Gabriel Roeder Smith & Company
Consultants & Actuaries

WISCONSIN RETIREMENT SYSTEM

THIRTY-FIRST ANNUAL ACTUARIAL VALUATION

DECEMBER 31, 2011

Outline of Contents

GRS Gabriel Roeder Smith & Company
Consultants & Actuaries
One Towne Square
Suite 800
Southfield, MI 48076-3723
248.799.9000 phone
248.799.9020 fax
www.gabrielroeder.com

September 10, 2012

Employee Trust Funds Board
Wisconsin Department of Employee
Trust Funds
801 West Badger Road
Madison, Wisconsin 53713

Ladies and Gentlemen:

The results of the **December 31, 2011 annual actuarial valuations of non-retired members covered by the Wisconsin Retirement System** are presented in this report. The valuations establish contribution rates for the 2013 calendar year in conformance with Chapter 40 of the Wisconsin Statutes. The change in the normal cost rates from last year are shown below:

General	Executive	Protective With SS	Protective Without SS
1.5%	-0.1%	1.5%	1.8%

The valuations are based upon all current plan provisions related to General, Executive and Elected, and Protective Occupation employment with and without Social Security coverage. The provisions evaluated are summarized in Section One of this report.

The individual member statistical data required for the valuations was furnished by the Department of Employee Trust Funds, together with pertinent data on financial operations. The cooperation of DETF staff in furnishing these materials is acknowledged with appreciation.

Actuarial valuations are based upon assumptions regarding future activity in specific risk areas including the rates of investment return and payroll growth, eligibility for the various classes of benefits, and longevity among retired lives. The Board adopts these assumptions after considering the advice of the actuary and other professionals. The assumptions and the methods comply with the requirements of Statement No. 25 of the Governmental Accounting Standards Board. Each actuarial valuation takes into account all prior differences between actual and assumed experience in each risk area and adjusts the contribution rates as needed. The December 31, 2011 valuations were based upon assumptions that were recommended in connection with a study of experience covering the 2006-2008 period and the 2011 Economic Assumption Study and benefit provisions in effect on December 31, 2010.

To the best of our knowledge, this report is complete and accurate and was made in accordance with generally recognized actuarial methods. The actuaries submitting this statement are Members of the American Academy of Actuaries (MAAA), and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

The valuations were completed by qualified actuaries in accordance with accepted actuarial procedures as prescribed by the Actuarial Standards Board. It is our opinion that the Wisconsin Retirement System is operating in accordance with actuarial principles of level percent-of-payroll financing.

Respectfully submitted,

Brian B. Murphy

Brian B. Murphy, FSA, EA, MAAA

Mark Buis

Mark Buis, FSA, EA, MAAA

BBM/MB:sc

SECTION ONE

ACTUARIAL VALUATION RESULTS

Overview

COMPARATIVE SUMMARY OF VALUATION RESULTS
CONTRIBUTION RATES FOR INDICATED YEARS
EXPRESSED AS A % OF PARTICIPANT PAYROLL

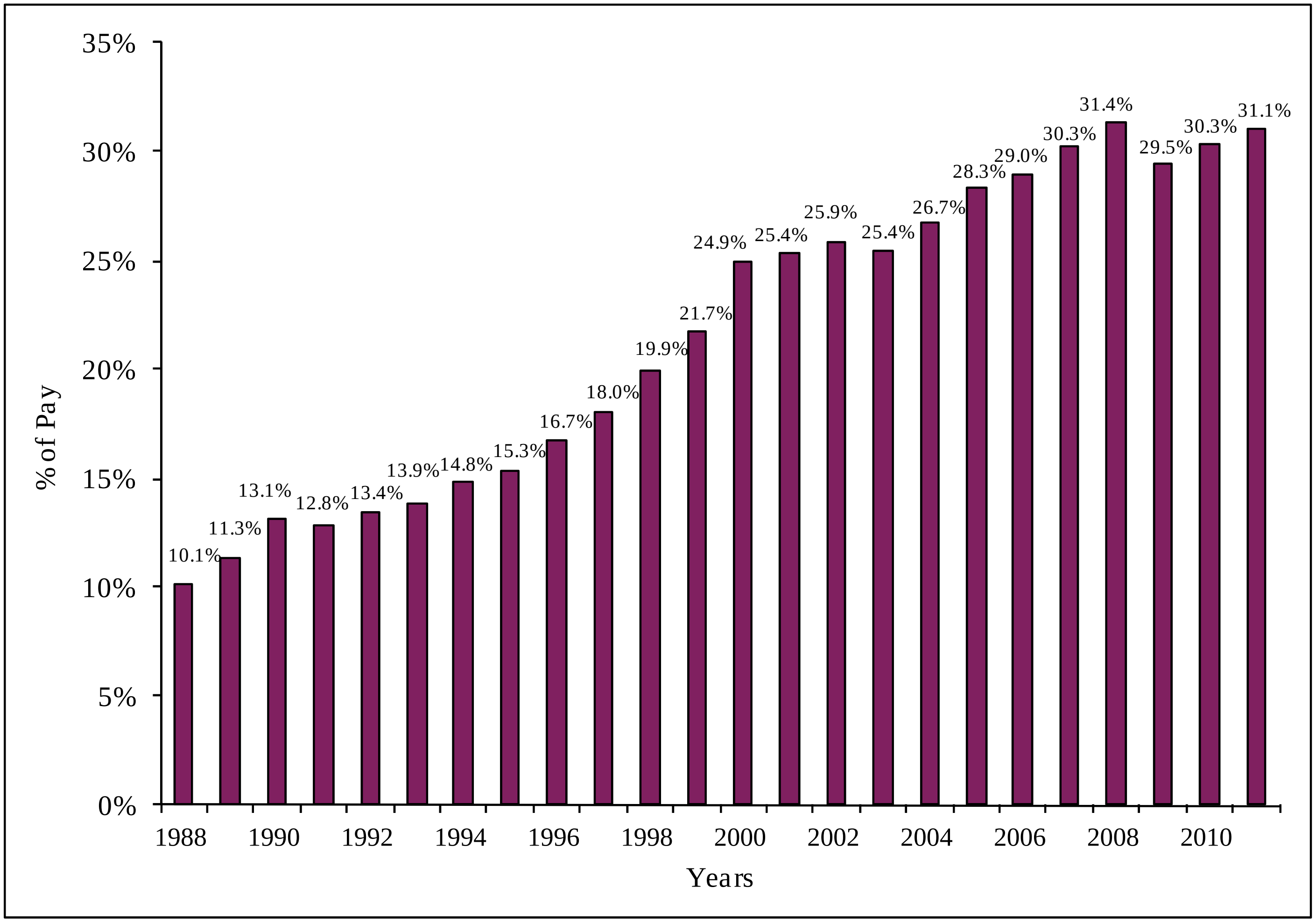
	General Participants		Executives & Elected Officials		Protective Occupation With Soc. Sec.		Protective Occupation Without Soc. Sec.	
	2013	2012	2013	2012	2013	2012	2013	2012
Employer Normal Cost	6.65%	5.20%	7.00%	9.80%	9.75%	9.00%	12.35%	12.30%
Benefit Adjustment Contribution	N/A	1.60%	N/A	0.00%	N/A	0.00%	N/A	0.00%
Participant Normal Cost *	6.65%	5.00%	7.00%	4.30%	6.65%	5.90%	6.65%	4.90%
Total Normal Cost	13.3%	11.8%	14.0%	14.1%	16.4%	14.9%	19.0%	17.2%
Unfunded Actuarial Accrued Liability (UAAL)	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.3%	0.3%
WRS Average Total	**13.4%**	**11.9%**	**14.0%**	**14.1%**	**16.4%**	**14.9%**	**19.3%**	**17.5%**

** Prior to July 1, 2011 the participant normal cost was paid by the employer in the majority of cases.*

Under Section 40.05 of the Wisconsin statutes updated for Act 10 and 32 of 2011, contribution rates are now split evenly between the employer normal cost and the participant normal cost for both General Participants and Executive and Elected Officials. Whereas, in the past, the common practice was for the employer to make the entire contribution. Accordingly, although it appears that the employer normal cost is increasing for General participants, it most cases it is actually going down. For protective occupations, the participant normal cost is set equal to the participant normal cost for General Participants. Act 10 of 2011 eliminated the benefit adjustment contribution.

Rates shown for UAAL are weighted averages of rates that vary by employer units. In addition to the WRS rates shown above are contributions to support the Section 40.65 Duty Disability Program and the Accumulated Sick Leave Conversion Credit Program.

TOTAL ANNUITIES AS A % OF PAYROLL



Annuities are expected to continue to increase as a percent of payroll for several more decades. By pursuing the level percent-of-payroll objective, the future increase in the payout percent is expected to be paid from income generated by retirement system assets.

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COMPARATIVE STATEMENT OF COMPUTED CONTRIBUTION RATES

Valuation 12/31	Rate Effective 1/1	General				Executive and Elected			
		Participant	Benefit Adj. Contr.	Employer [1]	Total	Participant	Benefit Adj. Contr.	Employer [1]	Total
1987	1989	5.0 %	1.0 %	6.0 %	12.0 %	5.5 %		11.9 %	17.4 %
1988	1990	5.0 %	1.0 %	6.0 %	12.0 %	5.5 %		11.9 %	17.4 %
1989 [2]	1991	5.0 %	1.1 %	6.1 %	12.2 %	5.5 %	0.1 %	12.0 %	17.6 %
1990	1992	5.0 %	1.2 %	6.2 %	12.4 %	5.5 %	0.1 %	12.0 %	17.6 %
1991	1993	5.0 %	1.2 %	6.2 %	12.4 %	5.5 %	0.1 %	12.0 %	17.6 %
1992	1994	5.0 %	1.2 %	6.1 %	12.3 %	5.5 %	0.1 %	12.0 %	17.6 %
1993	1995	5.0 %	1.2 %	6.1 %	12.3 %	5.5 %	0.1 %	12.0 %	17.6 %
1994	1996	5.0 %	1.5 %	6.4 %	12.9 %	4.6 %	0.0 %	11.1 %	15.7 %
1995	1997	5.0 %	1.4 %	6.3 %	12.7 %	4.7 %	0.0 %	11.2 %	15.9 %
1996	1998	5.0 %	1.2 %	6.1 %	12.3 %	4.7 %	0.0 %	11.2 %	15.9 %
1997	1999	5.0 %	0.8 %	5.8 %	11.6 %	4.3 %	0.0 %	10.8 %	15.1 %
1998	2000	5.0 %	0.5 %	5.5 %	11.0 %	4.1 %	0.0 %	10.6 %	14.7 %
1999	2001	5.0 %	0.2 %	5.1 %	10.3 %	3.9 %	0.0 %	10.4 %	14.3 %
2000	2002	5.0 %	0.2 %	5.1 %	10.3 %	3.1 %	0.0 %	9.6 %	12.7 %
2001 [3]	2003	5.0 %	0.4 %	5.2 %	10.6 %	2.6 %	0.0 %	9.1 %	11.7 %
2002	2004	5.0 %	0.6 %	5.2 %	10.8 %	2.6 %	0.0 %	8.9 %	11.5 %
2003	2005	5.0 %	0.8 %	4.7 %	10.5 %	2.8 %	0.0 %	8.4 %	11.2 %
2004	2006	5.0 %	0.9 %	4.7 %	10.6 %	2.9 %	0.0 %	8.5 %	11.4 %
2005	2007	5.0 %	1.0 %	4.8 %	10.8 %	3.0 %	0.0 %	8.6 %	11.6 %
2006	2008	5.0 %	1.0 %	4.8 %	10.8 %	3.0 %	0.0 %	8.6 %	11.6 %
2007	2009	5.0 %	0.9 %	4.7 %	10.6 %	3.0 %	0.0 %	8.5 %	11.5 %
2008	2010	5.0 %	1.2 %	5.0 %	11.2 %	3.2 %	0.0 %	8.7 %	11.9 %
2009	2011	5.0 %	1.5 %	5.2 %	11.7 %	3.9 %	0.0 %	9.4 %	13.3 %
2010	2012	5.0 %	1.6 %	5.3 %	11.9 %	4.3 %	0.0 %	9.8 %	14.1 %
2011 [4]	2013	6.65 %	N/A	6.75 %	13.4 %	7.00 %	N/A	7.00 %	14.0 %

