

WISCONSIN RETIREMENT SYSTEM
30TH ANNUAL ACTUARIAL VALUATION OF RETIRED LIVES
DECEMBER 31, 2012

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February 25, 2013

Employee Trust Funds Board
Madison, Wisconsin

Ladies and Gentlemen:

The results of the **30th annual actuarial valuation of core and variable annuities** being paid from the Wisconsin Retirement System are presented in this report. This report should not be relied on for any other purpose.

The date of this valuation was **December 31, 2012**. Actuarial assumptions used in the valuation are summarized in the Appendix.

The results of the valuation may be briefly summarized as follows (\$ millions).

	Core	Variable
Number of Annuitants	173,571	39,873
Annual Amount	\$ 3,815.8	\$ 304.6
Fund Balance	40,591.6	3,463.9
Actuarial Reserve	41,852.4	3,169.6
Ratio	0.97	1.093

Based upon these results, the maximum decrease in the core annuities is 9.6% and the average decrease is 3.0%. The reason the maximum decrease is larger than the average of 3.0% is that many annuitants no longer have a dividend to reduce and therefore must be spread across the group of annuitants that still have remaining dividends. This is discussed in additional detail on Page 8 of this report. Variable annuities will be increased by 9%.

This report was prepared at the request of the Wisconsin Retirement System and those designated or approved by the Wisconsin Retirement System. This report may be provided to parties other than the Wisconsin Retirement System only in its entirety and only with the permission of the Wisconsin Retirement System. The valuation was based upon data furnished by the WRS staff, concerning Fund assets and individual annuitants and beneficiaries. Data was checked for internal consistency, but was not otherwise audited. We are not responsible for the accuracy or completeness of the information provided by the Wisconsin Retirement System.

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

To the best of our knowledge this report is complete and accurate. All calculations have been made in conformity with generally accepted actuarial principles and practices and with the Actuarial Standards of Practice issued by the Actuarial Standards Board. Please see the following page for additional disclosures requested by the Actuarial Standards of Practice. The undersigned are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. The signing actuaries are independent of the plan sponsor.

The cooperation of the Secretary and his staff in gathering materials for this valuation is acknowledged with appreciation.

Respectfully submitted,

The image shows three handwritten signatures in black ink. From left to right: Brian B. Murphy, Mark Buis, and James D. Anderson. The signatures are written in a cursive, professional style.

Brian B. Murphy, FSA, MAAA Mark Buis, FSA, MAAA James D. Anderson, FSA, MAAA

BBM/MB/JDA:bd

SECTION A
OPERATION OF THE SYSTEM

OPERATION OF THE RETIREMENT SYSTEM

Each year, as of December 31, an actuarial valuation of the liability for retired persons receiving benefits from the Wisconsin Retirement System is conducted. The purpose of the valuation is to determine the actuarial present value of future benefit payments on behalf of current retired lives. This present value is the “actuarial reserve”. Theoretically, if an amount of money equal to the actuarial present value were invested at a yield equal to the valuation interest rate, the initial amount plus the continuing investment income would provide exactly the right amount of money to pay the annuities of all current retired persons and their beneficiaries for the rest of their lives. The fund would decrease each year, and would become zero many decades in the future when the last annuitant dies.

The above is a “closed group” description of the operation of the annuity reserve fund. But the fund is really an “open group”. The size of the fund does not actually decrease because each year more benefits are added to the rolls than are removed, and fresh money is transferred into the annuity reserve fund to finance the benefits of the new annuitants. (The actuary calculates the reserve transfers for new annuitants each year as a by-product of the actuarial valuation.)

According to theory, the fund will eventually reach a state when the number of people entering (retiring) each year is approximately equal to the number of people exiting (dying) each year. When this mature state is reached, the amount of money in the fund will remain approximately level in constant dollars from year to year. Each year, the reserve transfers for the new annuitants plus real investment earnings on the whole fund (total money in) will be approximately equal to the benefit payments (total money out). The only source of growth in assets would be the result of the effects of inflation. The dollars in the fund would increase, but the “real” value of the fund would not change.

There are at least two factors that cause the actual operation to be different from the theoretical operation described above. The first is that annuitants may have longer or shorter lifetimes than expected. In recognition of this, the actuary monitors mortality experience of the retirement system and recommends a new mortality table when appropriate. The second factor is that actual investment earnings are rarely equal to the assumed rate. When investment earnings differ from the assumed rate, the difference, positive or negative, is recorded in a supplemental reserve.

OPERATION OF THE RETIREMENT SYSTEM

The Wisconsin Retirement System maintains separate reserves for core and variable annuities. Each year, the actuary determines the actuarial reserve for core and variable annuities separately. WRS' practice with respect to the use of supplemental reserves is described below.

Core Annuity Division: If the supplemental reserve is positive and is at least 0.5% of core annuity liabilities, core annuity increases (dividends) may be granted. If the supplemental reserve is negative and is equal to or greater than 0.5% of core annuity liabilities in absolute value, prior core annuity dividends are reduced by an aggregate amount equal to the shortfall. Increases or decreases become effective in April following the December 31 valuation.

Variable Annuity Division: If the supplemental reserve is at least 2% of variable annuity liabilities, substantially all of the reserve (dropping fractions of a percent) is used to increase or decrease variable annuities for the ensuing year. Increases or decreases become effective in April following the December 31 valuation.

In calculating both the dividend for the Core annuities and the adjustment for Variable annuities, a 5.0% assumed investment return is used to fund the original benefit. Only returns in excess of 5.0% can produce an increase in a member's annuity. Returns below 5% result in a decrease. Please see page 29 for a full description of these benefits.

SECTION B
CORE ANNUITIES

CORE ANNUITY DIVISION
DEVELOPMENT OF ASSETS AND LIABILITIES

	\$ Millions		Ratio
	Assets	Liabilities	
Ending Balance December 31, 2011	\$40,411.5	\$42,078.3	0.960
Closing Adjustments	(6.4)	0.0	
Variable Terminations	63.5	63.5	
2012 Core Annuity Average Adjustment: -4% *	0.0	(1,634.6)	
Beginning Balance January 1, 2012	40,468.6	40,507.2	0.999
Increases			
Reserve Transfers	3,117.3	3,117.3	
Regular Interest	2,007.7	2,007.7	
Additional Earnings	(1,166.3)	0.0	
Addition to Contingency/Data Reserve	0.0	126.3	
Experience Study	0.0	0.0	
Other	0.0	20.5	
Total Increases	3,958.7	5,271.8	
Decreases			
Annuities & Lump Sums	3,829.6	3,829.6	
Credit Re-establishments	6.1	6.1	
Releases from Contingency/Data Reserve	0.0	0.0	
Experience Study	0.0	90.9	
Other	0.0	0.0	
Total Decreases	3,835.7	3,926.6	
Ending Balance December 31, 2012	\$40,591.6	\$41,852.4	0.970

The ending liability balance includes a data reserve of \$41.8 million and a liability for previously granted dividends of \$4,489.7 million (prior to the 2013 adjustment).

* Core Annuity Reserve adjustment ranged from 0% to a maximum of -7% dividend.

RESERVE TRANSFER RECOMMENDATION
DECEMBER 31, 2012

Amounts to be transferred from the Employer Reserve and the Employee Reserve to the Annuity Reserve to cover liabilities for new annuities are computed as the first step in the annual actuarial valuation. The actuarial present value at time of retirement of core annuities reported as new since the last actuarial valuation is \$3,049,938,332. Adjustments to prior transfers, related to estimated annuities for which final computations have now been made, totaled \$67,366,245. Reserve transfers are distributed as follows:

Group	Regular Transfer	Adjustment to Prior Transfer	Total Transfer
General	\$2,626,710,841	\$64,577,079	\$2,691,287,920
Protective with Social Security	316,149,907	1,480,594	317,630,501
Protective without Social Security	83,966,530	388,684	84,355,214
Executive & Elected	23,111,054	919,887	24,030,942
Totals	\$3,049,938,332	\$67,366,245	\$3,117,304,577

Accordingly, we recommend that \$3,117,304,577 be transferred to the Core Annuity Reserve. The results in this report assume that this transfer has been made.

