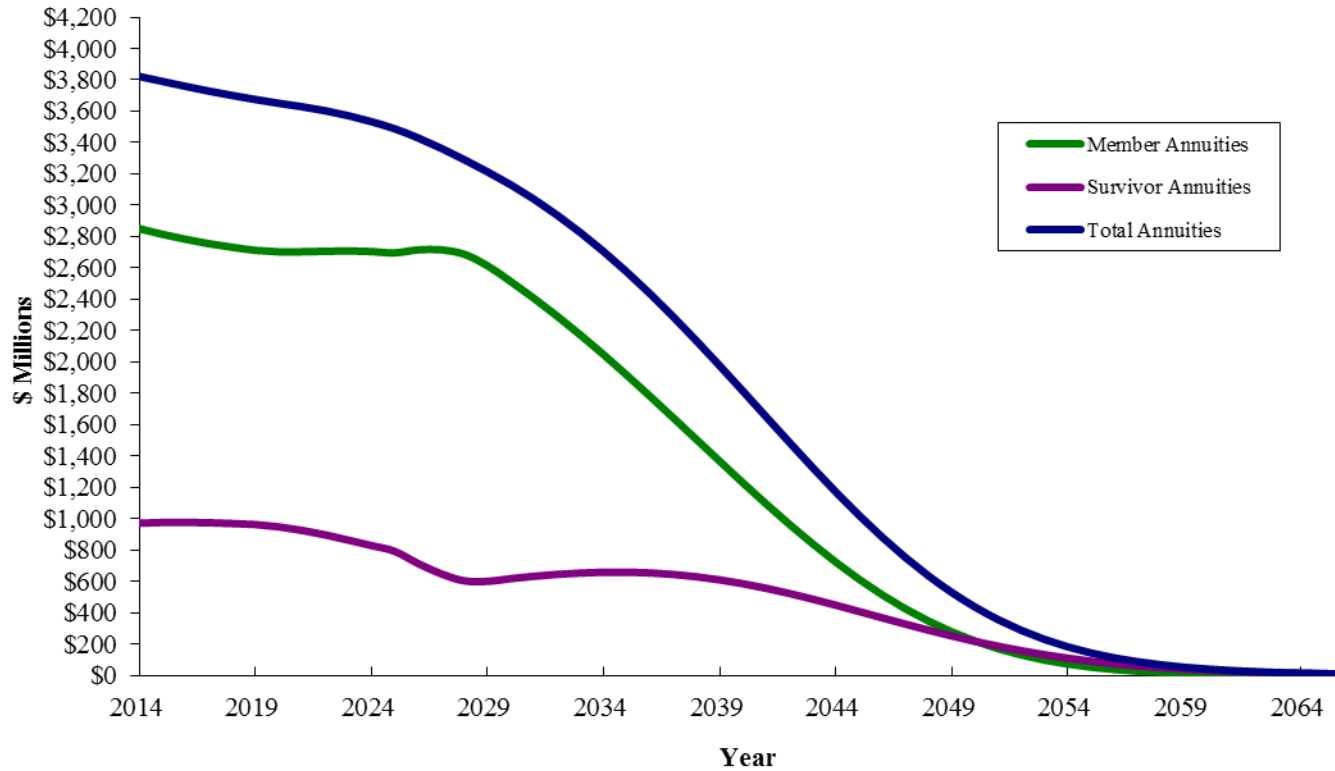
Dividend Remaining (as a Percentage of Total Benefit) by Year of Retirement



Liabilities (as a Percentage of Total) by Year of Retirement



Projected Future Core Annuities



Total Future Payments	\$96.7 billion
From Present Assets	44.3
From Investment Return	52.4