1 *Employer normal cost plus weighted average of unfunded actuarial accrued liability contribution rates.*
2 *Benefit change.*
3 *Act 11 of 1999 was implemented in 2001.*
4 *Act 10 and Act 32 were implemented in 2011.*

COMPARATIVE STATEMENT OF COMPUTED CONTRIBUTION RATES

Valuation 12/31	Rate Effective 1/1	Protective With Social Security				Protective Without Social Security			
		Participant	Benefit Adj. Contr.	Employer [1]	Total	Participant	Benefit Adj. Contr.	Employer [1]	Total
1987	1989	6.0 %	1.0 %	11.3 %	18.3 %	8.0 %		16.9 %	24.9 %
1988	1990	6.0 %	0.9 %	11.2 %	18.1 %	8.0 %		16.9 %	24.9 %
1989 [2]	1991	6.0 %	0.7 %	10.9 %	17.6 %	7.5 %		16.4 %	23.9 %
1990	1992	6.0 %	0.7 %	10.9 %	17.6 %	7.5 %		16.4 %	23.9 %
1991	1993	6.0 %	0.6 %	10.7 %	17.3 %	7.5 %		16.4 %	23.9 %
1992	1994	6.0 %	0.6 %	10.7 %	17.3 %	7.5 %		16.3 %	23.8 %
1993	1995	6.0 %	0.5 %	10.6 %	17.1 %	7.2 %		16.0 %	23.2 %
1994	1996	6.0 %	0.1 %	10.2 %	16.3 %	6.8 %		15.7 %	22.5 %
1995	1997	5.8 %	0.0 %	9.8 %	15.6 %	6.2 %		15.1 %	21.3 %
1996	1998	5.4 %	0.0 %	9.4 %	14.8 %	5.8 %		14.6 %	20.4 %
1997	1999	4.9 %	0.0 %	8.9 %	13.8 %	5.4 %		14.3 %	19.7 %
1998	2000	4.1 %	0.0 %	8.0 %	12.1 %	4.4 %		13.3 %	17.7 %
1999	2001	3.8 %	0.0 %	7.6 %	11.4 %	3.3 %		12.2 %	15.5 %
2000	2002	4.0 %	0.0 %	7.8 %	11.8 %	3.0 %		11.9 %	14.9 %
2001 [3]	2003	4.0 %	0.0 %	7.7 %	11.7 %	2.4 %		11.3 %	13.7 %
2002	2004	4.5 %	0.0 %	8.0 %	12.5 %	3.2 %		11.8 %	15.0 %
2003	2005	4.9 %	0.0 %	8.1 %	13.0 %	3.3 %		11.3 %	14.6 %
2004	2006	5.0 %	0.0 %	8.2 %	13.2 %	3.3 %		11.1 %	14.4 %
2005	2007	5.1 %	0.0 %	8.3 %	13.4 %	3.4 %		11.2 %	14.6 %
2006	2008	5.1 %	0.0 %	8.3 %	13.4 %	3.4 %		11.2 %	14.6 %
2007	2009	5.0 %	0.0 %	8.2 %	13.2 %	3.2 %		10.9 %	14.1 %
2008	2010	5.5 %	0.0 %	8.6 %	14.1 %	3.9 %		11.6 %	15.5 %
2009	2011	5.8 %	0.0 %	8.9 %	14.7 %	4.8 %		12.5 %	17.3 %
2010	2012	5.9 %	0.0 %	9.0 %	14.9 %	4.9 %		12.6 %	17.5 %
2011 [4]	2013	6.65 %	N/A	9.75 %	16.4 %	6.65 %		12.65 %	19.3 %

1 *Employer normal cost plus weighted average of unfunded actuarial accrued liability contribution rates.*
2 *Benefit change.*
3 *Act 11 of 1999 was implemented in 2001.*
4 *Act 10 and Act 32 were implemented in 2011.*

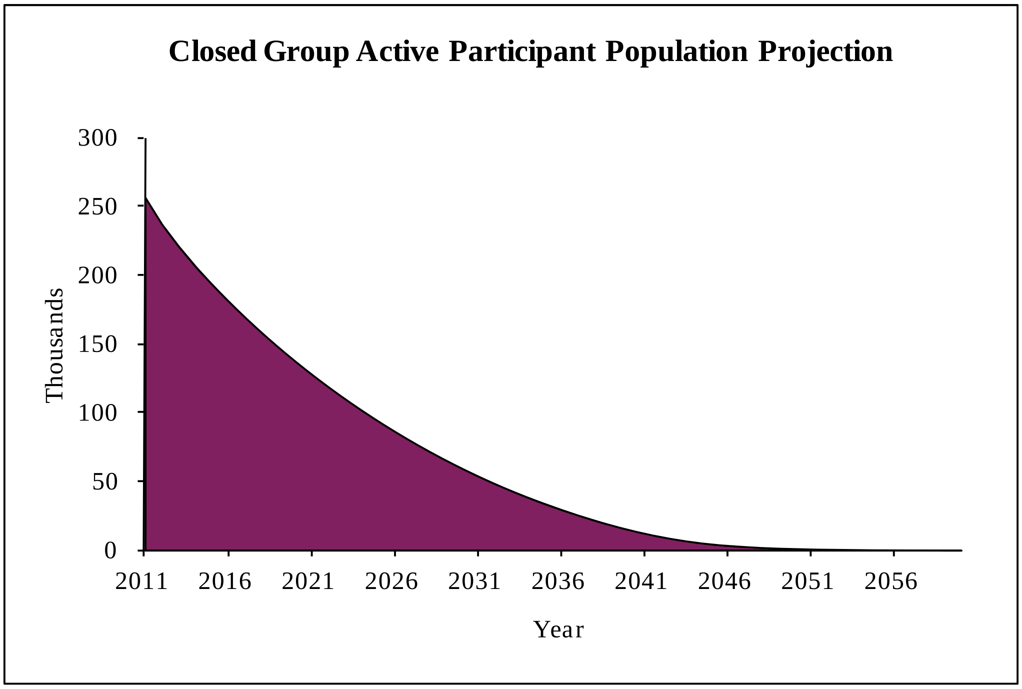
Based upon this valuation, normal cost contribution rates increased for most groups due to investment losses from 2008 and 2011 and changes in plan provisions. Overall, approximately half of the increase was attributable to unfavorable investment performance and half of the increase was attributable to changes in plan provisions. For Executives and Elected Officials, these increases were offset by changes associated with a decrease in the benefit multiplier from 2.0% to 1.6%. Detail concerning experience gains and losses in individual risk areas will be presented at a later date in the annual Gain Loss Analysis. Accumulated gains in the Experience Amortization Reserve (EAR) currently help to reduce the normal cost rate. Normal cost rates could be higher in the future if gains in the EAR account are reduced or fully amortized.

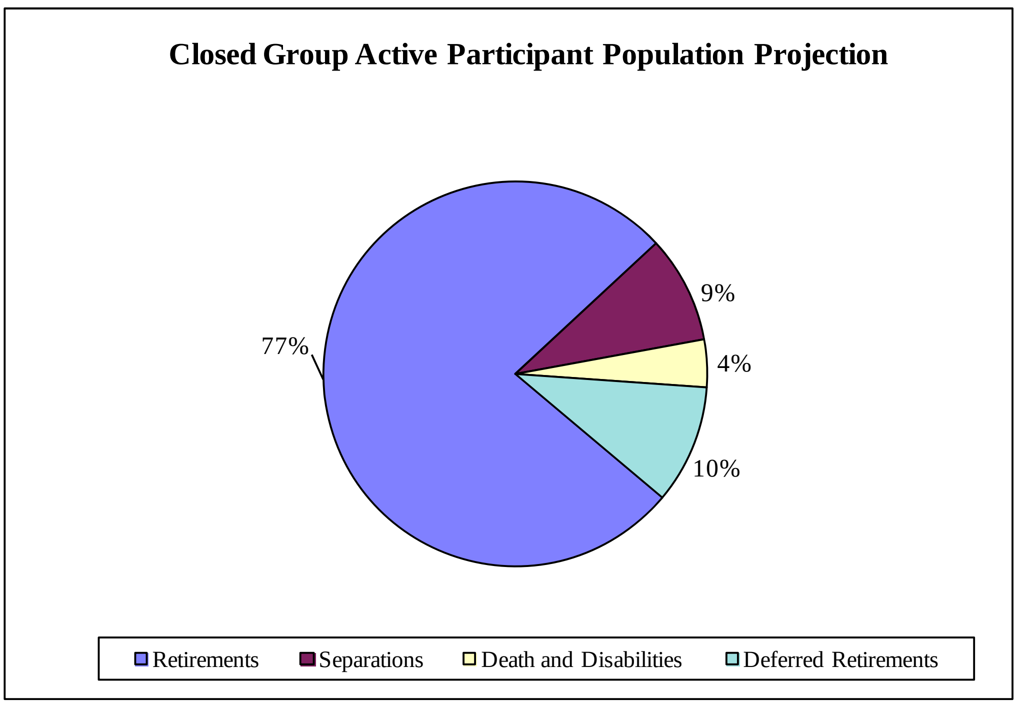
In total, during 2011, investment return was below the assumed 2011 level of 7.2% on a market value basis (please see pages I-18 and III-3). Under the asset valuation method, gains and losses are phased in over a five year period, resulting in a 1.5% return on an Actuarial Value of Assets basis in the Core Fund. The Actuarial Value of Assets exceeds the Market Value of Assets by approximately 7% as of the valuation date. The statutory asset valuation method (see page III-3) will recognize all of the differences between actuarial value and market value ($5.3 billion) over four future years. The result will be upward pressure on contribution rates next year.