DISCUSSION OF DIVIDEND DECEMBER 31, 2012

The Core Annuity Fund Balance, \$40,591.6 million, was less than the actuarial present value of core annuities and reserves, \$41,852.4 million, by \$1,260.8 million which resulted in an average annuity adjustment of (3.0%) with a range of 0.0% to a maximum of (9.6)%. The primary sources of the (9.6)% are:

	% of APV
1. SWIB published investment return	13.70%
2. MRA adjustment	(11.50)%
3. Published effective earnings rate	2.20%
4. Adjustment to relate earnings to average core annuity balance	(0.10)%
5. Earnings rate based on average balance	2.10%
6. Expected dividend before adjustments: 1.021/1.05-1	(2.76)%
7. Adjustment to relate average asset to ending liability	(0.03)%
8. Carryover from last year due to timing of dividend accounting adjustments and rounding	(0.09)%
9. Adjustments to contingency reserve and data reserve	(0.30)%
10. Experience study	0.22%
11. Experience and other effects	(0.05)%
12. Statutory adjustment to round to nearest one-tenth percent	0.01%
13. Computed average dividend rate: (6)+(7)+(8)+(9)+(10)+(11)+(12)	(3.0)%
14. Adjustment for members at or near the statutory floor	(6.6)%
15. Final maximum computed dividend rate: (13)+(14)	(9.6)%

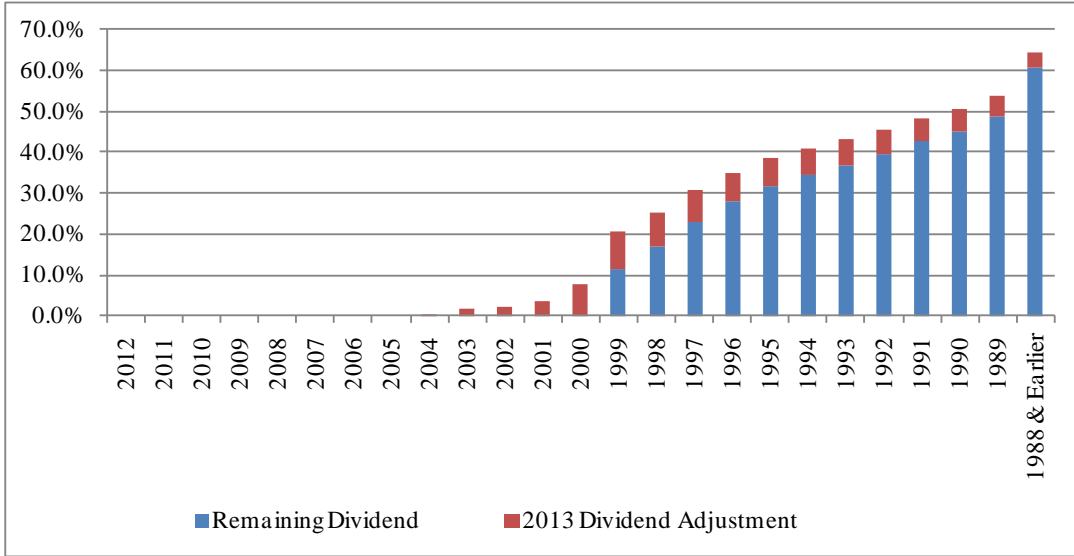
See pages 30 and 31 for a description of items on this page.

In accordance with the Administrative Code, ETF 20.25 and Section 40.27(2) Wisconsin Statutes (see page 29), the dividend adjustment ranging from 0.0% to (9.6)% is effective April 1, 2013.

DISCUSSION OF DIVIDEND DECEMBER 31, 2012

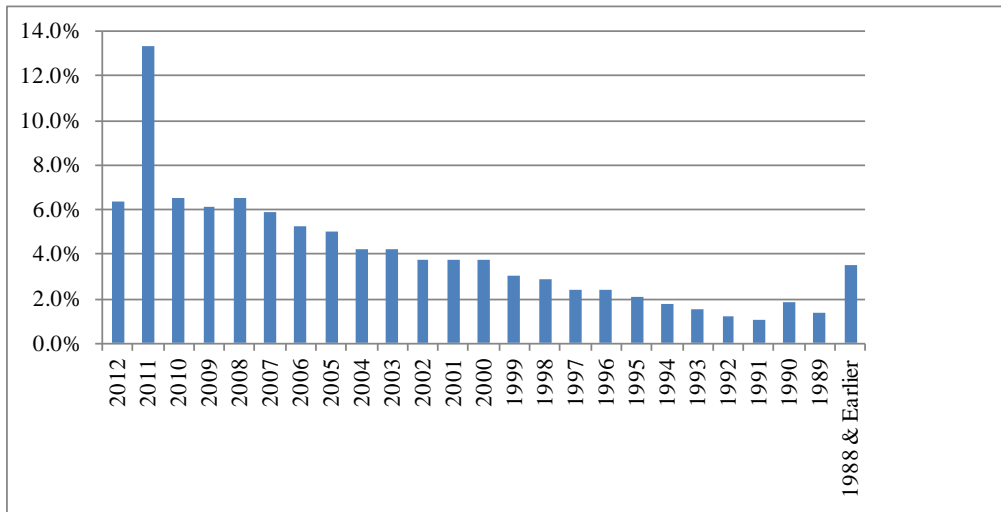
As shown on the prior page, the adjustment for members at or near the statutory floor (Item 14) is (6.6)%. This adjustment has increased significantly this year because the percentage of members with no remaining dividend has grown. The chart below shows that only members who retired prior to 2004 had a dividend remaining prior to the 2013 dividend adjustment.

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



After the 2013 dividend adjustment, only members retired prior to 2000 have a dividend remaining. This situation is compounded by the fact that members who retired prior to 2000 represent a shrinking portion of the liabilities. The chart below shows liabilities by year of retirement.

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



Looking ahead, it is possible that there will be a positive dividend next year since the large asset losses incurred during 2008 have been fully recognized in the assets. Please note that if there is a positive dividend next year, it will be spread equally over all annuitants.

**TRANSFERS TO ANNUITY RESERVE
TO FINANCE CORE ANNUITIES APPROVED IN 2012
TABULATED BY TYPE OF ANNUITY AND OPTION**

Alpha Code	Type of Benefit	Number	Annual Amount	Present Value
REGULAR RETIREMENT				
SL	Straight Life	1,518	\$ 27,643,320	\$ 379,501,395
SL	Straight Life (accelerated)	0	5,393,926	18,212,753
A60	Life Annuity with 60 payments guaranteed	960	18,291,783	246,900,408
A60	Life Annuity with 60 payments guaranteed (accelerated)	0	3,955,992	12,961,491
A180	Life Annuity with 180 payments guaranteed	1,868	33,596,651	481,364,515
A180	Life Annuity with 180 payments guaranteed (accelerated)	0	9,115,764	35,182,043
A180F	Life Annuity with 180 payments guaranteed (forced)	3	22,200	266,071
JOINT	Joint and 75% Survivor	943	22,301,626	337,805,593
JOINT	Joint and 75% Survivor (accelerated)	0	5,240,640	18,626,964
R25	Reduced 25% on First Death	446	10,968,821	159,937,041
R25	Reduced 25% on First Death (accelerated)	0	2,041,006	7,714,012
C100	100% Continued to Named Survivor	990	19,182,172	295,364,720
C100	100% Continued to Named Survivor (accelerated)	0	4,382,092	16,537,376
C180	100% Continued to Named Survivor with 180 payments guaranteed	2,588	55,521,104	875,513,145
C180	100% Continued to Named Survivor with 180 payments guaranteed (accelerated)	0	16,569,720	64,554,598
AC24	Annuity Certain with 24 Payments	1	138,215	303,879
AC60	Annuity Certain with 60 Payments	0	97,596	456,265
AC120	Annuity Certain with 120 Payments	2	81,366	651,323
AC180	Annuity Certain between 24 and 180 Payments	3	121,651	1,097,626
	Total Regular	9,322	\$ 234,665,645	\$ 2,952,951,219
	Average Age at Retirement	60.6 Years		
DISABILITY RETIREMENT				
SL	Straight Life	35	\$ 1,031,528	\$ 14,370,270
A60	Life Annuity with 60 payments guaranteed	12	245,245	3,390,653
A180	Life Annuity with 180 payments guaranteed	34	962,657	13,489,192
JOINT	Joint and 75% Survivor	15	389,884	6,047,587
R25	Reduced 25% on First Death	7	211,203	3,146,133
C100	100% Continued to Named Survivor	15	455,779	7,155,589
C180	100% Continued to Named Survivor with 180 payments guaranteed	65	2,005,067	31,723,409
	Total Disability	183	\$ 5,301,363	\$ 79,322,833
	Average Age at Retirement	54.7 Years		
DEATH-IN-SERVICE BENEFITS				
SL	Straight Life	10	\$ 103,228	\$ 1,580,798
A60	Life Annuity with 60 payments guaranteed	6	90,016	1,248,203
A60	Life Annuity with 60 payments guaranteed (accelerated)	0	12,648	36,463
A180	Life Annuity with 180 payments guaranteed	50	913,111	13,619,030
A180	Life Annuity with 180 payments guaranteed (accelerated)	0	183,792	922,999
LOL	Life with Optional Length Guaranteed	1	28,379	256,787
	Total Death-in-Service	67	\$ 1,331,174	\$ 17,664,280
	Average Age at Retirement	56.4 Years		
GRAND TOTAL		9,572	\$ 241,298,182	\$ 3,049,938,332

In cases where an individual is receiving more than one annuity, the person only appears once in the above number counts, but the corresponding annual amounts can show up in several different places, depending on the option elected for the different annuities. This can result in, for example, a number count of zero (or a very low number count) combined with a significant annual dollar amount in the above table.