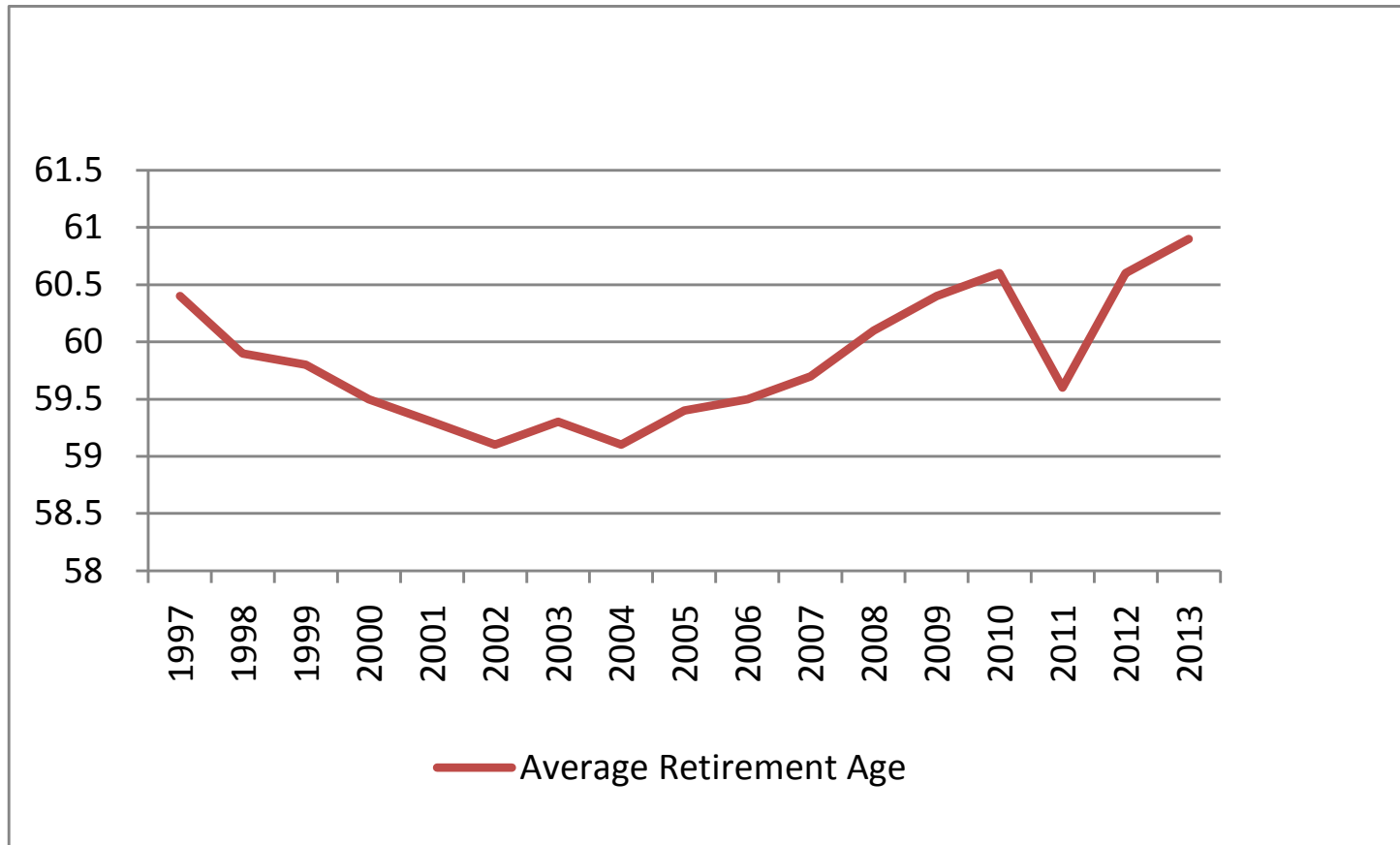


Primary Sources of Variable Adjustment

	<u>% of APV</u>
1. SWIB published investment return	29.0%
2. Adjustment to published effective rate	<u>2.0%</u>
3. Published effective earnings rate	31.0%
4. Adjustment to relate earnings to average variable annuity fund balance	<u>(0.8)%</u>
5. Earnings rate based on average balance	30.2%
6. Expected change before adjustments: $1.302/1.05-1$	24.0%
7. Adjustment to relate average asset to ending liability	0.7%
8. Carryover from last year due to timing of distribution, accounting adjustments and truncation	0.6%
9. Adjustments for mortality improvement	(0.3)%
10. Experience study	0.0%
11. Experience and other effects	0.1%
12. Statutory adjustment: (truncate to whole percent)	<u>(0.1)%</u>
13. Variable annuity change: (6)+(7)+(8)+(9)+(10)+(11)+(12)	25.0%