The statutory allocation of the Participant Normal Cost and Employer Normal Cost is shown on page I-24. Recent changes in plan provisions eliminated the benefit adjustment contribution and set the participant and employer share to equal amounts for General participants and Executive and Elected Officials. For Protective occupations, the participant rate is set equal to the rate for General participants. The changes in plan provisions also prohibit the employer from picking up the participant share of the contribution. One of the effects of the current statutory allocation of costs is that, in some cases, good experience tends to reduce benefits payable to future retirees, and bad experience tends to increase such benefits. That counterintuitive effect occurs because certain benefits, such as money purchase minimum benefits, separation benefits, and some death benefits, depend on the Participant Normal Cost rate: the higher the participant normal cost rate, the higher the benefit, and conversely. A careful review of this portion of the interaction between the statutory allocation of contribution rates and money purchase benefits prior to adopting changes in plan provisions would be beneficial.

This valuation includes liabilities for future claims under the Long Term Disability Insurance (LTDI) program that became operational late in 1992. Inter-fund transfers between WRS and the LTDI program to support claims currently payable are addressed in a separate report to the Group Insurance and Employee Trust Funds Boards.

Conclusion. Based upon the results of the December 31, 2011 regular annual actuarial valuation, it is our opinion that ***the Wisconsin Retirement System continues to operate in accordance with actuarial principles of level percent-of-payroll financing.***





The charts show the expected future development of the present population in simplified terms. The retirement system presently covers 256,232 active members. Eventually, 9% of the population is expected to terminate covered employment prior to retirement and forfeit eligibility for an employer provided benefit. Nearly 87% of the present population is expected to receive monthly retirement benefits either by retiring directly from active service, or by retiring from vested deferred status. 4% of the present population is expected to become eligible for death-in-service or disability benefits. **Within 10 years, over half of the covered membership is expected to consist of new hires.**

Benefit Provisions

Normal Retirement Eligibility

The age a participant becomes eligible for an unreduced age and service annuity is:

General		Protective		Executive & Elected	
Age	**Service**	**Age**	**Service**	**Age**	**Service**
65	Any*	54	Any*	62	Any*
57	30	53	25	57	30

* *Participants first employed after 1989 and terminated before April 24, 1998 must have creditable service in 5 calendar years.*

Normal Retirement Annuity

The age and service annuity payable at Normal Retirement Age is based on Final Average Earnings (FAE) and Creditable Service (CS) as follows:

Multiplier for Service Rendered			Group
Before 2000	**Between 2000 and 2011**	**After 2011**	
2.165%	2.0%	1.6%	Executive group and elected officials
2.165%	2.0%	2.0%	Protective occupation participants covered by Social Security
2.665%	2.5%	2.5%	Protective occupation participants not covered by Social Security
1.765%	1.6%	1.6%	All other participants

FAE is generally the average of the 3 highest years of earnings (July 1 - June 30 for teachers, educational support staff, and judges; calendar year for others) preceding retirement. These years do not have to be consecutive. For legislators and state constitutional officers who are ineligible to receive pay increases during their term, FAE is the statutory rate of earnings at termination.

Maximum formula annuity is 85% of FAE for protective occupation participants not covered by Social Security, 65% of FAE for protectives covered by Social Security, and 70% for all other participants. If greater than the formula amount, an annuity equal to the actuarial equivalent of two times the required accumulated contributions is paid in lieu of the formula amount.

Early Retirement. Any participant who has attained age 55 and any Protective occupation participant who has attained age 50 may apply for an early retirement annuity. The benefit is reduced 0.4% for each month that the annuity effective date precedes the Normal Retirement Age. For Non-Protective participants terminating after 6/30/90, the 0.4% is reduced for months after the attainment of age 57 and before the annuity effective date by .001111% for each month of creditable service.

Voluntary Termination Before Immediate Benefit Eligibility. Participant may either (i) receive a refund of accumulated contributions, or (ii) leave contributions on deposit and apply for a retirement annuity on or after the minimum retirement age based upon age and accrued service at time of termination.

Post-Retirement Adjustments. Annuities are increased annually if the investment income credited to retired life funds is in excess of the assumed benefit rate (presently 5%), other plan experiences are within projected ranges, and the resulting adjustment would be at least 0.5%.

Disability Annuity. Eligibility: generally total and permanent incapacity to engage in gainful employment. Participant must have completed at least 6 months of creditable service (in at least 5 out of the last 7 calendar years) preceding application for disability. Service requirement is waived if disability is from service-related causes.

For protective occupations, eligibility also can be met if a member has 15 years of service, is between the ages of 50 and 55 and unable to safely and efficiently perform one's duties.

Disability Amounts. Amounts payable in case of disability depend upon the plan from which payment is made and are described below.

	Pre-10/16/92 WRS Plan	**Post-10/15/92 LTDI Plan**
Participants covered	Participants hired before 10/16/92 who do not elect LTDI coverage.	Participants entering after 10/15/92 and participants on 10/15/92 who elect LTDI coverage.
Benefit to age 65*	WRS formula benefit based on service projected to normal retirement age.	40% of FAE for participants covered by Social Security; 50% of FAE for non-covered participants who cannot qualify for Social Security disability benefits.
Benefit at age 65*	Continuation of pre-65 amount.	WRS benefit accrued to date of disability plus 7% of FAE money purchase benefit during disability period, both of which are adjusted in accordance with dividend rate.

* *Conversion age is later for participants becoming disabled after age 61.*

Death-in-Service.

(a) Prior to age 50 for Protective participants, age 55 for others, the benefit is the equivalent of twice the accumulated employee contributions required and all additional contributions and employer amounts contributed prior to 1974 for teachers, or 1966 for others.

(b) After age 50 for Protective participants, age 55 for others, the benefit is the amount that would have been paid if participant had retired and elected 100% survivor option. Benefit is payable to any natural living person.

Interest Credits. For years after 1999, and for people with some active service after 1999, participant core accounts (including the variable at core accounts) are credited with interest at the full (core) effective rate. For others, accounts are credited with interest as follows:

	Rate Credited For Purpose of	
Date of Participation	**Money Purchase Minimum**	**Refunds**
Prior to 1982	Actual	Actual
January 1, 1982 & Later	5%	3%

Participant variable accounts are credited with interest based on the earnings in the variable portfolio.

Contribution Rates. The financial objective of WRS is to establish and receive contributions that will remain level from year to year and decade to decade.

Statutory required participant contributions prior to July 1, 2011 were as follows:

General	5.0%
Executives & Elected Officials	5.5
Protectives	
- With Social Security	6.0
- Without Social Security	8.0

Statutory required participant contributions after July 1, 2011 are set equal to one-half of the actuarially determined rate for General participants and Executive and Elected Officials. Participant contributions for Protective participants are set equal to the participant contribution for General members.

Normal Form of Benefit. The normal form of benefit is a straight life annuity with no death benefits. Optional forms of benefit which are actuarially reduced are listed below:

- A life annuity with 60 or 180 monthly payments guaranteed.
- A joint survivorship annuity with 75% continued to beneficiary.
- A joint survivorship annuity with 100% continued to beneficiary.
- A joint survivorship annuity reduced 25% upon either your death or your beneficiary's death.
- A joint survivorship annuity with 100% continued to beneficiary combined with 180 monthly payments guaranteed.

For formula benefit calculations, optional forms are calculated at the lower of the current age or age 62 (Normal Retirement Age for Protective occupations).

Vesting. Participants hired prior to July 1, 2011 vest immediately. After July 1, 2011, participants vest after 5 years of service.

Non-Retired Participant Data

ACTIVE PARTICIPANTS INCLUDED IN VALUATIONS DECEMBER 31, 2011

Active participants included in the valuations totaled 256,232 with an annual payroll totaling $12,354.1 million, as follows:

Valuation Group	Number	Annual Earnings ($Millions)	Group Averages			
			Earnings	Age	Years of Service	Contribs.
General	232,518	$10,947.0	$47,080	46.1	11.7	$47,745
Executive Group & Elected Officials	1,393	98.6	70,802	55.0	13.2	80,625
Protective Occupation with Social Security	19,610	1,119.0	57,065	40.7	12.7	54,430
Protective Occupation without Social Security	2,711	189.5	69,898	41.6	14.6	74,709
Total Active Participants	**256,232**	**$12,354.1**	**$48,215**	**45.7**	**11.8**	**$48,721**
Prior Year	264,150	$12,610.1	$47,739	46.0	12.1	$53,599

Group averages are not used in the valuation, but are shown here for their general interest.

INACTIVE PARTICIPANTS INCLUDED IN VALUATIONS
DECEMBER 31, 2011

Inactive participants included in the valuations totaled 146,927 as follows:

Valuation Group	Number	Group Averages Age	Service	Money Purchase Balance
General	141,523	46.8	3.0	$12,454
Executive Group & Elected Officials	627	53.6	4.5	27,803
Protective Occupation with Social Security	4,574	41.2	3.8	14,851
Protective Occupation without Social Security	203	43.5	7.1	44,560
Total Inactive Participants	**146,927**	**46.7**	**3.0**	**$12,639**
Prior Year	142,076	46.4	2.9	$12,952

The valuations also included 3,958 QDRO cases whose average age was 51.1 years. These accounts for divorced spouses of WRS participants have been established in accordance with Wisconsin Domestic Relations Law.

GENERAL PARTICIPANTS AS OF DECEMBER 31, 2011
BY ATTAINED AGE AND YEARS OF SERVICE

Attained Ages	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	136							136	$ 2,361,318
20-24	4,439	23						4,462	112,749,173
25-29	14,519	2,086	18					16,623	584,381,313
30-34	10,257	10,443	2,047	14				22,761	981,336,857
35-39	7,673	6,599	9,152	1,065	8			24,497	1,179,754,642
40-44	8,118	5,882	7,690	6,988	1,277	21		29,976	1,493,504,674
45-49	7,833	6,204	6,931	5,751	6,348	1,220	42	34,329	1,689,362,318
50-54	6,664	6,488	7,344	5,505	6,131	5,124	2,153	39,409	1,951,445,149
55	1,155	1,099	1,421	1,114	1,204	970	1,148	8,111	406,248,485
56	956	971	1,240	1,017	1,026	850	1,015	7,075	357,645,993
57	935	910	1,303	1,041	1,009	731	1,002	6,931	351,713,933
58	900	815	1,092	984	931	742	801	6,265	316,101,778
59	761	778	1,034	925	872	600	776	5,746	288,179,289
60	723	689	980	872	834	551	710	5,359	270,526,773
61	676	586	802	722	722	482	633	4,623	223,943,840
62	502	554	640	592	573	369	533	3,763	188,828,957
63	451	418	519	484	446	313	350	2,981	145,223,313
64	409	330	433	354	377	234	299	2,436	115,443,809
65	353	322	329	305	281	190	265	2,045	97,568,359
66	229	152	199	134	145	93	132	1,084	50,059,715
67	234	131	140	98	103	58	88	852	35,528,690
68	173	108	101	54	63	41	79	619	24,994,104
69	173	86	88	66	40	40	63	556	22,661,576
70	141	65	47	36	33	18	44	384	14,350,817
71	104	43	44	35	21	8	21	276	9,134,695
72	104	30	34	16	20	7	25	236	7,701,473
73	79	28	23	16	12	6	22	186	6,242,002
74	69	39	19	14	11	6	15	173	4,937,957
75 & Up	288	141	70	33	26	18	48	624	15,063,112
Totals	**69,054**	**46,020**	**43,740**	**28,235**	**22,513**	**12,692**	**10,264**	**232,518**	**$10,946,994,114**