CORE ANNUITIES BEING PAID DECEMBER 31, 2012 TABULATED BY TYPE OF ANNUITY AND OPTION

Alpha Code	Type of Benefit	Number	Annual Amount	Present Value
REGULAR RETIREMENT				
SL	Straight Life	22,276	\$ 411,944,652	\$ 4,406,444,468
SL	Straight Life (accelerated)	0	25,581,508	60,698,087
A60	Life Annuity with 60 payments guaranteed	19,650	362,020,563	3,658,730,353
A60	Life Annuity with 60 payments guaranteed (accelerated)	0	18,474,199	41,346,742
A120	Life Annuity with 120 payments guaranteed	177	2,606,722	7,920,000
A180	Life Annuity with 180 payments guaranteed	34,807	623,648,317	6,653,234,020
A180	Life Annuity with 180 payments guaranteed (accelerated)	0	45,842,420	112,555,404
A180F	Life Annuity with 180 payments guaranteed (forced)	233	1,634,863	15,267,496
JOINT	Joint and 75% Survivor	20,060	473,302,040	5,623,171,256
JOINT	Joint and 75% Survivor (accelerated)	0	27,925,091	64,201,442
R25	Reduced 25% on First Death	13,622	361,294,749	3,691,868,328
R25	Reduced 25% on First Death (accelerated)	0	10,310,345	24,754,483
C100	100% Continued to Named Survivor	15,090	302,294,413	3,697,041,903
C100	100% Continued to Named Survivor (accelerated)	0	19,238,670	48,465,776
C180	100% Continued to Named Survivor with 180 payments guaranteed	38,817	855,717,009	11,617,152,961
C180	100% Continued to Named Survivor with 180 payments guaranteed (accelerated)	0	87,645,106	219,095,449
LOL	Life with Optional Length Guaranteed	70	1,075,953	5,423,412
LOLF	Life with Optional Length Guaranteed (Forced)	6	144,417	599,069
AC24	Annuity Certain with 24 Payments	2	239,607	329,488
AC60	Annuity Certain with 60 Payments	5	472,798	1,324,290
AC120	Annuity Certain with 120 Payments	8	877,738	5,410,930
AC180	Annuity Certain between 24 and 180 Payments	10	2,728,834	12,125,459
C50	50% Continued to One Beneficiary	77	1,173,038	4,516,188
C50W180	50% Continued to One Beneficiary with 180 Months guaranteed	7	46,466	161,084
C75WSS	75% Continued to One Beneficiary and Social Security Integrated	77	1,638,381	9,247,184
R25W120	Reduced 25% on Death of Annuitant or Named Survivor with 120 Months guaranteed	7	107,223	327,587
A60WSS	Life with 60 Months Guaranteed and Social Security Integrated	146	966,401	3,406,659
A180WSS	Life with 180 Months Guaranteed and Social Security Integrated	128	2,656,197	10,753,663
PF6213	Police and Firemen s.62.13	145	4,352,603	18,205,173
SLNSD	Straight Life - Named Survivor Deceased	546	13,814,758	136,896,598
Total Regular		165,966	\$3,659,775,081	\$40,150,674,953

(concluded on next page)

In cases where an individual is receiving more than one annuity, the person only appears once in the above number counts, but the corresponding annual amounts can show up in several different places, depending on the option elected for the different annuities. This can result in, for example, a number count of zero (or a very low number count) combined with a significant annual dollar amount in the above table.

CORE ANNUITIES BEING PAID DECEMBER 31, 2012 TABULATED BY TYPE OF ANNUITY AND OPTION

Alpha Code	Type of Benefit	Number	Annual Amount	Present Value
DISABILITY RETIREMENT				
SL	Straight Life	806	\$ 18,686,243	\$ 181,182,994
A60	Life Annuity with 60 payments guaranteed	445	10,288,387	100,506,902
A180	Life Annuity with 180 payments guaranteed	1,177	25,977,022	276,259,305
JOINT	Joint and 75% Survivor	534	10,792,486	120,254,698
R25	Reduced 25% on First Death	248	4,989,653	54,147,672
C100	100% Continued to Named Survivor	1,297	22,093,648	255,129,080
C180	100% Continued to Named Survivor with 180 payments guaranteed	1,905	36,417,587	485,541,393
DWSMC	Disability with Spouse or Minor/Dependent Child	27	604,956	4,927,510
DWOSMC	Disability without Spouse or Minor/Dependent Child	2	40,634	348,947
PF6213	Police and Firemen s.62.13	25	427,596	1,930,838
SLNSD	Straight Life - Named Survivor Deceased	7	175,928	1,892,656
Total Disability		6,473	\$ 130,494,140	\$ 1,482,121,996
DEATH-IN-SERVICE BENEFITS				
SL	Straight Life	230	\$ 2,928,327	\$ 30,349,330
SL	Straight Life (accelerated)	0	41,161	175,324
A60	Life Annuity with 60 payments guaranteed	128	2,019,421	21,147,966
A60	Life Annuity with 60 payments guaranteed (accelerated)	0	49,802	225,133
A180	Life Annuity with 180 payments guaranteed	796	9,923,720	121,205,557
A180	Life Annuity with 180 payments guaranteed (accelerated)	0	880,230	3,389,655
C180	100% Continued to Named Survivor with 180 payments guaranteed	3	10,804	171,424
LOL	Life with Optional Length Guaranteed	9	84,759	465,705
AC180	Annuity Certain between 24 and 180 Payments	3	34,089	100,264
A60WSS	Life with 60 Months Guaranteed and Social Security Integrated	45	46,242	208,832
PF6213	Police and Firemen s.62.13	2	60,714	312,111
Total Death-in-Service		1,216	\$ 16,079,269	\$ 177,751,301
GRAND TOTAL		173,655	\$3,806,348,490	\$41,810,548,250

In cases where an individual is receiving more than one annuity, the person only appears once in the above number counts, but the corresponding annual amounts can show up in several different places, depending on the option elected for the different annuities. This can result in, for example, a number count of zero (or a very low number count) combined with a significant annual dollar amount in the above table.

CORE ANNUITIES BEING PAID DECEMBER 31, 2012
TABULATED BY ATTAINED AGES

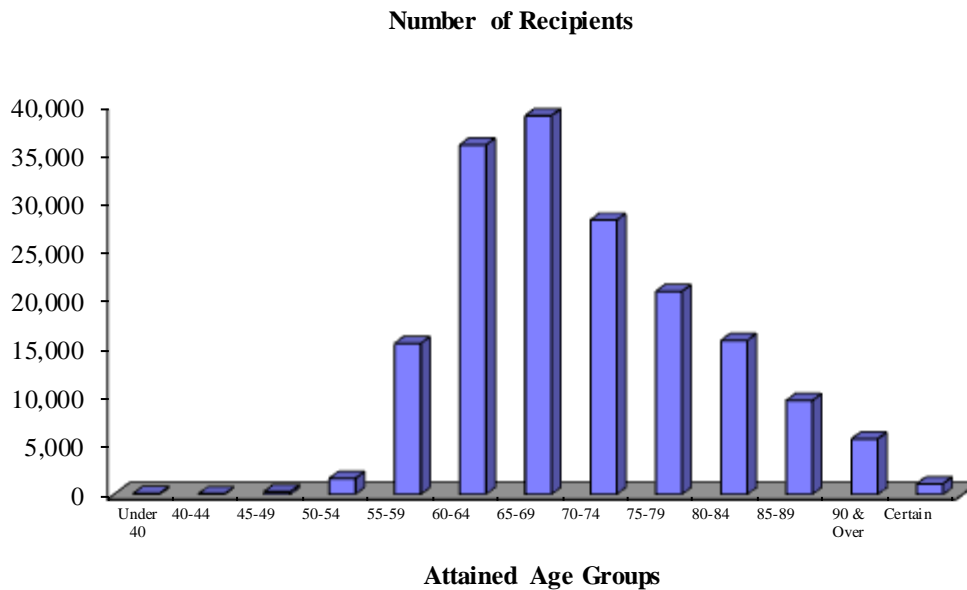
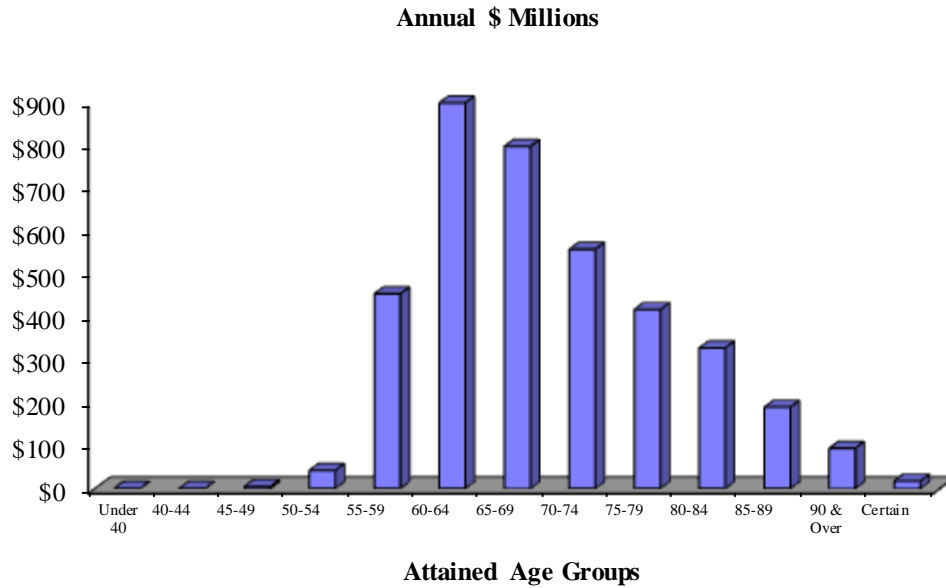
Attained Ages	Regular		Disability		Death-in-Service		Totals	
	No.	Annual Amount	No.	Annual Amount	No.	Annual Amount	No.	Annual Amount
Under 20	0	\$ 0	2	\$ 10,926	7	\$ 53,066	9	\$ 63,992
20-24	0	0	3	21,232	9	39,233	12	60,465
25-29	0	0	9	61,757	11	77,553	20	139,310
30-34	0	0	15	117,630	25	183,502	40	301,132
35-39	2	14,446	20	213,705	15	88,244	37	316,395
40-44	15	109,425	40	639,594	26	136,061	81	885,080
45-49	84	881,642	167	3,599,076	41	405,704	292	4,886,422
50-54	1,148	31,898,667	428	9,866,660	86	1,100,879	1,662	42,866,206
55-59	14,388	429,850,225	987	21,935,489	131	2,458,548	15,506	454,244,262
60-64	34,430	869,159,973	1,278	27,240,971	176	2,772,674	35,884	899,173,618
65-69	37,563	771,374,244	1,129	23,377,277	171	2,745,418	38,863	797,496,939
70-74	27,141	538,953,301	898	17,151,642	122	1,843,210	28,161	557,948,153
75-79	20,008	403,049,386	715	13,286,803	108	1,248,972	20,831	417,585,161
80-84	15,246	318,935,490	455	7,972,755	109	1,255,200	15,810	328,163,445
85-89	9,327	185,466,932	242	3,762,617	79	832,710	9,648	190,062,259
90-94	4,301	76,119,279	71	998,505	40	262,688	4,412	77,380,472
95& Up	1,250	16,624,468	14	237,501	21	113,244	1,285	16,975,213
Certain Only*	1,063	17,337,603	0	0	39	462,363	1,102	17,799,966
Totals	165,966	\$3,659,775,081	6,473	\$130,494,140	1,216	\$16,079,269	173,655	\$3,806,348,490