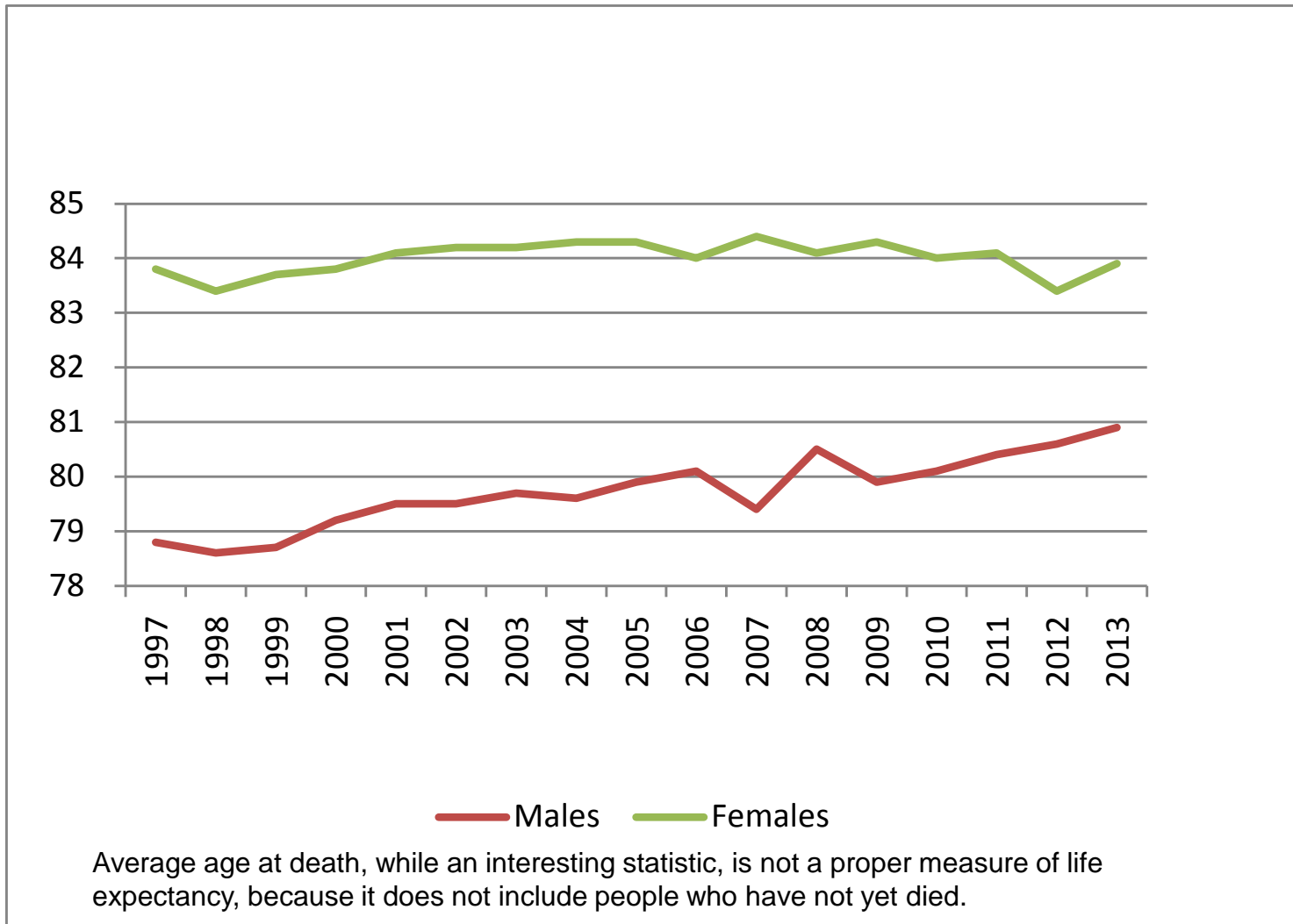


Average Retirement Age





Average Age at Death





Comparative Statement - Core

Valuation Date	Number	\$ Millions			Ratio	Change in		
		Annual Annuities	Fund Balance	Actuarial Reserve		Annuities		CPI*
					Average	Maximum		
2003	121,582	2,364.7	25,071.9	24,724.0	1.014	1.4 %	1.9 %	
2004	126,211	2,500.3	26,920.0	26,232.2	1.026	2.6 %	3.3 %	
2005	131,674	2,691.4	28,575.3	28,359.7	1.008	0.8 %	3.4 %	
2006	137,117	2,843.6	31,180.5	30,273.9	1.030	3.0 %	2.6 %	
2007	142,906	3,075.3	35,050.1	32,877.5	1.066	6.6 %	4.1 %	
2008	144,033	3,399.3	35,798.1	36,551.5	0.979	(2.1)%	(2.1)%	0.1 %
2009	150,671	3,449.3	36,655.8	37,072.7	0.989	(1.1)%	(1.3)%	2.7 %
2010	155,775	3,532.4	37,798.4	38,148.5	0.991	(0.9)%	(1.2)%	1.5 %
2011	167,453	3,842.0	40,411.5	42,078.3	0.960	(4.0)%	(7.0)%	3.0 %
2012	173,655	3,806.3	40,591.6	41,852.4	0.970	(3.0)%	(9.6)%	1.7 %
2013	180,056	3,800.7	44,273.2	42,300.5	1.047	4.7 %	4.7 %	1.5 %
31-Year Average						4.1 %	2.9 %	
10-Year Average						0.6 %	2.4 %	