EXECUTIVE GROUP AND ELECTED OFFICIALS
AS OF DECEMBER 31, 2011
BY ATTAINED AGE AND YEARS OF SERVICE

Attained Ages	Years of Service to Valuation Date 0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	Totals No.	Valuation Payroll
20-24	1							1	$ 16,000
25-29	10	1						11	435,350
30-34	20	4	1					25	1,198,933
35-39	33	27	12	1				73	4,472,435
40-44	52	24	23	21	2			122	7,626,971
45-49	48	27	29	24	15	5		148	11,004,931
50-54	75	26	29	35	41	23	15	244	18,326,017
55	5	4	6	6	6	11	10	48	3,553,665
56	12	5	6	7	6	7	7	50	4,296,101
57	18	5	4	6	8	2	13	56	3,562,293
58	23	11	6	8	5	8	10	71	4,985,028
59	15	5	2	7	6	7	8	50	4,061,894
60	18	6	9	7	7	14	12	73	5,637,594
61	8	7	5	10	9	8	9	56	5,079,752
62	13	9	7	6	10	8	2	55	4,030,648
63	8	3	6	4	3	8	8	40	3,523,239
64	14	9	3	7	3	3	9	48	3,759,530
65	6	10	7	2	2	9	8	44	3,743,311
66	8	4	2	4	4	3	3	28	1,818,497
67	10	1	2	5		2	3	23	1,662,068
68	4	2	4	1	5		3	19	1,437,650
69	12	4	2		2	1	1	22	1,028,796
70	2	1		3	1			7	446,659
71	6	2	1	2	3	1	5	20	1,251,821
72	5	1		1			2	9	304,973
73	11	1	1					13	191,675
74	2			1			1	4	239,542
75 & Up	19	6	1	3		2	2	33	932,382
Totals	**458**	**205**	**168**	**171**	**138**	**122**	**131**	**1,393**	**$98,627,755**

PROTECTIVE OCCUPATION PARTICIPANTS WITH SOCIAL SECURITY AS OF DECEMBER 31, 2011 BY ATTAINED AGE AND YEARS OF SERVICE

Attained Ages	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	4							4	$ 67,102
20-24	492	13						505	17,243,758
25-29	1,677	624	20					2,321	106,607,678
30-34	776	1,459	757	5				2,997	155,957,434
35-39	396	672	1,694	414	1			3,177	181,322,534
40-44	252	417	1,075	1,511	418	3		3,676	221,171,871
45-49	158	256	507	718	1,058	303	4	3,004	190,914,448
50	42	40	71	94	156	139	18	560	35,614,770
51	24	43	70	81	103	175	28	524	34,266,886
52	20	31	57	79	93	128	49	457	30,435,240
53	20	48	54	67	86	107	56	438	28,706,003
54	21	32	44	46	77	79	61	360	23,304,436
55	19	30	48	37	49	57	56	296	18,236,156
56	23	25	38	52	44	48	40	270	15,943,266
57	12	27	30	40	42	36	47	234	14,458,890
58	7	19	24	26	33	28	30	167	10,136,227
59	10	13	30	33	21	23	24	154	8,999,627
60	8	15	21	19	23	27	18	131	7,562,462
61	4	16	29	14	17	13	21	114	6,664,225
62	8	9	10	9	7	8	9	60	3,138,569
63	4	8	11	8	12	6	5	54	2,906,919
64	4	4	6	2	5	3	6	30	1,726,511
65	4	4	6	3	7	3	3	30	1,653,967
66	1	2	3	5	2		1	14	715,739
67	1		4	2	1		1	9	464,677
68	1			1				2	46,055
69	2		1	1			1	5	278,268
70 & Up	7	2	4	4				17	504,642
Totals	**3,997**	**3,809**	**4,614**	**3,271**	**2,255**	**1,186**	**478**	**19,610**	**$1,119,048,360**

PROTECTIVE OCCUPATION PARTICIPANTS WITHOUT SOCIAL SECURITY AS OF DECEMBER 31, 2011 BY ATTAINED AGE AND YEARS OF SERVICE

Attained Ages	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
20-24	47	1						48	$ 2,190,009
25-29	182	66						248	14,036,613
30-34	120	179	78					377	23,509,734
35-39	43	95	250	47				435	29,483,099
40-44	15	60	179	198	66			518	36,797,434
45-49	6	18	70	138	195	47		474	35,041,770
50	1	2	13	14	36	36	3	105	8,320,028
51		3	4	15	20	42	8	92	7,148,311
52	1		8	17	28	29	12	95	7,497,920
53	1	1	5	7	25	24	15	78	6,177,676
54		1	1	5	21	22	12	62	4,849,698
55	2		1	8	18	13	10	52	4,049,921
56					12	10	2	24	1,911,915
57				5	15	10	8	38	3,084,945
58		2	1	4	8	8	6	29	2,296,324
59				1	3	4	4	12	972,512
60				1	3	4	2	10	813,202
61			1	1	3	2	1	8	755,975
62							1	1	117,627
64		1				1	1	3	286,973
65			1			1		2	151,913
Totals	**418**	**429**	**612**	**461**	**453**	**253**	**85**	**2,711**	**$189,493,599**

ACTIVE PARTICIPANTS
AS OF DECEMBER 31, 2011
BY YEARS OF SERVICE AND GENDER

Completed Years of Service	Males	Females	Totals	Valuation Payroll Total	Valuation Payroll Average
0	6,587	13,409	19,996	$ 484,649,490	$24,237
1	5,388	9,848	15,236	467,067,601	30,656
2	4,129	8,416	12,545	424,846,079	33,866
3	4,557	8,946	13,503	514,454,386	38,099
4	4,474	8,173	12,647	512,221,887	40,501
5	3,883	7,293	11,176	476,886,455	42,671
6	3,433	6,795	10,228	439,448,007	42,965
7	3,321	6,543	9,864	443,666,759	44,978
8	3,100	6,223	9,323	423,417,880	45,416
9	3,342	6,530	9,872	473,285,877	47,942
10	4,146	6,785	10,931	545,436,402	49,898
11	4,177	6,669	10,846	555,859,159	51,250
12	3,717	6,124	9,841	522,396,203	53,084
13	3,664	5,628	9,292	504,424,588	54,286
14	3,301	4,923	8,224	453,429,682	55,135
15 & Up	35,381	47,327	82,708	5,112,673,373	61,816
Totals	**96,600**	**159,632**	**256,232**	**$12,354,163,828**	**$48,215**

Average			
Age	45.7	45.7	45.7
Service	12.8	11.2	11.8

COMPARATIVE STATEMENT OF ACTIVE PARTICIPANTS IN VALUATIONS

Valuation 12/31	General				Executive and Elected			
		Earnings				Earnings		
	No.	$ Millions	Average	% Incr.	No.	$ Millions	Average	% Incr.
1987	180,041	4,109	22,821	7.1%	1,491	46	30,664	8.1%
1988	183,498	4,362	23,770	4.2%	1,491	48	31,916	4.1%
1989	187,925	4,579	24,365	2.5%	1,492	50	33,450	4.8%
1990	196,101	4,948	25,234	3.6%	1,502	63	35,193	5.2%
1991	202,048	5,357	26,517	5.1%	1,496	56	37,535	6.7%
1992	207,882	5,747	27,643	4.2%	1,463	58	39,598	5.5%
1993	210,627	6,084	28,886	4.5%	1,452	60	41,476	4.7%
1994	214,280	6,342	29,595	2.5%	1,450	63	43,528	4.9%
1995	216,434	6,597	30,479	3.0%	1,475	67	45,135	3.7%
1996	219,265	6,832	31,160	2.2%	1,459	67	45,967	1.8%
1997	222,888	7,128	31,980	2.6%	1,455	71	48,881	6.3%
1998	227,017	7,457	32,847	2.7%	1,450	73	50,664	3.6%
1999*	229,657	7,704	34,445	4.9%	1,468	77	53,263	5.1%
2000	234,076	8,335	35,610	3.4%	1,486	83	55,582	4.4%
2001	238,944	8,746	36,605	2.8%	1,486	85	57,060	2.7%
2002	240,990	9,007	37,377	2.1%	1,476	87	58,865	3.2%
2003	239,696	9,273	38,686	3.5%	1,468	86	58,336	-0.9%
2004	238,943	9,501	39,764	2.8%	1,469	89	60,379	3.5%
2005	237,501	9,661	40,678	2.3%	1,452	90	61,788	2.3%
2006	236,877	9,933	41,935	3.1%	1,436	93	64,480	4.4%
2007	237,124	10,278	43,344	3.4%	1,427	95	66,320	2.9%
2008**	238,994	10,806	45,216	4.3%	1,430	101	70,316	6.0%
2009	240,401	11,098	46,165	2.1%	1,427	101	70,786	0.7%
2010	239,959	11,195	46,655	1.1%	1,418	101	71,394	0.9%
2011	232,518	10,947	47,080	0.9%	1,393	99	70,802	-0.8%

** After change in method of calculating average pay.*
*** Some groups had a 27 period payroll during 2008.*

COMPARATIVE STATEMENT OF ACTIVE PARTICIPANTS IN VALUATIONS

Valuation 12/31	Protective With Social Security				Protective Without Social Security			
		Earnings				Earnings		
	No.	$ Millions	Average	% Incr.	No.	$ Millions	Average	% Incr.
1987	10,220	274	26,845	3.7%	2,585	79	30,503	4.9%
1988	10,392	286	27,560	2.7%	2,607	83	31,671	3.8%
1989	10,551	300	28,414	3.1%	2,582	83	32,267	1.9%
1990	11,167	332	29,738	4.7%	2,603	88	33,806	4.8%
1991	11,666	357	30,606	2.9%	2,585	92	35,650	5.5%
1992	12,160	390	32,049	4.7%	2,622	100	38,007	6.6%
1993	12,388	408	32,928	2.7%	2,611	103	39,371	3.6%
1994	12,825	436	34,005	3.3%	2,612	106	40,633	3.2%
1995	13,434	467	34,747	2.2%	2,630	112	42,478	4.5%
1996	13,820	495	35,807	3.1%	2,625	116	44,063	3.7%
1997	14,232	536	37,625	5.1%	2,654	121	45,568	3.4%
1998	14,810	570	38,509	2.3%	2,658	127	47,733	4.8%
1999*	16,483	649	39,864	3.5%	2,691	131	48,947	2.5%
2000	16,970	717	42,263	6.0%	2,685	135	50,423	3.0%
2001	17,981	772	42,914	1.5%	2,715	142	52,339	3.8%
2002	18,325	804	43,871	2.2%	2,709	148	54,603	4.3%
2003	18,660	856	45,891	4.6%	2,714	154	56,673	3.8%
2004	18,964	896	47,266	3.0%	2,709	159	58,546	3.3%
2005	19,036	920	48,330	2.3%	2,689	162	60,241	2.9%
2006	19,297	977	50,622	4.7%	2,692	167	62,153	3.2%
2007	19,757	1,036	52,419	3.5%	2,695	174	64,449	3.7%
2008**	20,038	1,099	54,859	4.7%	2,724	181	66,502	3.2%
2009	20,205	1,124	55,636	1.4%	2,733	189	69,149	4.0%
2010	20,019	1,125	56,184	1.0%	2,754	189	68,559	-0.9%
2011	19,610	1,119	57,065	1.6%	2,711	189	69,898	2.0%