Averages in Years

Age at retirement	59.5	52.0	51.2	59.3
Attained age	69.4	66.3	67.4	69.3

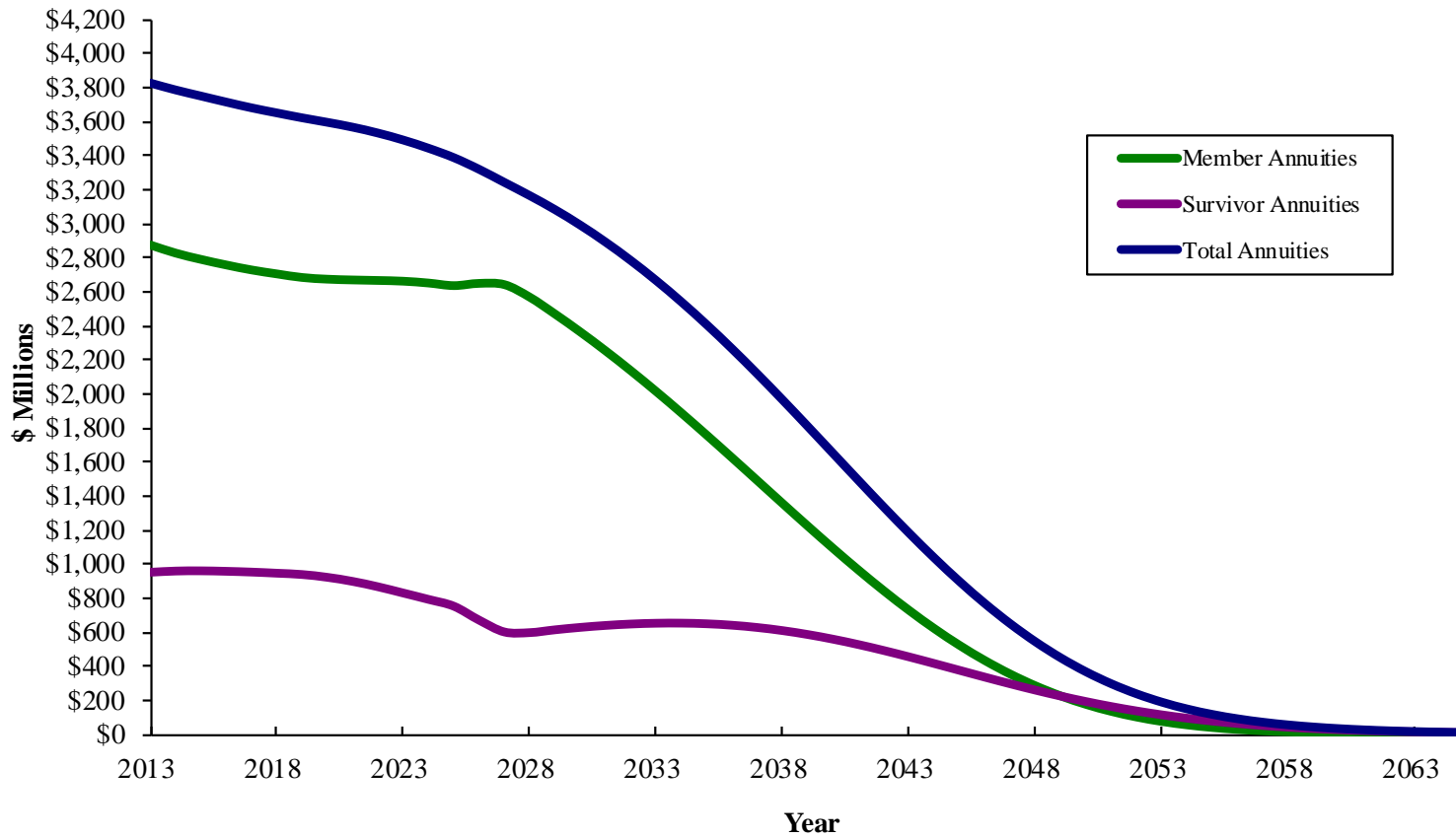
* Certain Only category consists of continuations of 5, 10 and 15-year certain and life annuities to beneficiaries of deceased annuitants.

CORE ANNUITIES BEING PAID BY ATTAINED AGE* DECEMBER 31, 2012



* Includes regular and disability retirees and survivor beneficiaries. The "certain" category includes annuities paid for a fixed period which is not dependent upon the age of the recipient.

**PROJECTED FUTURE CORE ANNUITY PAYMENTS
ON BEHALF OF PRESENT RETIRED LIVES
INCLUDING PRESENT DIVIDENDS**



Total Future Payments	\$96.0 billion
From Present Assets	40.6
From Investment Return	55.4

SECTION C
VARIABLE ANNUITIES

VARIABLE ANNUITY DIVISION
DEVELOPMENT OF ASSETS AND LIABILITIES

	\$ Millions		Ratio
	Assets	Liabilities	
Ending Balance December 31, 2011	\$3,197.9	\$3,462.9	0.923
Closing Adjustments	(10.1)	0.0	
Variable Terminations	(63.5)	(63.5)	
2012 Adjustment: -7%	0.0	(235.3)	
Beginning Balance January 1, 2012	3,124.3	3,164.1	0.987
Increases			
Reserve Transfers	148.5	148.5	
Regular Interest	154.2	154.2	
Additional Earnings	349.1	0.0	
Addition to Contingency/Data Reserve	0.0	9.6	
Experience Study	0.0	0.0	
Other	0.0	6.5	
Total Increases	651.8	318.8	
Decreases			
Annuities & Lump Sums	312.0	312.0	
Credit Re-establishments	0.2	0.2	
Release from Contingency/Data Reserve	0.0	0.0	
Experience Study	0.0	1.1	
Other	0.0	0.0	
Total Decreases	312.2	313.3	
Ending Balance December 31, 2012	\$3,463.9	\$3,169.6	1.093

**RESERVE TRANSFER RECOMMENDATION
DECEMBER 31, 2012**

Amounts to be transferred from the Employer Reserve and the Employee Reserve to the Annuity Reserve to cover liabilities for new annuities are computed as the first step in the annual actuarial valuation. The actuarial present value at time of retirement of variable annuities reported as new since the last actuarial valuation is \$143,798,612. Adjustments to prior transfers, relating to estimated annuities for which final computations have now been made, totaled \$4,729,630. Reserve transfers were distributed as follows:

Group	Regular Transfer	Adjustment to Prior Transfer	Total Transfer
General	\$129,585,099	\$4,184,743	\$133,769,842
Protective with Social Security	11,511,409	467,923	11,979,332
Protective without Social Security	1,461,489	48,027	1,509,516
Executive & Elected	1,240,614	28,937	1,269,551
Totals	\$143,798,612	\$4,729,630	\$148,528,241

Accordingly, we recommend that \$148,528,241 be transferred to the Variable Annuity Reserve. The results in this report assume that this transfer has been made.