**Based on December CPI-U67 index.*



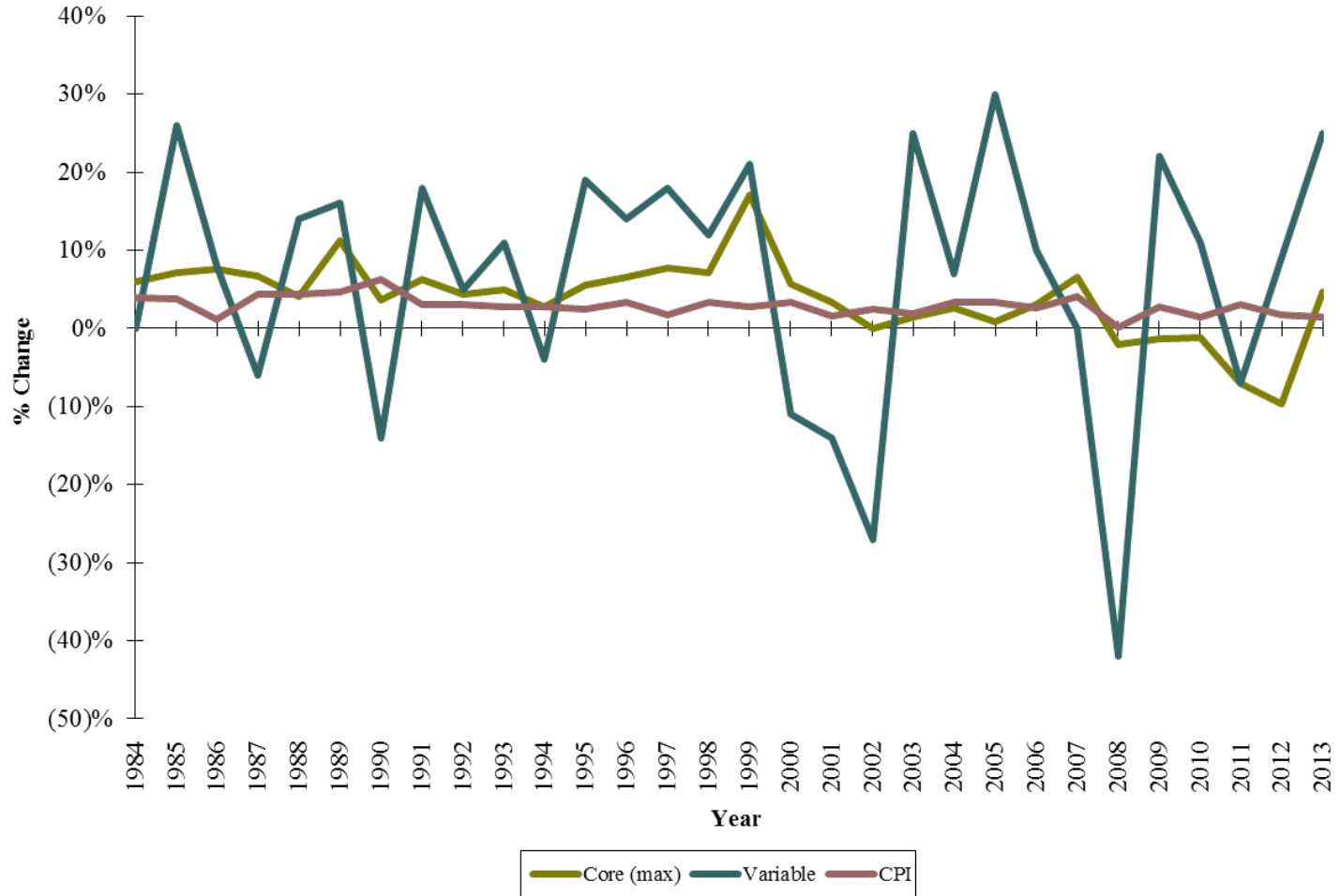
Comparative Statement - Variable

Valuation		\$ Millions				Change in	
		Annual Annuities	Fund Balance	Actuarial Reserve	Ratio	Annuities	CPI*
Date	Number						
2003	29,496	273.3	3,635.9	2,892.2	1.257	25.0 %	1.9 %
2004	30,270	346.0	3,909.9	3,654.5	1.070	7.0 %	3.3 %
2005	31,499	376.5	4,092.7	3,970.7	1.031	3.0 %	3.4 %
2006	32,683	391.8	4,594.2	4,145.2	1.108	10.0 %	2.6 %
2007	33,880	432.6	4,625.0	4,563.7	1.013	0.0 %	4.1 %
2008	34,927	427.0	2,574.5	4,491.0	0.573	(42.0)%	0.1 %
2009	34,836	240.3	3,078.4	2,512.7	1.225	22.0 %	2.7 %
2010	35,866	288.4	3,340.6	3,005.4	1.111	11.0 %	1.5 %
2011	38,949	330.3	3,197.9	3,462.9	0.924	(7.0)%	3.0 %
2012	39,873	304.6	3,463.9	3,169.6	1.093	9.0 %	1.7 %
2013	40,317	324.5	4,187.3	3,347.0	1.251	25.0 %	1.5 %
31-Year Average						4.7 %	2.9 %
10-Year Average						1.9 %	2.4 %

**Based on December CPI-U67 index.*



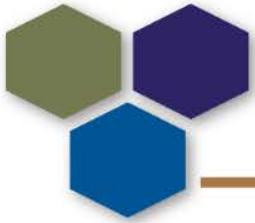
History of % Changes





Looking Ahead

- ◆ As of the December 31, 2012 valuation, the 2008 market losses have been fully recognized
- ◆ As of the December 31, 2013 valuation, there are about \$5 billion in unrecognized asset gains
- ◆ Next year, another positive dividend is possible provided the Core fund does not have a poor investment year (i.e., negative return)



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