* *After change in method of calculating average pay.*
** *Some groups had a 27 period payroll during 2008.*

FINANCIAL DATA

DEVELOPMENT OF PARTICIPANT AND EMPLOYER RESERVES DURING THE YEAR

	Participant Accumulation			Employer Accumulation			
	Core	**Variable**	**Total**	**Core**	**Variable**	**Total**	**Grand Total**
Ending Balance December 31, 2010	$14,995,226,321	$1,112,290,218	$16,107,516,539	$22,011,675,965	$1,112,290,218	$23,123,966,183	$39,231,482,722
Closing Adjustments	-	-	-	0	-	0	0
Beginning Balance January 1, 2011	14,995,226,321	1,112,290,218	16,107,516,539	22,011,675,965	1,112,290,218	23,123,966,183	39,231,482,722
Revenues:							
Employer Contributions	-	-	-	845,919,593	92,847,589	938,767,182	938,767,182
Participant Contributions	555,868,597	94,010,504	649,879,102	-	-	-	649,879,102
Total Revenues	555,868,597	94,010,504	649,879,102	845,919,593	92,847,589	938,767,182	1,588,646,284
Expenses:							
Separations	26,665,088	1,279,343	27,944,431	-	-	-	27,944,431
Retirement Single Sums	18,197,777	622,065	18,819,843	19,133,237	566,489	19,699,726	38,519,569
Death Benefits	18,348,360	991,481	19,339,841	12,087,065	824,669	12,911,734	32,251,575
Disability Insurance	-	-	-	-	-	-	-
	63,211,225	2,892,889	66,104,114	31,220,302	1,391,158	32,611,460	98,715,574
Transfers:							
Earnings Allocation	206,437,360	(28,120,821)	178,316,540	307,009,728	(28,035,232)	278,974,496	457,291,035
Annuities Awarded	(2,402,260,027)	(172,036,634)	(2,574,296,661)	(3,321,366,014)	(176,391,315)	(3,497,757,329)	(6,072,053,990)
Intra-Fund Transfers	(367,469)	-	(367,469)	10,685,634	797,071	11,482,704	11,115,236
Inter-Fund Transfers	-	-	-	-	-	-	-
	(2,196,190,135)	(200,157,455)	(2,396,347,590)	(3,003,670,652)	(203,629,477)	(3,207,300,129)	(5,603,647,719)
Ending December 31, 2011	**$13,291,693,558**	**$1,003,250,378**	**$14,294,943,936**	**$19,822,704,603**	**$1,000,117,172**	**$20,822,821,776**	**$35,117,765,712**
Internal Rate of Return	1.5%	(2.6)%	1.2%	1.5%	(2.6)%	1.3%	1.2%

RESERVES FOR NON-RETIRED PARTICIPANTS
BALANCES BY VALUATION GROUP

	Reserve for Year Ended			
	December 31, 2011			December 31, 2010 (Total in $ Millions)
	Participant	Employer	Total *	
General	$12,791,111,343	$17,678,746,621	$30,469,857,964	$34,264.4
Executives & Elected	63,290,260	175,011,763	238,302,023	277.3
Protective with Soc. Sec.	1,150,590,004	2,355,919,241	3,506,509,245	3,740.4
Protective w/o Soc. Sec.	289,952,331	613,144,149	903,096,480	949.4
Total	**$14,294,943,938**	**$20,822,821,774**	**$35,117,765,712**	**$39,231.5**

** Totals differ slightly from page I-18 due to rounding*

The above schedule shows the distribution of Participant and Employer reserves among the valuation groups according to WRS accounting records. This separation of assets is needed because the valuation groups are separately experience rated. The assets are pooled for investment purposes.

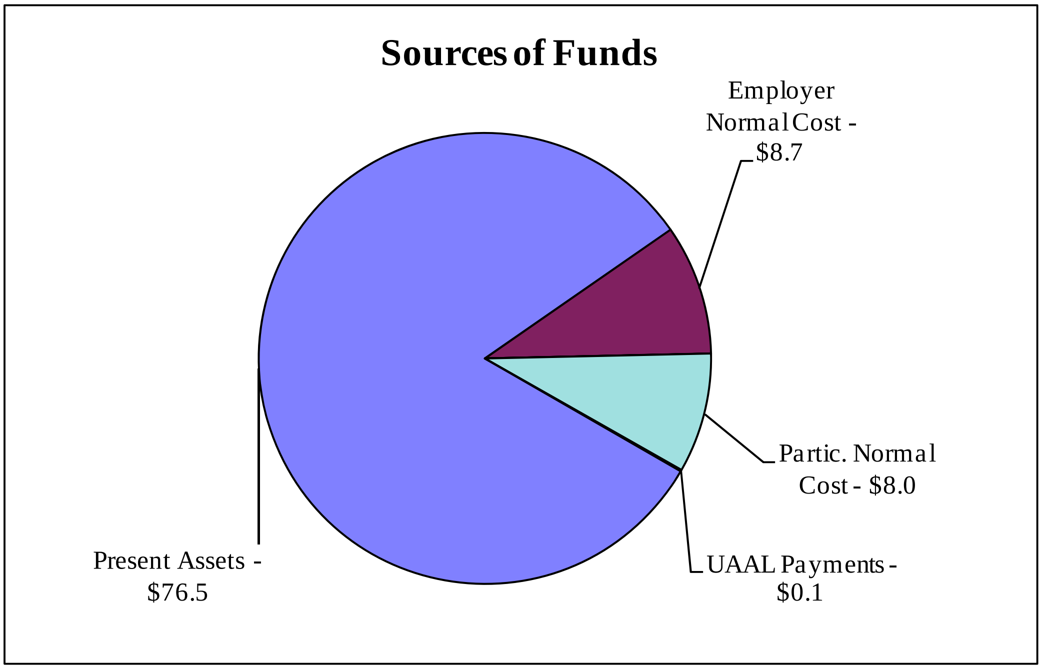
UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)
DECEMBER 31, 2011

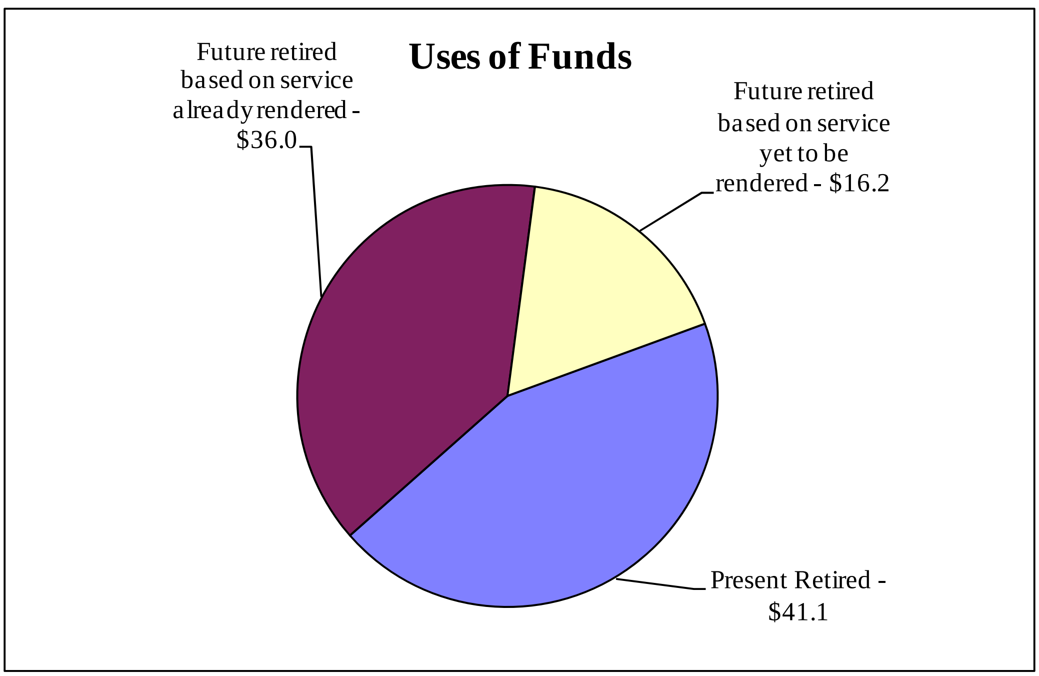
	General	Executives & Elected Officials	Protective Occupation With Soc. Sec	Protective Occupation Without Soc. Sec	Totals
Balance January 1, 2011	$118,429,356	$ 646,371	$5,717,486	$ 7,139,192	$131,932,405
Plus: New Employers	0	0	0	0	0
Less: Adjustments	0	0	0	0	0
Less: Payments	(33,344,832)	(396,366)	(4,500,644)	(1,086,963)	(39,328,805)
Plus: Interest	6,126,086	18,000	87,613	435,760	6,667,459
Balance December 31, 2011	**$91,210,610**	**$ 268,005**	**$1,304,455**	**$ 6,487,989**	**$99,271,059**

The UAAL is affected year to year by new employers entering the Wisconsin Retirement System, amortization payments, interest assessments, and statutory changes in benefits provided by the Retirement System. The UAAL is being amortized as a level percent of payroll. Since the payroll is assumed to increase with inflation, UAAL payments will also increase. During the first several years of such an amortization program, the payments are less than the interest assessment and the UAAL balance, expressed in terms of nominal dollars, increases from year to year. However, it increases at a lower rate than the payroll. After several years the payments exceed the interest assessment and the outstanding dollar balance will begin to decline.