DISCUSSION OF VARIABLE ANNUITY CHANGE DECEMBER 31, 2012

Variable Annuity Reserves, \$3,464.0 million, exceeded the actuarial present value of variable annuities, \$3,169.6 million, by \$294.3 million as of December 31, 2012 or 9% of the actuarial present value (APV) of variable annuity payments. In accordance with Section 40.28(2) of the Wisconsin statutes (see page 29), variable annuities will be increased by 9% effective April 1, 2013. The primary sources of the 9% are as follows:

	<u>% of APV</u>
1. SWIB published investment return	16.9%
2. Adjustment to published effective rate	0.1%
3. Published effective earnings rate	17.0%
4. Adjustment to relate earnings to average variable annuity fund balance	(0.5)%
5. Earnings rate based on average balance	16.5%
6. Expected change before adjustments: 1.165/1.05-1	11.0%
7. Adjustment to relate average asset to ending liability	0.0%
8. Carryover from last year due to timing of distribution, accounting adjustments and truncation	(1.3)%
9. Adjustments to contingency reserve	(0.3)%
10. Experience study	0.0%
11. Experience and other effects	(0.1)%
12. Statutory adjustment: (truncate to whole percent)	(0.3)%
13. Variable annuity change: (6)+(7)+(8)+(9)+(10)+(11)+(12)	9.0%

Please see pages 30 and 31 for a description of the items on this page.

**TRANSFERS TO ANNUITY RESERVE
TO FINANCE VARIABLE ANNUITIES APPROVED IN 2012
TABULATED BY TYPE OF ANNUITY AND OPTION**

Alpha Code	Type of Benefit	Number	Annual Amount	Present Value
REGULAR RETIREMENT				
SL	Straight Life	327	\$ 1,190,251	\$ 16,150,288
SL	Straight Life (accelerated)	0	178,983	610,567
A60	Life Annuity with 60 payments guaranteed	222	777,771	10,454,882
A60	Life Annuity with 60 payments guaranteed (accelerated)	0	147,330	458,147
A180	Life Annuity with 180 payments guaranteed	446	1,512,309	21,503,784
A180	Life Annuity with 180 payments guaranteed (accelerated)	0	341,567	1,372,814
A180F	Life Annuity with 180 payments guaranteed (forced)	1	1,512	17,916
JOINT	Joint and 75% Survivor	295	1,287,876	19,389,480
JOINT	Joint and 75% Survivor (accelerated)	0	303,349	953,185
R25	Reduced 25% on First Death	128	523,556	7,638,754
R25	Reduced 25% on First Death (accelerated)	0	96,725	352,794
C100	100% Continued to Named Survivor	266	1,131,420	17,149,067
C100	100% Continued to Named Survivor (accelerated)	0	235,284	742,691
C180	100% Continued to Named Survivor with 180 payments guaranteed	709	2,680,152	41,693,805
C180	100% Continued to Named Survivor with 180 payments guaranteed (accelerated)	0	707,691	2,678,456
AC24	Annuity Certain with 24 Payments	2	14,209	25,730
AC60	Annuity Certain with 60 Payments	0	5,969	27,912
AC120	Annuity Certain with 120 Payments	2	3,996	32,657
AC180	Annuity Certain between 24 and 180 Payments	2	2,122	14,144
Total Regular		2,400	\$ 11,142,072	\$ 141,267,072
Average Age at Retirement		59.9 Years		
DISABILITY RETIREMENT				
SL	Straight Life	9	\$ 21,148	\$ 284,832
A60	Life Annuity with 60 payments guaranteed	5	10,088	141,529
A180	Life Annuity with 180 payments guaranteed	13	35,169	481,733
JOINT	Joint and 75% Survivor	5	12,337	184,658
R25	Reduced 25% on First Death	1	8,472	125,063
C100	100% Continued to Named Survivor	2	2,982	51,415
C180	100% Continued to Named Survivor with 180 payments guaranteed	14	36,913	574,846
Total Disability		49	\$ 127,109	\$ 1,844,076
Average Age at Retirement		54 Years		
DEATH-IN-SERVICE BENEFITS				
SL	Straight Life	4	\$ 6,738	\$ 99,781
A60	Life Annuity with 60 payments guaranteed	2	4,816	49,743
A180	Life Annuity with 180 payments guaranteed	15	30,777	454,501
A180	Life Annuity with 180 payments guaranteed (accelerated)	0	9,384	83,439
Total Death-in-Service		21	\$ 51,715	\$ 687,464
Average Age at Retirement		57.8 Years		
GRAND TOTAL		2,470	\$ 11,320,896	\$ 143,798,612

In cases where an individual is receiving more than one annuity, the person only appears once in the above number counts, but the corresponding annual amounts can show up in several different places, depending on the option elected for the different annuities. This can result in, for example, a number count of zero (or a very low number count) combined with a significant annual dollar amount in the above table.

VARIABLE ANNUITIES BEING PAID DECEMBER 31, 2012 TABULATED BY TYPE OF ANNUITY AND OPTION

Alpha Code	Type of Benefit	Number	Annual Amount	Present Value
REGULAR RETIREMENT				
SL	Straight Life	4,648	\$ 31,846,562	\$ 307,325,182
SL	Straight Life (accelerated)	0	1,043,595	2,332,520
A60	Life Annuity with 60 payments guaranteed	3,971	26,796,981	249,385,557
A60	Life Annuity with 60 payments guaranteed (accelerated)	0	748,075	1,514,919
A120	Life Annuity with 120 payments guaranteed	38	172,086	544,589
A180	Life Annuity with 180 payments guaranteed	7,487	48,874,874	491,426,829
A180	Life Annuity with 180 payments guaranteed (accelerated)	0	1,802,646	4,411,578
A180F	Life Annuity with 180 payments guaranteed (forced)	25	167,561	1,412,716
JOINT	Joint and 75% Survivor	4,952	41,302,682	463,026,101
JOINT	Joint and 75% Survivor (accelerated)	0	1,305,880	2,608,441
R25	Reduced 25% on First Death	3,825	42,456,449	400,658,920
R25	Reduced 25% on First Death (accelerated)	0	465,579	1,030,109
C100	100% Continued to Named Survivor	3,503	26,414,258	291,259,751
C100	100% Continued to Named Survivor (accelerated)	0	787,668	1,783,688
C180	100% Continued to Named Survivor with 180 payments guaranteed	9,454	67,337,973	856,121,817
C180	100% Continued to Named Survivor with 180 payments guaranteed (accelerated)	0	3,454,132	8,064,012
LOL	Life with Optional Length Guaranteed	8	103,332	453,378
AC24	Annuity Certain with 24 Payments	4	17,099	20,124
AC60	Annuity Certain with 60 Payments	6	31,924	98,386
AC120	Annuity Certain with 120 Payments	7	41,478	269,627
AC180	Annuity Certain between 24 and 180 Payments	29	582,924	3,089,946
C50	50% Continued to One Beneficiary	45	302,010	1,118,895
C50W180	50% Continued to One Beneficiary with 180 Months guaranteed	7	39,195	143,422
C75WSS	75% Continued to One Beneficiary and Social Security Integrated	27	147,392	829,021
R25W120	Reduced 25% on Death of Annuitant or Named Survivor with 120 Months guaranteed	5	44,294	134,724
A60WSS	Life with 60 Months Guaranteed and Social Security Integrated	49	132,039	460,981
A180WSS	Life with 180 Months Guaranteed and Social Security Integrated	24	111,978	454,429
SLNSD	Straight Life - Named Survivor Deceased	103	1,098,234	9,925,644
Total Regular		38,217	\$297,628,900	\$3,099,905,307

(concluded on next page)

In cases where an individual is receiving more than one annuity, the person only appears once in the above number counts, but the corresponding annual amounts can show up in several different places, depending on the option elected for the different annuities. This can result in, for example, a number count of zero (or a very low number count) combined with a significant annual dollar amount in the above table.

VARIABLE ANNUITIES BEING PAID DECEMBER 31, 2012 TABULATED BY TYPE OF ANNUITY AND OPTION

Numeric Code	Alpha Code	Type of Benefit	Number	Annual Amount	Present Value
DISABILITY RETIREMENT					
1	SL	Straight Life	153	\$ 537,177	\$ 4,125,300
3	A60	Life Annuity with 60 payments guaranteed	80	401,866	3,608,369
7	A180	Life Annuity with 180 payments guaranteed	242	942,140	9,134,037
10	JOINT	Joint and 75% Survivor	119	624,023	6,575,001
12	R25	Reduced 25% on First Death	59	288,767	2,856,426
14	C100	100% Continued to Named Survivor	249	1,037,286	10,552,364
16	C180	100% Continued to Named Survivor with 180 payments guaranteed	384	1,528,610	18,351,636
30	DWSMC	Disability with Spouse or Minor/Dependent Child	4	13,731	51,216
35	SLNSD	Straight Life - Named Survivor Deceased	1	9,676	66,345
Total Disability			1,291	\$ 5,383,276	\$ 55,320,694
DEATH-IN-SERVICE BENEFITS					
1	SL	Straight Life	61	\$ 355,197	\$ 3,305,641
2	SL	Straight Life (accelerated)	0	511	4,444
3	A60	Life Annuity with 60 payments guaranteed	36	198,129	1,764,728
4	A60	Life Annuity with 60 payments guaranteed (accelerated)	0	5,373	2,835
7	A180	Life Annuity with 180 payments guaranteed	243	905,607	8,953,033
8	A180	Life Annuity with 180 payments guaranteed (accelerated)	0	54,389	211,601
18	LOL	Life with Optional Length Guaranteed	3	15,801	27,407
23	AC180	Annuity Certain between 24 and 180 Payments	3	9,056	13,786
28	A60WSS	Life with 60 Months Guaranteed and Social Security Integrated	19	10,558	46,732
Total Death-in-Service			365	\$ 1,554,621	\$ 14,330,206
GRAND TOTAL			39,873	\$ 304,566,797	\$ 3,169,556,207

In cases where an individual is receiving more than one annuity, the person only appears once in the above number counts, but the corresponding annual amounts can show up in several different places, depending on the option elected for the different annuities. This can result in, for example, a number count of zero (or a very low number count) combined with a significant annual dollar amount in the above table.