VALUATION RESULTS

FINANCING $93.3 BILLION* OF BENEFIT PROMISES FOR PRESENT ACTIVE AND RETIRED PARTICIPANTS DECEMBER 31, 2011





* *Present value of future benefits; all divisions combined.*

DEVELOPMENT OF ACTUARIAL PRESENT VALUES
DECEMBER 31, 2011
($ MILLIONS)

Present Value of Future Benefits for	General	Executives & Elected Officials	Protectives With Soc. Sec.	Protectives Without Soc. Sec.	Total
Active Participants					
Service Retirement	$37,039.9	$275.9	$4,815.2	$ 1,139.5	$43,270.5
Withdrawal	2,093.8	11.2	198.4	20.3	2,323.7
Death-in-Service	644.0	7.9	66.0	12.6	730.5
Disability	825.9	1.8	73.7	34.6	936.0
Total Active	40,603.6	296.8	5,153.3	1,207.0	47,260.7
Inactive Participants	4,538.5	66.8	292.2	43.7	4,941.2
Variable Adjustment	(157.4)	(2.3)	(15.2)	(2.6)	(177.5)
Active and Inactive	44,984.7	361.3	5,430.3	1,248.1	52,024.4
Additional Contributions					139.5
Present Retired					41,135.3
Actuarial Present Value of Future Benefits					**$93,299.2**

Computing the actuarial present value of future benefits is the first step in the actuarial valuation process. If the WRS had assets equal to that value, and if future experience were exactly in accordance with assumptions, then the present assets together with future investment income on those assets would be sufficient to pay promised benefits to all present participants, retirees and beneficiaries. *There is no need for the Retirement System to have* $93,299.2 *million immediately. What is needed, however, is a plan for obtaining the money in an orderly fashion. That is the purpose of the remainder of the actuarial valuation.*

EXPERIENCE AMORTIZATION RESERVE (EAR)

Actuarial gains or losses arising from the difference between actual and assumed experience are reflected in the determination of the normal cost. The computed normal cost is made up of two parts: (i) the pure entry-age normal cost (EANC) determined without regard to past gains or losses, and (ii) an experience amortization component. Section 40.04(1) of the Wisconsin Statutes provides authority to maintain accounts and reserves determined to be "useful in achieving the funds' purposes..." A fundamental WRS objective is stable contribution rates. Accordingly, the experience portion of the normal cost is separately calculated each year and the amortization period is varied upward or downward in order to minimize short-term rate fluctuations. A positive EAR indicates amortization of gains. A negative EAR indicates amortization of losses.

Development of EAR as of December 31, 2011

	General	Executives & Elected Officials	Protective Occupation With Soc. Sec	Protective Occupation Without Soc. Sec.	Total
	$ Millions				
1. Present Value of Future Benefits for Non-Retired	$44,984.7	$361.3	$5,430.3	$1,248.1	$52,024.4
2. Present Value of Future Entry Age Normal Costs	13,869.7	87.8	1,855.3	376.4	16,189.2
3. Entry Age Accrued Liability: (1)-(2)	31,115.0	273.5	3,575.0	871.7	35,835.2
4. Non-Retired Assets-WRS	30,469.9	238.3	3,506.5	903.1	35,117.8
-LTDI	54.6	0.5	15.8	2.4	73.3
-Total	30,524.5	238.8	3,522.3	905.5	35,191.1
5. Entry Age Unfunded Accrued Liability: (3)-(4)	590.5	34.7	52.7	(33.8)	644.1
6. WRS Frozen Unfunded Accrued Liability	91.2	0.3	1.3	6.5	99.3
7. EAR: (6)-(5)	**$(499.3)**	**$ (34.4)**	**$(51.4)**	**$ 40.3**	**$(544.8)**
8. Prior Year EAR	**$ 534.5**	**$(25.6)**	**$ 149.8**	**$ 95.6**	**$ 754.3**

DEVELOPMENT OF CONTRIBUTION RATES FOR CALENDAR YEAR 2013

	General	Executive & Elected Officials	Protective Occupation With Soc. Sec	Protective Occupation Without Soc. Sec.	Total
	$ Millions				
Total Reported Earnings	$ 10,947.0	$ 98.6	$ 1,119.0	$ 189.5	$ 12,354.1
Present Value of Future Earnings	106,326.6	700.0	11,553.5	1,832.3	120,412.4
Present Value of Future Benefits	44,984.8	353.3	5,430.3	1,248.1	52,016.5
Non-Retired Assets	30,524.5	238.8	3,522.3	905.5	35,191.1
Unfunded Liability	91.2	0.3	1.3	6.5	99.3
Present Value of Future Normal Costs					
Future Service Portion	13,869.8	79.8	1,855.3	376.4	16,181.3
Exp. Amort. Res. Portion	499.3	34.4	51.4	(40.3)	544.8
Total	14,369.1	114.2	1,906.7	336.1	16,726.1
Normal Cost Amortization Years					
Future Service Portion	12.4	8.4	13.4	12.3	12.4
Exp. Amort. Res. Portion	20.0	20.0	20.0	20.0	
Unfunded Liability Amortization Years	17.0	17.0	17.0	17.0	17.0
	% 's of Active Member Payroll				
Normal Cost					
Future Service Portion	13.0 %	11.4 %	16.1 %	20.5 %	13.4 %
Exp. Amort. Res. Portion	0.3 %	2.6 %	0.3 %	(1.5)%	0.3 %
Total	13.3 %	14.0 %	16.4 %	19.0 %	13.7 %
2013 Normal Cost Rates					
Employer Normal Cost	**6.65 %**	**7.00 %**	**9.75 %**	**12.35 %**	**7.00 %**
Participant Normal Cost	**6.65 %**	**7.00 %**	**6.65 %**	**6.65 %**	**6.70 %**
Total Normal Cost	**13.3 %**	**14.0 %**	**16.4 %**	**19.0 %**	**13.7 %**
Average Unfunded Liability Amortization	0.1 %	0.0 %	0.0 %	0.3 %	0.1 %
Average Total Rate	**13.4 %**	**14.0 %**	**16.4 %**	**19.3 %**	**13.8 %**

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SUMMARY STATEMENT OF PRESENT AND FUTURE RESOURCES
($ MILLIONS)

Present Resources and Expected Future Resources	December 31 2011	 2010
A. Book Value of Present System Assets		
Annuity Reserves		
Core	$37,869.5	$37,798.4
Variable	3,265.8	3,340.6
Total Annuity Reserves	41,135.3	41,139.0
Non-Retired Participant Reserves		
Participant Contribution Balance	14,294.9	16,107.5
Additional Contributions	139.5	146.1
Employer Accumulation Balance	20,822.9	23,124.0
Adjustment for 62.13 Contributions	0.0	0.0
LTDI Reserve for Future Claims	73.3	110.3
Total Non-Retired Reserves	35,330.6	39,487.9
Total System Assets Used in Valuation	76,465.9	80,626.9
B. Actuarial Present Value of Future Participant Contributions	8,011.3	6,227.5
C. Actuarial Present Value of Future Benefit Adjustment Contributions	0.0	1,710.7
D. Actuarial Present Value of Future Employer Contributions for		
Unfunded Accrued Liabilities	99.3	131.9
Section 62.13	0.0	0.0
Normal Costs	8,714.8	6,585.7
Total	8,814.1	6,717.6
E. Total Present and Expected Future Resources	**$93,291.3**	**$95,282.7**

SUMMARY STATEMENT OF RETIREMENT SYSTEM OBLIGATIONS
($ MILLIONS)

Retirement System Obligations	December 31 2011	December 31 2010
A. To Annuitants and Beneficiaries Receiving Benefits		
Core Annuities		
Reported at Year End	$37,897.9	$38,148.5
Dividend Adjustment and Reserve	(28.4)	(350.1)
Total Fixed Annuities	37,869.5	37,798.4
Variable Annuities		
Reported at Year End	3,255.5	3,005.4
Distribution and Reserve	10.3	335.2
Total Variable Annuities	3,265.8	3,340.6
Total for Benefits in Pay Status	41,135.3	41,139.0
B. To Active and Inactive Participants For Benefits Based on		
Participant Contributions Made		
In the Past	14,294.9	16,107.5
In the Future	8,011.3	6,227.5
Additional Contributions Made in the Past	139.5	146.1
Benefit Adjustment Contributions Made in the Future	0.0	1,710.7
Employer Contributions	29,710.3	29,951.9
Total for Benefits Not Yet in Pay Status	52,156.0	54,143.7
C. Total Actuarial Value of Expected Future Benefits	**$93,291.3**	**$95,282.7**

SECTION TWO

FINANCIAL REPORTING

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

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

Valuation Date	December 31, 2011
Actuarial Cost Method	Frozen Entry Age
Amortization Method	Level Percent -- Closed Period
Amortization Period	30 Year closed from date of participation in WRS
Asset Valuation Method	5-Year Smoothed Market (Closed)
Actuarial Assumptions	
Investment Rate of Return	7.2%
Projected Salary Increases*	3.3% to 8.8%
Payroll Growth Rate	3.2%
Population Growth Rate	0.0%
Cost-of-Living Adjustments#	2.10%

* *Includes merit and seniority increases that vary by service plus wage inflation of 3.2%/year.*

\# *Non-guaranteed. Actual increases are based on recognized investment return in excess of 5%.*

STATEMENT OF NET PLAN ASSETS ($ THOUSANDS)

	2010*	2009
Assets		
Cash and Cash Equivalents	$ 2,712,443	$ 3,613,327
Securities Lending Collateral	5,160,488	4,196,276
Prepaid Expenses	9,031	13,103
Total Short Term Assets	7,881,962	7,822,706
Receivables		
Contributions	147,693	135,437
Prior Service Contributions	164,583	244,340
Benefits Overpayment	3,974	2,956
Due from other Trust Funds	4,511	4,786
Miscellaneous	45,582	25,622
Interest and dividends	200,084	183,788
Investment Sales	192,810	94,461
Total Receivables	759,237	691,390
Investments at Fair Value		
Fixed Income	21,706,552	19,360,078
Preferred Securities	131,372	155,665
Convertible Securities	82,884	45,660
Stocks	45,551,252	41,904,238
Options	(119)	105
Limited Partnerships	7,485,977	5,944,710
Mortgages	43,189	44,701
Real Estate	341,290	376,718
Multi Asset Investments	865,905	1,252,558
Total investments	76,208,302	69,084,433
Capital Assets	2,179	63
Total Assets	**84,851,680**	**77,598,592**
Liabilities:		
Fixed Investment Due Other Programs	3,139,928	2,874,052
Variable Investment Due Other Programs	19,439	21,106
Securities Lending Collateral	5,160,488	4,196,276
Benefits Payable	269,640	257,803
Deferred Revenue	167	186
Due to Other Trust Funds	54	111
Miscellaneous Payables	118,316	134,467
Investment Payables	271,576	118,294
Total Liabilities	**8,979,608**	**7,602,295**
Net Assets in Trust for Pension Benefits	**$75,872,072**	**$69,996,297**

** 2011 Summary not yet available.*

STATEMENT OF CHANGES IN ASSETS ($ THOUSANDS)