VARIABLE ANNUITIES BEING PAID DECEMBER 31, 2012
TABULATED BY ATTAINED AGES

Attained Ages	Regular		Disability		Death-in-Service		Totals	
	No.	Annual Amount	No.	Annual Amount	No.	Annual Amount	No.	Annual Amount
20-24	0	\$ 0	1	\$ 697	2	\$ 655	3	\$ 1,352
25-29	0	0	6	2,455	3	332	9	2,787
30-34	0	0	4	1,236	5	3,643	9	4,879
35-39	1	382	3	1,511	4	3,904	8	5,797
40-44	2	17,608	14	49,080	10	16,548	26	83,236
45-49	30	69,026	43	37,734	12	11,248	85	118,008
50-54	354	911,628	95	134,534	23	52,969	472	1,099,131
55-59	4,003	16,905,700	223	495,773	37	140,039	4,263	17,541,512
60-64	8,727	48,012,835	215	740,773	54	154,032	8,996	48,907,640
65-69	8,665	65,526,910	216	1,257,796	48	213,211	8,929	66,997,917
70-74	5,164	52,102,970	167	1,098,352	39	287,246	5,370	53,488,568
75-79	3,925	43,243,440	137	747,444	26	117,144	4,088	44,108,028
80-84	3,390	35,673,890	94	479,565	27	160,395	3,511	36,313,850
85-89	2,270	21,908,251	52	240,776	35	172,521	2,357	22,321,548
90-94	1,121	9,265,810	18	78,700	17	104,866	1,156	9,449,376
95& Up	306	2,382,863	3	16,850	9	41,854	318	2,441,567
Certain Only*	259	1,607,587	0	0	14	74,014	273	1,681,601
Totals	38,217	\$297,628,900	1,291	\$5,383,276	365	\$1,554,621	39,873	\$304,566,797

Averages in Years

Age at retirement	59.0	52.6	51.4	58.8
Attained age	68.6	65.9	67.9	68.5

* Certain only category consists of continuations of 5, 10 and 15-year certain and life annuities to beneficiaries of deceased annuitants.

SECTION D
COMPARATIVE STATEMENTS

**CORE ANNUITIES
COMPARATIVE STATEMENT
1983 THROUGH 2012**

Valuation Date	Number	\$ Millions				Change in		
		Annual Annuities	Fund Balance	Actuarial Reserve	Ratio	Annuities		CPI*
						Average	Maximum	
1983	57,770	\$ 177.7	\$ 1,830.3	\$ 1,738.3	1.053	5.0 %		3.8 %
1984	60,302	214.3	2,255.5	2,120.3	1.064	6.0 %		4.0 %
1985	62,953	257.6	2,758.2	2,561.0	1.077	7.2 %		3.8 %
1986	65,425	303.5	3,256.9	3,021.2	1.078	7.6 %		1.1 %
1987	67,688	366.9	3,833.7	3,594.6	1.067	6.7 %		4.4 %
1988	70,017	420.6	4,319.6	4,150.9	1.041	4.1 %		4.4 %
1989	73,232	488.7	5,487.4	4,928.1	1.113	11.3 %		4.6 %
1990	77,666	611.3	6,443.8	6,219.1	1.036	3.6 %		6.2 %
1991	79,465	660.4	7,137.8	6,711.3	1.063	6.3 %		3.0 %
1992	81,508	732.3	7,782.4	7,456.6	1.044	4.4 %		3.0 %
1993	83,836	801.7	8,608.2	8,205.3	1.049	4.9 %		2.7 %
1994	86,214	882.2	9,286.2	9,029.6	1.028	2.8 %		2.7 %
1995	88,998	955.8	10,351.7	9,804.1	1.056	5.6 %		2.6 %
1996	92,198	1,065.8	11,699.8	10,977.1	1.066	6.6 %		3.3 %
1997	95,128	1,188.4	13,185.1	12,240.4	1.077	7.7 %		1.7 %
1998	99,112	1,349.5	14,951.8	13,943.0	1.072	7.2 %		1.6 %
1999	102,817	1,513.8	16,857.8	15,687.2	1.075	17.1 %	**	2.7 %
2000	107,425	1,867.0	20,517.8	19,405.3	1.057	5.7 %		3.4 %
2001	112,142	2,048.6	21,979.7	21,283.6	1.033	3.3 %		1.6 %
2002	116,289	2,226.6	23,142.4	23,202.9	0.997	0.0 %		2.4 %
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)%	(10.0)%	1.7 %
30-Year Average						4.1 %		2.9 %
10-Year Average						0.3 %		2.4 %

* CPI percentage increase determined by ratio of current year CPI-U67 December index over prior year December index.

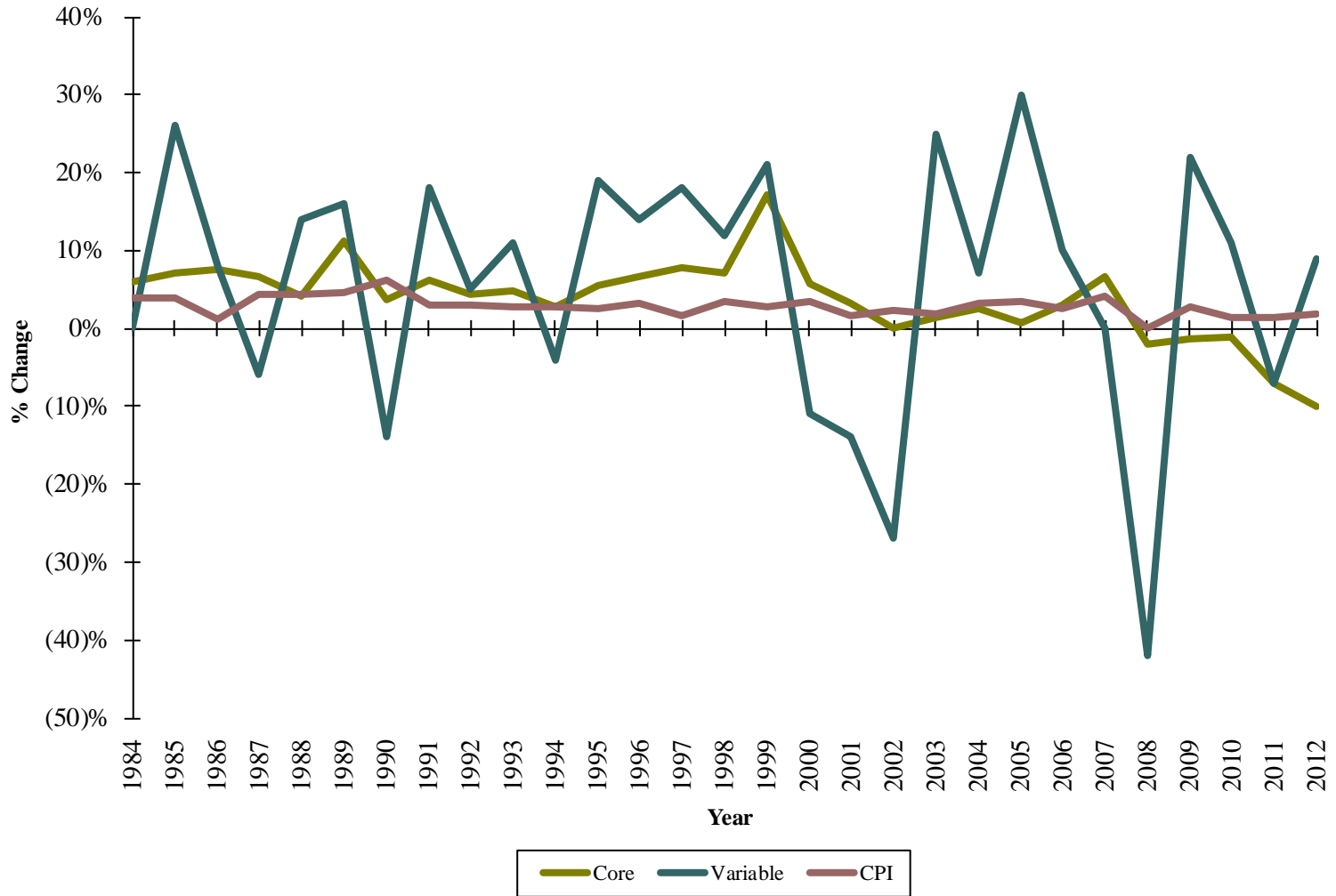
** Including 10.6% Act 11 transfer.

**VARIABLE ANNUITIES
COMPARATIVE STATEMENT
1983 THROUGH 2012**

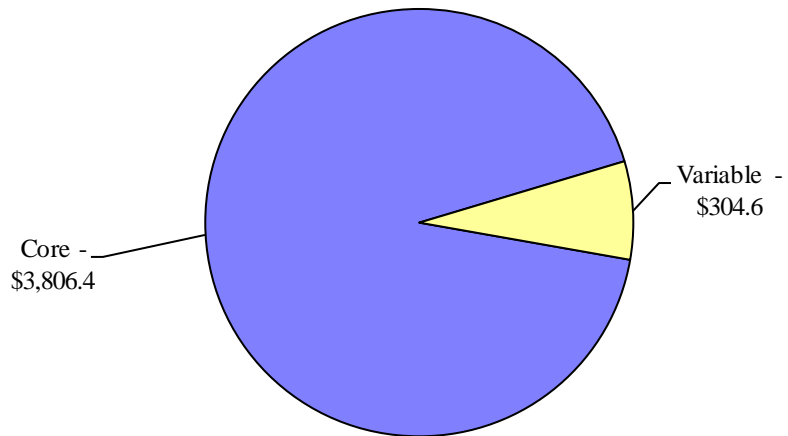
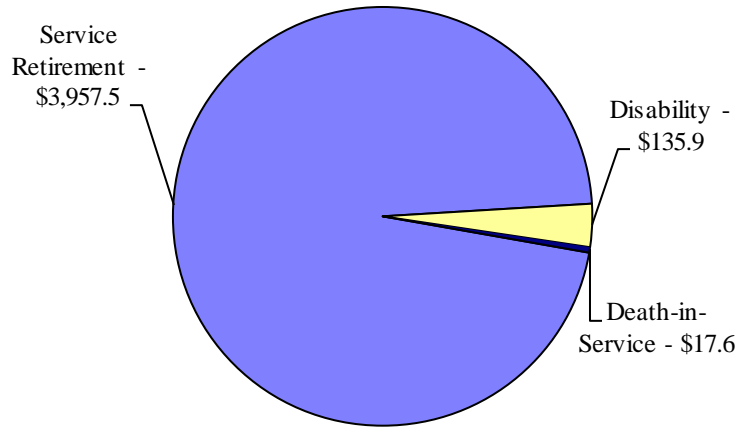
Valuation Date	Number	\$ Millions				Change in	
		Annual Annuities	Fund Balance	Actuarial Reserve	Ratio	Annuities	CPI*
1983	13,598	\$ 25.9	\$ 289.4	\$ 245.0	1.181	18.0 %	3.8 %
1984	14,520	34.2	329.2	327.5	1.005	0.0 %	4.0 %
1985	15,529	38.0	463.1	366.6	1.263	26.0 %	3.8 %
1986	16,276	51.8	538.7	498.6	1.080	8.0 %	1.1 %
1987	17,084	60.4	548.8	584.2	0.939	(6.0)%	4.4 %
1988	17,779	61.4	682.6	594.0	1.149	14.0 %	4.4 %
1989	18,502	75.9	878.1	756.5	1.161	16.0 %	4.6 %
1990	19,922	101.0	868.6	1,013.4	0.857	(14.0)%	6.2 %
1991	20,538	91.5	1,101.3	929.7	1.184	18.0 %	3.0 %
1992	20,968	112.6	1,208.6	1,147.4	1.053	5.0 %	3.0 %
1993	21,623	123.7	1,407.9	1,268.6	1.110	11.0 %	2.7 %
1994	22,248	144.6	1,418.0	1,487.0	0.954	(4.0)%	2.7 %
1995	22,978	150.2	1,854.2	1,556.0	1.192	19.0 %	2.6 %
1996	23,725	189.8	2,264.9	1,976.7	1.146	14.0 %	3.3 %
1997	24,462	228.2	2,800.0	2,371.5	1.181	18.0 %	1.7 %
1998	25,424	289.5	3,400.5	3,035.5	1.120	12.0 %	1.6 %
1999	26,257	345.8	4,432.9	3,659.1	1.212	21.0 %	2.7 %
2000	27,321	445.3	4,211.4	4,749.3	0.887	(11.0)%	3.4 %
2001	28,314	424.4	3,901.8	4,547.4	0.858	(14.0)%	1.6 %
2002	28,662	374.0	2,899.3	3,999.1	0.726	(27.0)%	2.4 %
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 %
30-Year Average						4.1 %	2.9 %
10-Year Average						1.9 %	2.4 %

* *CPI percentage increase determined by ratio of current year CPI-U67 December index over prior year December index.*

HISTORY OF % CHANGES IN ANNUITIES AND CPI



ANNUITIES BEING PAID BY TYPE
DECEMBER 31, 2012
\$ MILLIONS



ANNUITIES BEING PAID DECEMBER 31, 2012
TABULATED BY YEAR OF RETIREMENT
(\$1,000S ANNUALLY)

Year Ret'd	Core Annuities				Variable Annuities				Avg. Total Annuity
	No.	Initial	Increases	Total	No.	Initial	Increases	Total	
2012	8,593	\$ 212,534	\$ 0	\$ 212,534	2,230	\$ 9,788	\$ 0	\$ 9,788	\$30,072
2011	15,364	446,427	0	446,427	4,154	24,234	(1,696)	22,538	36,191
2010	8,433	218,755	0	218,755	2,038	9,213	297	9,510	31,265
2009	7,965	207,363	0	207,363	1,678	5,952	1,545	7,497	30,888
2008	8,643	220,456	0	220,456	1,972	15,069	(4,057)	11,012	27,490
2007	8,504	198,096	0	198,096	2,066	15,373	(4,144)	11,229	24,676
2006	8,228	176,784	0	176,784	1,903	14,615	(2,872)	11,743	22,941
2005	8,232	164,555	8	164,563	1,925	14,962	(2,578)	12,384	21,542
2004	7,417	140,134	174	140,308	1,769	13,397	(1,533)	11,864	20,525
2003	7,512	141,591	2,218	143,809	1,647	11,144	1,192	12,336	20,825
2002	7,096	128,159	2,755	130,914	1,452	15,048	(2,883)	12,165	20,175
2001	7,161	128,542	5,009	133,551	1,544	23,770	(7,247)	16,523	20,995
2000	7,258	125,842	10,794	136,636	1,361	27,103	(10,339)	16,764	21,200
1999	6,131	92,664	23,742	116,406	1,143	18,508	(4,658)	13,850	21,270
1998	6,024	85,664	29,231	114,895	1,171	16,653	(2,695)	13,958	21,486
1997	4,971	69,085	30,430	99,515	981	11,870	(133)	11,737	22,457
1996	4,921	66,873	36,132	103,005	990	10,390	1,311	11,701	23,405
1995	4,432	58,300	36,485	94,785	880	7,586	2,579	10,165	23,728
1994	4,007	50,076	34,495	84,571	898	7,640	2,202	9,842	23,639
1993	3,684	43,279	32,661	75,940	817	5,732	2,457	8,189	22,892
1992	3,150	35,086	29,327	64,413	699	4,802	2,407	7,209	22,831
1991	2,869	30,264	28,293	58,557	674	3,701	2,835	6,536	22,880
1990	4,589	51,438	52,210	103,648	1,098	6,910	3,618	10,528	24,995
1989	3,449	38,007	44,391	82,398	770	4,173	3,200	7,373	26,172
1988	2,607	22,639	30,128	52,767	641	2,762	2,802	5,564	22,444
1987	2,230	18,030	26,871	44,901	587	2,394	2,142	4,536	22,330
1986	2,009	15,577	26,541	42,118	544	2,109	2,204	4,313	23,227
1985	1,779	13,929	26,552	40,481	464	1,325	2,086	3,411	24,925
1984	1,356	9,678	20,191	29,869	403	1,133	1,787	2,920	24,271
1983	1,130	6,253	13,877	20,130	333	780	1,585	2,365	20,014
1982	844	3,708	9,207	12,915	223	408	1,019	1,427	17,014
1981	752	2,793	7,509	10,302	199	305	753	1,058	15,065
1980	520	1,707	4,810	6,517	143	180	583	763	14,000
1979	369	1,203	3,592	4,795	98	93	341	434	14,168
1978	301	807	2,522	3,329	80	62	245	307	12,157
1977	252	692	2,184	2,876	91	78	294	372	12,889
1976	224	539	1,789	2,328	59	39	153	192	11,247
1975	161	340	1,121	1,461	50	37	170	207	10,490
1974	120	263	868	1,131	34	22	92	114	10,378
1973	80	165	499	664	23	11	41	52	8,960
Prior	288	323	1,112	1,435	41	19	72	91	3,655
Total	173,655	\$3,228,620	\$577,728	\$3,806,348	39,873	\$309,390	\$ (4,823)	\$304,567	\$23,673

**COMPARISON OF ACTUAL TO EXPECTED DEATHS AMONG RETIRED LIVES
(NORMAL RETIREMENT ONLY)
DURING 2012**

Age	Male Deaths			Female Deaths			Total Deaths		
	Actual	Expected	Exposure	Actual	Expected	Exposure	Actual	Expected	Exposure
30-34									
35-39						2			2
40-44			1			12			13
45-49			4	1		60	1		64
50-54	1	2	783	6	1	554	7	3	1,337
55-59	25	32	6,348	42	26	8,386	67	58	14,734
60-64	92	96	14,304	79	85	20,073	171	181	34,377
65-69	161	175	16,165	125	133	20,180	286	308	36,345
70-74	222	209	11,748	167	168	14,451	389	377	26,199
75-79	291	279	8,964	296	235	11,024	587	514	19,988
80-84	401	382	6,584	367	360	8,821	768	742	15,405
85-89	390	387	3,687	489	474	5,941	879	861	9,628
90-94	256	229	1,315	444	436	3,181	700	665	4,496
95-99	80	77	259	214	220	935	294	297	1,194
100 & Up	10	9	26	52	46	151	62	55	177
Totals	1,929	1,877	70,188	2,282	2,184	93,771	4,211	4,061	163,959
Average Ages	80.6	80.2	70.1	83.4	83.7	70.7	82.1	82.1	70.5

SECTION E
APPENDIX

ACTUARIAL ASSUMPTIONS USED IN THE RETIRED LIFE ACTUARIAL VALUATION

The interest rate used in the valuation was 5.0% a year, compounded yearly, as provided in Section 40.02 of the Wisconsin Statutes. Please note that we have assumed all current dividends to be payable in the future. To the extent that unfavorable investment performance reduces current dividends, liabilities would be lower than reported in this valuation. The mortality table used in the valuation was the Wisconsin 2012 Mortality Table, as adopted by the Board in connection with the 2009-2011 Experience Study. This table includes margin for future improvements in mortality. Present values are multiplied by 0.993, 0.996 and 1.000 during the 3 respective years of the experience study cycle. Please note that this method is new this year and replaces the prior method of adding a gradually increasing reserve to each year's liabilities. This is the first year of the experience study cycle and consequently a factor of 0.993 is used.