	Activity During Year	
	2010*	**2009**
Additions:		
Contributions:		
Employer Contributions	$ 679,792	$ 632,706
Employee Contributions	787,460	736,689
Total Contributions	1,467,252	1,369,395
Investment Income:		
Net Appreciation (Depreciation) in Fair Value of Investments	7,430,214	12,547,118
Interest	592,814	498,792
Dividends	781,206	627,426
Securities Lending Income	17,292	33,663
Other	85,509	72,274
Less		
Current Income Distributed	338,364	522,032
SWIB Investment Expense	245,806	230,129
Investment Income Distributed to Securities Lending Rebates and Fees	5,431	2,127
Net Investment Income	8,317,434	13,024,985
Interest on Prior Service Receivable	9,546	13,986
Miscellaneous Income	990	1,117
Total Additions	9,795,222	14,409,483
Deductions:		
Benefits and Refunds:		
Retirement, Disability, and Beneficiary	3,875,430	3,797,615
Separation Benefits	26,415	24,755
Total Benefits and Refunds	3,901,845	3,822,370
ETF Administrative Expenses	17,604	20,940
Other Expenses	0	0
Total Deductions	3,919,449	3,843,310
Net Increase (Decrease)	5,875,773	10,566,173
Net Assets Held in Trust:		
Beginning of Year	$69,996,296	$59,430,122
End of Year	**$75,872,072**	**$69,996,296**

** 2011 Summary not yet available.*

SCHEDULE OF FUNDING PROGRESS & ACCRUED LIABILITIES
$ MILLIONS

Valuation Date Dec. 31	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Frozen Entry Age (b)	Unfunded AAL (UAAL) (b) - (a)	Funded Ratio** (a)/(b)	Covered Payroll (c)	UAAL as a Percent of Covered Payroll [(b) - (a)] / (c)
1999	$ 49,403.7	$ 51,549.5	$ 2,145.8	95.8 %	$ 8,826.0	24.3 %
2000	51,824.6	53,993.6	2,169.0	96.0 %	9,322.5	23.3 %
2001	58,024.3	60,134.7	2,110.4	96.5 %	9,917.7	21.3 %
2002	57,861.9	59,618.8	1,756.9	97.1 %	10,126.6	17.4 %
2003*	62,685.3	63,211.7	526.4	99.2 %	10,502.4	5.0 %
2004	66,209.4	66,622.3	412.9	99.4 %	10,897.6	3.8 %
2005	68,615.1	68,987.5	372.5	99.5 %	10,973.4	3.4 %
2006	73,415.3	73,735.8	320.5	99.6 %	11,308.2	2.8 %
2007	79,791.9	80,079.7	287.8	99.6 %	11,720.2	2.5 %
2008	77,159.4	77,412.0	252.6	99.7 %	12,289.6	2.1 %
2009	78,911.3	79,104.6	193.3	99.8 %	12,622.2	1.5 %
2010	80,626.9	80,758.8	131.9	99.8 %	12,744.0	1.0 %
2011	76,465.9	76,565.2	99.3	99.9 %	12,855.6	0.8 %

* *Affected by prepayment of UAAL in connection with Pension Obligation Bond issued by the state and various local government employers.*

** *The funded ratios shown above are based on the statutory Frozen Initial Liability Valuation Method and are not suitable for comparison with plans using other valuation methods.*

SOLVENCY TEST ($ MILLIONS)

Valuation Date Dec. 31	Valuation Assets	Accrued Liability for				Percent Funded for			
		Annuitants and Beneficiaries	Member Contribs.	Active & Inactive Members	Total	Annuitants and Beneficiaries	Participant Contributions	Active & Inactive Members	Total
1998	$43,390.5	$18,352.3	$11,710.3	$15,554.5	$45,617.1	100.0%	100.0%	85.7%	95.1%
1999	49,403.7	21,290.7	12,769.6	17,489.2	51,549.5	100.0%	100.0%	87.7%	95.8%
2000	51,824.6	22,918.0	12,869.7	18,205.9	53,993.6	100.0%	100.0%	88.1%	96.0%
2001	58,024.3	25,881.5	14,275.3	19,977.9	60,134.7	100.0%	100.0%	89.4%	96.5%
2002	57,861.9	26,041.7	14,022.9	19,554.2	59,618.8	100.0%	100.0%	91.0%	97.1%
2003	62,685.3	28,707.8	14,503.1	20,000.8	63,211.7	100.0%	100.0%	97.4%	99.2%
2004	66,209.4	30,829.9	15,050.3	20,742.1	66,622.3	100.0%	100.0%	98.0%	99.4%
2005	68,615.1	32,668.0	15,155.3	21,164.2	68,987.5	100.0%	100.0%	98.2%	99.5%
2006	73,415.3	35,774.7	15,902.4	22,058.7	73,735.8	100.0%	100.0%	98.5%	99.6%
2007	79,791.9	39,675.1	16,795.4	23,609.2	80,079.7	100.0%	100.0%	98.8%	99.6%
2008	77,159.4	38,372.6	16,045.3	22,994.1	77,412.0	100.0%	100.0%	98.9%	99.7%
2009	78,911.3	39,734.2	16,156.6	23,213.8	79,104.6	100.0%	100.0%	99.2%	99.8%
2010	80,626.9	41,139.0	16,253.6	23,366.2	80,758.8	100.0%	100.0%	99.4%	99.8%
2011	76,465.9	41,135.3	14,434.4	20,995.5	76,565.2	100.0%	100.0%	99.5%	99.9%

CONTRIBUTIONS REQUIRED AND CONTRIBUTIONS MADE

Year Ended December 31	Annual Required Contribution	Percent Contributed *
1998	$449.6	100.0%
1999	435.2	100.0%
2000	422.1	96.3%
2001	412.9	99.6%
2002	426.9	99.8%
2003	462.7	334.0%
2004	497.6	121.0%
2005	535.6	108.0%
2006	569.0	104.0%
2007	614.0	105.0%
2008	644.8	105.0%
2009	699.3	108.0%
2010	686.7	108.0%
2011	784.1	104.0%

* *Includes additional UAAL payments when amount is greater than 100%.*

Employers did not make the full actuarially required contribution for 2000 through 2002. In lieu of the full contribution, employers were allowed to recognize a credit due to a distribution from the TAA in accordance with the provisions of Act 11 of 1999.

SECTION THREE

ACTUARIAL METHODS AND ASSUMPTIONS

ACTUARIAL VALUATION METHOD

The actuarial funding method prescribed in the statute for WRS is the **Frozen Initial Liability Method**. Under this method, the amount of remaining unfunded actuarial accrued liabilities at any valuation date is affected only by the monthly amortization payments, compound interest, the added liability created by new employer units, and any added liabilities caused by changes in benefit provisions.

Actuarial gains or losses arising from the difference between actual and assumed experience are reflected in the determination of the normal cost. In this manner, experience gains or losses in any year are amortized (spread) over the average future working lifetime of the active participant group - a period of approximately 20 years. Hence, the computed normal cost is made up of two parts:

- The pure entry-age normal cost (EANC) determined without regard to past gains or losses, and;
- an experience amortization component.

Section 40.04(1) of the Wisconsin Statutes provides authority to maintain accounts and reserves determined to be "useful in achieving the funds' purposes - - -". A fundamental WRS objective is stable contribution rates. Accordingly, based on the authority granted under Section 40.04, the experience portion of the normal cost is separately calculated each year and the amortization period is varied upward or downward in order to minimize short-term rate fluctuations. The policy regarding the EAR amortization period is described below:

- The standard period is set 20 years.
- The standard period is reconsidered as part of each triennial experience study (no changes were made with the most recent experience study).
- Temporary interim changes in the period are made only when there are large, but mostly offsetting market gains and losses known to be flowing through the MRA that would otherwise result in contribution rate volatility. Large changes would be defined as those which, over a 2-year period, were expected to result in contribution rate changes of at least 0.4% of payroll.
- The minimum and maximum EAR amortization periods are 10 years and 30 years respectively.
- The amortization policy will be applied in the same manner to market gains and losses flowing through the MRA.

ASSET VALUATION METHOD

An essential step in the valuation process is comparing valuation assets with computed liabilities. Computed liabilities result from actuarial calculations involving the covered population, the benefits, and actuarial assumptions. Valuation assets are those assets that are recognized and available to fund the System's liabilities. WRS assets are invested in the Core Investment Trust, and in the Variable Investment Trust, both of which are managed by the State of Wisconsin Investment Board (SWIB). Assets in the Variable Investment Trust are marked to market each year. Assets in the Core Investment Trust (most of the assets) are valued (or recognized) using an "asset valuation method."

Asset valuation methods are distinguished by the timing of the recognition of investment return. Total investment return is the sum of ordinary income and capital value changes. Under a book value approach, ordinary income is recognized immediately and capital gains (or losses) are recognized only when securities are sold. Book value investment return is directly affected by the timing of sales activity and underlying experience may be distorted. Under a pure market value approach, ordinary investment income and all capital value changes are recognized immediately. Because of market volatility, use of pure market values in retirement funding can result in volatile contribution rates and unstable financial ratios, contrary to WRS objectives.

The asset valuation method used for WRS valuations is statutory, and is referred to as the "Market Recognition Account" or MRA. Act 11 of 1999 closed the former Transaction Amortization Account (TAA) and created the Market Recognition Account (MRA). The MRA recognizes assumed returns fully each year. Differences between actual and assumed returns are phased in over a closed 5-year period. The objective is to give recognition to long-term changes in asset values while minimizing the effect of short-term fluctuations in the capital markets. In accordance with its smoothing objective, the MRA will tend to exceed the market value when the markets are doing poorly, and will fall short of the market value when markets are doing well. Some retirement systems set limits on the amount by which the recognized value of assets can differ from the market value.

The development of the Market Recognition Account is shown on the following page. The Core Investment Trust includes assets for other programs, such as Sick Leave, that are not related to the funding of the Wisconsin Retirement System, and does not include assets related to the Variable Investment Trust. Consequently, the asset value developed on the next page will not balance to the total system assets shown on page I-23. ETF Staff maintains the breakdown of the separate asset accounts.