SINGLE LIFE RETIREMENT VALUES Wisconsin Projected Experience Table - 2012 with 5% Interest

Sample Attained Ages	Present Value of \$1 Monthly for Life		Future Life Expectancy (years)		Probability of Death Next Year	
	Males	Females	Males	Females	Males	Females
40	\$209.20	\$214.70	42.9	46.1	0.098%	0.060%
45	200.43	207.06	38.1	41.3	0.130%	0.094%
50	189.60	197.69	33.3	36.5	0.176%	0.139%
55	176.75	186.37	28.7	31.8	0.405%	0.245%
60	162.35	172.92	24.4	27.2	0.572%	0.352%
65	145.13	156.75	20.1	22.7	0.875%	0.541%
70	125.71	137.76	16.1	18.4	1.451%	0.919%
75	104.34	116.43	12.4	14.3	2.468%	1.665%
80	82.05	93.57	9.0	10.7	4.536%	3.110%
85	61.28	70.89	6.3	7.6	8.463%	6.219%

The values shown above are for non-disabled participants. Sample values for disabled participants are as follows:

Sample Attained Ages	Present Value of \$1 Monthly for Life		Future Life Expectancy (years)		Probability of Death Next Year	
	Males	Females	Males	Females	Males	Females
40	\$195.27	\$204.53	35.7	39.9	0.149%	0.103%
45	183.23	194.56	30.9	35.1	0.251%	0.158%
50	169.52	182.61	26.4	30.4	0.498%	0.275%
55	153.66	168.39	22.1	25.8	0.665%	0.402%
60	135.14	151.44	18.0	21.4	1.162%	0.629%
65	114.76	131.73	14.1	17.2	1.908%	1.097%
70	92.83	109.91	10.6	13.2	3.324%	1.995%
75	71.03	86.92	7.6	9.7	6.330%	3.754%
80	52.06	64.92	5.2	6.8	11.650%	7.641%
85	36.73	47.23	3.5	4.7	18.779%	13.173%

POST-RETIREMENT ADJUSTMENTS

CORE ANNUITIES - 40.27(2)

“CORE ANNUITY RESERVE SURPLUS DISTRIBUTIONS. Surpluses in the core annuity reserve established under s. 40.04(6) and (7) shall be distributed by the board if the distribution will result in at least a 0.5% increase in the amount of annuities in force, on recommendation of the actuary, as follows:

(a) The distributions shall be expressed as percentage increases in the amount of the monthly annuity in force, including prior distributions of surpluses but not including any amount paid from funds other than the core annuity reserve fund, preceding the effective date of the distribution. For purposes of this subsection, annuities in force include any disability annuity suspended because the earnings limitation had been exceeded by that annuitant in that year.

(b) Prorated percentages based on the annuity effective date may be applied to annuities with effective dates during the calendar year preceding the effective date of the distribution, as provided by rule, but no other distinction may be made among the various types of annuities payable from the core annuity reserve.

(c) The distributions shall not be offset against any other benefit being received but shall be paid in full, nor shall any other benefit being received be reduced by the distributions. The annuity reserve surplus distributions authorized under this subsection may be revoked by the board in part or in total as to future payments upon recommendation of the actuary if a deficit occurs in the core annuity reserves.”

VARIABLE ANNUITIES - 40.28(2)

“Whenever the balance in the variable annuity reserve, as of December 31 of any year, exceeds or is less than the then present value of all variable annuities in force, determined in accordance with the rate of interest and approved actuarial tables then in effect, by at least 2% of the present value of all variable annuities in force, the amount of each variable annuity payment shall be proportionately increased or decreased, disregarding fractional percentages, and effective on a date determined by rule, so as to reduce the variance between the balance of the variable annuity reserve and the present value of variable annuities to less than one percent.”

NARRATIVE REGARDING THE DEVELOPMENT OF DIVIDEND AND VARIABLE ANNUITY CHANGES SHOWN ON PAGES 7 AND 17

1. SWIB Published Investment Return

The earnings rate published by State of Wisconsin Investment Board on the Core/Variable Fund.

2. Adjustment to Relate Earnings to Averaged Core/Variable Annuity Balance

Item 3 below minus Item 1 above. For core annuities, this is the MRA adjustment which takes into account five-year smoothing of gains and losses. For variable annuities, it converts a figure based on an average balance to a figure based on a beginning year balance.

3. Published Earnings Rate

The earnings rate published by DETF is funds' earnings credits expressed as a percentage of the beginning year balance adjusted for benefit payments and reserve transfers.

4. Adjustment to Relate Earnings to Averaged Core Annuity Balance

Item 5 below minus Item 3 above.

5. Earnings Rate Based on Average Balance

This is similar to the published earnings rate except that the rate is determined as a percentage of the average balance during the year instead of the adjusted beginning of year balance.

6. Expected Dividend (Variable Change) before Adjustments

The relative difference in fund growth based on actual versus the 5% assumed earnings rates.

7. Adjustment to Relate Average Asset to Ending Liability

The final dividend/variable change is calculated based on the end of year assets divided by the end of year liabilities. Since the calculations in Items 5 and 6 are based on average (approximately mid-year) balances, this adjustment is needed so that the final rate will be based on the end of year liabilities.

8. Carryover from Last Year Due to Timing of Distribution and Accounting Adjustments (and Truncation for Variable Annuity)

The dividend or variable rate changes are made effective April 1 of each year. This adjustment takes into account the fact that the prior year dividend/variable increase was in effect for less than a full year as well as any accounting adjustments made to the asset value at the beginning of the year. This adjustment also carries over any truncated or rounded amounts from the prior year.

NARRATIVE REGARDING THE DEVELOPMENT OF DIVIDEND AND VARIABLE ANNUITY CHANGES SHOWN ON PAGES 7 AND 17

9. Adjustments to Contingency Reserve and Data Reserve

Currently there is a reserve for incomplete data for the dividend calculation of 0.1%. Although the mortality table now includes a projection for expected future improvements in mortality, each valuation phases into the full table incrementally over the three year experience study cycle. The current process will create an increase in the contingency reserve of approximately 0.3% each year of the three year cycle. By increasing reserves gradually each year, instead of all at once every three years, the effect on dividends and variable increases will also be more gradual.

10. Experience Study

A study is conducted for WRS every three years to analyze the assumptions that are made in the valuation versus the experience that actually occurred. If the results of the study show material changes in experience, WRS generally adopts a new set of assumptions. When assumptions are changed, this item displays the effect of the change on the dividend/variable rate calculation.

11. Experience and Other Effects

After making all other known adjustments, this is the remainder of all other experience. Changes here are primarily attributable to mortality experience and, generally to a lesser extent, on any data adjustments.

12. Statutory Adjustment to Round/Truncate

By statute, the dividend rate is calculated to the nearest one-tenth of a percent. For the variable annuity change, the rate is truncated to a whole percent. This is the adjustment made from the calculated dividend/variable annuity rate change without rounding/truncation to the statutory rate.

13. Computed Dividend Rate/Variable Annuity Change.

This is the end of year asset value divided by the end of year liability. It is reconciled to the published earnings rate (Item 3) by making the adjustments in Items 6 through 12.

14. Adjustment for Members Not Eligible for Negative Dividend.

This is an adjustment that is sometimes made for Core Fund recipients to reflect that some members may not have any remaining dividends and hence are not subject to a further negative dividend.

15. Computed Dividend Rate.

When there is a negative dividend, it will affect people differently based upon year of retirement. In years when there is a negative dividend, this will be the largest negative dividend that will occur.

February 25, 2013

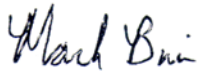
Mr. Robert Conlin
Wisconsin Department of Employee Trust Funds
801 W. Badger Road
Madison, Wisconsin 53713-2526

Re: Retired Life Actuarial Valuation

Dear Bob:

Enclosed are 60 bound copies of the report of the December 31, 2012 Retired Lives Actuarial Valuation.

Sincerely,

A handwritten signature in black ink that reads "Mark Buis". The signature is written in a cursive style.

Mark Buis, FSA, EA, MAAA

MB:bd
Enclosures