CORE INVESTMENT TRUST: MARKET RECOGNITION ACCOUNT

	For the Year Ended December 31						
	2009	2010	2011	2012	2013	2014	2015
Beginning of year							
a. Funding value	$76,103,991,447	$76,953,180,686	$78,243,619,565	$76,789,757,718	$72,172,304,501	$72,924,713,903	$72,389,491,188
b. Market value	57,475,081,625	67,482,102,968	73,176,488,762	71,454,770,640	71,454,770,640	71,454,770,640	71,454,770,640
End of year							
c. Market value	67,482,102,968	73,176,488,762	71,454,770,640	71,454,770,640	71,454,770,640	71,454,770,640	71,454,770,640
d. Non-investment cash flow (contributions minus benefits)	(2,278,393,238)	(2,218,913,828)	(2,588,471,032)				
e. Investment income							
e1. Total Investment Income	12,285,414,582	7,913,299,622	866,752,910				
e2. Assumed rate	7.8%	7.8%	7.2%				
e3. Amount for immediate recognition	5,847,253,997	5,915,810,454	5,540,355,652	-	-	-	-
e4. Amount for phased-in recognition: e1-e3	6,438,160,585	1,997,489,167	(4,673,602,742)	-	-	-	-
f. Phased-in recognition of investment income							
f1. Current year: .2 x e4	1,287,632,117	399,497,833	(934,720,548)	-	-	-	-
f2. First prior year	(5,369,862,619)	1,287,632,117	399,497,833	(934,720,548)	-	-	-
f3. Second prior year	211,706,750	(5,369,862,619)	1,287,632,117	399,497,833	(934,720,548)	-	-
f4. Third prior year	1,064,568,171	211,706,750	(5,369,862,619)	1,287,632,117	399,497,833	(934,720,548)	-
f5. Fourth prior year	86,284,062	1,064,568,171	211,706,750	(5,369,862,619)	1,287,632,117	399,497,833	(934,720,548)
f6. Total MRA recognition	(2,719,671,519)	(2,406,457,747)	(4,405,746,467)	(4,617,453,217)	752,409,402	(535,222,715)	(934,720,548)
f7. Amount for TAA recognition	-	-	-	-	-	-	-
f8. Total recognized gain (loss)	(2,719,671,519)	(2,406,457,747)	(4,405,746,467)	(4,617,453,217)	752,409,402	(535,222,715)	(934,720,548)
g. Total Recognized Investment Income: e3 + f8	3,127,582,477	3,509,352,707	1,134,609,185	(4,617,453,217)	752,409,402	(535,222,715)	(934,720,548)
h. Funding value end of year: a + d + e3 + f8	76,953,180,686	78,243,619,565	76,789,757,718	72,172,304,501	72,924,713,903	72,389,491,188	71,454,770,640
i. Difference between market and funding values	(9,471,077,718)	(5,067,130,803)	(5,334,987,078)	(717,533,861)	(1,469,943,263)	(934,720,548)	-
j. Recognized Rate of Return	4.2%	4.6%	1.5%				
k. Market Rate of Return	19.3%	11.9%	1.2%				

SUMMARY OF ASSUMPTIONS
USED FOR ANNUAL ACTUARIAL VALUATIONS
ASSUMPTIONS ADOPTED BY ETF BOARD AFTER
CONSULTING WITH ACTUARY

ECONOMIC ASSUMPTIONS

The investment return rate assumed in the valuations was 7.20% per year, compounded annually (net after administrative expenses).

The **Wage Inflation Rate** assumed in this valuation was 3.20% per year. The Wage Inflation Rate is defined to be the portion of total pay increases for an individual that are due to macro economic forces including productivity, price inflation, and labor market conditions. The wage inflation rate does not include pay changes rated to individual merit and seniority effects.

No specific **Price Inflation** assumption is required to perform this valuation, since there are no benefits that are linked to price increases. However, a price inflation assumption on the order of 2.0% to 2.7% would be consistent with the other economic assumptions.

The assumed **real rate of return** over wage inflation is defined to be the portion of total investment return that is more than the assumed total wage growth rate. Considering other economic assumptions, the 7.2% investment return rate translates to an assumed real rate of return over wage inflation of 4.0%. The assumed real rate of return over price inflation would be higher – on the order of 4.5% to 5.2%, considering both an inflation assumption and an average expense provision. Dividends for present and future retirees are assumed to be 2.10% each year.

The Active Member Population is assumed to remain constant. For purposes of financing the unfunded liabilities and amortizing the EAR, total payroll is assumed to grow at the wage inflation rate – 3.20% per year.

Pay increase assumptions for individual active members are shown for sample services below. Part of the assumption for each age is for merit and/or seniority increase, and the other 3.5% recognizes wage inflation, including price inflation, productivity increases, and other macro economic forces.

% Merit and Longevity Increase Next Year						
		University	Public School	Protective		Exec. &
Service	Gen.	Teachers	Teachers	With S.S.	w/o S.S.	Elec.
1	3.5 %	3.5 %	6.0 %	5.0 %	5.0 %	1.2 %
2	3.5 %	3.5 %	6.0 %	5.0 %	5.0 %	1.2 %
3	3.2 %	3.4 %	5.6 %	4.4 %	4.3 %	1.2 %
4	2.9 %	3.3 %	5.2 %	3.7 %	3.6 %	1.2 %
5	2.6 %	3.2 %	4.8 %	3.1 %	2.9 %	1.1 %
10	1.6 %	2.9 %	3.3 %	1.4 %	1.4 %	1.0 %
15	1.3 %	2.4 %	1.8 %	1.1 %	0.7 %	0.9 %
20	1.1 %	1.9 %	0.9 %	0.9 %	0.6 %	0.8 %
25	0.9 %	1.3 %	0.5 %	0.8 %	0.5 %	0.6 %
30	0.7 %	1.2 %	0.3 %	0.6 %	0.4 %	0.4 %

The mortality table used to measure mortality for retired participants was the Wisconsin Projected Experience Table - 2005 for women and 90% of the Wisconsin Projected Experience Table - 2005 for men, as adopted by the Board in connection with the 2006-2008 Experience Study. Sample retirement values from this table are shown below. This assumption is used to measure the probabilities of participants dying before retirement and the probabilities of each benefit payment being made after retirement.

Single Life Retirement Values
Wisconsin Projected Experience Table - 2005 with 5% Interest

Sample Attained Ages	Present Value of $1 Monthly for Life		Future Life Expectancy (years)	
	Males	Females	Males	Females
40	$207.44	$213.54	41.9	45.3
45	198.25	205.53	37.1	40.5
50	187.11	195.62	32.4	35.7
55	174.05	183.60	27.9	30.9
60	158.95	169.88	23.5	26.4
65	140.97	153.66	19.3	22.0
70	120.85	134.71	15.3	17.8
75	99.35	113.77	11.7	13.9
80	78.71	91.62	8.6	10.4
85	59.77	69.69	6.2	7.4

The values shown above are for non-disabled participants. For disabled participants, the following table was used:

Sample Attained Ages	Present Value of $1 Monthly for Life		Future Life Expectancy (years)	
	Males	Females	Males	Females
40	$188.17	$202.09	33.0	38.9
45	175.49	191.71	28.5	34.1
50	160.60	179.05	24.1	29.5
55	144.08	164.05	20.0	24.9
60	126.15	147.80	16.2	20.7
65	105.47	129.25	12.5	16.8
70	83.80	108.29	9.3	13.0
75	62.40	86.39	6.5	9.6
80	44.25	64.71	4.3	6.7
85	29.47	44.71	2.8	4.4

Sample	Mortality Rates	
Attained Ages	Males	Females
20	0.000233	0.000077
25	0.000303	0.000085
30	0.000368	0.000115
35	0.000391	0.000203
40	0.000492	0.000285
45	0.000725	0.000446
50	0.001184	0.000614
55	0.002085	0.001281
60	0.003038	0.002174
65	0.004660	0.003325
70	0.008171	0.005327
75	0.015030	0.009751
80	0.027138	0.016934

This assumption is used to measure the probability of participants dying while in service.

RATES OF RETIREMENT FOR THOSE ELIGIBLE TO RETIRE

Normal Retirement Pattern

Age	General		Public School		University		Protective*		Exec. &
	Male	Female	Male	Female	Male	Female	With S.S.	W/O S.S.	Elected
50							8%	4%	
51							8%	4%	
52							9%	6%	
53							28%	23%	
54							20%	28%	
55							17%	28%	
56							17%	28%	
57	24%	19%	40%	30%	15%	17%	17%	37%	17%
58	24%	19%	35%	30%	15%	14%	17%	32%	17%
59	24%	19%	28%	30%	15%	14%	17%	35%	17%
60	24%	19%	28%	30%	15%	14%	17%	22%	11%
61	20%	19%	28%	30%	15%	22%	20%	15%	11%
62	33%	29%	38%	38%	17%	20%	20%	20%	11%
63	33%	29%	35%	32%	17%	20%	30%	20%	11%
64	24%	25%	25%	26%	17%	20%	18%	20%	8%
65	26%	25%	25%	31%	20%	22%	30%	40%	8%
66	28%	28%	25%	27%	22%	20%	30%	40%	20%
67	15%	15%	20%	26%	18%	18%	23%	40%	17%
68	15%	15%	20%	24%	18%	18%	23%	40%	17%
69	15%	15%	20%	22%	18%	18%	20%	40%	17%
70	15%	15%	25%	18%	20%	18%	100%	100%	15%
71	15%	15%	25%	18%	20%	18%	100%	100%	15%
72	15%	15%	25%	18%	18%	18%	100%	100%	15%
73	15%	15%	25%	18%	18%	18%	100%	100%	10%
74	15%	15%	25%	18%	18%	18%	100%	100%	10%
75	100%	100%	100%	100%	100%	100%	100%	100%	100%

* *Includes early retirements.*

Early Retirement Pattern

Age	% Retiring Next Year						
	General		Public School		University		Exec. &
	Male	Female	Male	Female	Male	Female	Elected
55	8.0%	6.0%	15.0%	12.5%	5.0%	6.0%	5.5%
56	8.0%	6.0%	15.0%	12.5%	4.5%	6.0%	5.5%
57	4.5%	4.5%	15.0%	11.5%	2.5%	6.0%	5.5%
58	5.0%	5.5%	14.0%	12.5%	3.5%	6.0%	5.5%
59	5.5%	5.5%	11.0%	12.5%	4.0%	6.0%	5.5%
60	8.0%	8.0%	15.0%	15.0%	5.5%	7.0%	5.5%
61	8.0%	8.0%	14.0%	16.0%	7.5%	7.5%	5.5%
62	17.0%	16.0%	23.0%	23.0%	10.0%	14.0%	
63	17.0%	16.0%	23.0%	21.0%	9.5%	14.0%	
64	17.0%	16.0%	16.0%	19.0%	8.5%	16.0%	

The assumed rates of separation from employment prior to service retirement due to disability and other causes are shown below for sample ages. For other terminations it was assumed that a percentage depending on age of participants terminating after age 35 with 5 or more years service will leave their contributions on deposit and be paid a benefit at normal retirement age and that the remaining participants would take a separation benefit. The percentage taking a separation benefit is 25% at age 35, grading downward to 0% at retirement eligibility. All participants terminating prior to normal retirement age with less than 5 years of service were assumed to take a separation benefit.

Assumed Termination Rates by Attained Age and Years of Service

		% of Active Participants Terminating								
		Protective								
		With Soc. Sec.	Without Soc. Sec.	Public Schools		University		Exec. &	General	
Age	Service			Males	Females	Males	Females	Elected	Males	Females
	0	13.0%	5.2%	16.5%	13.0%	18.0%	20.0%	20.0%	21.0%	20.0%
	1	7.0%	3.4%	11.0%	9.5%	16.0%	16.0%	14.5%	13.0%	14.0%
	2	4.6%	2.1%	7.1%	7.2%	12.5%	14.0%	12.5%	9.0%	10.0%
	3	4.2%	1.5%	5.2%	6.1%	10.5%	12.0%	10.5%	7.0%	8.2%
	4	3.3%	1.4%	4.2%	5.0%	8.8%	9.8%	10.0%	5.8%	7.2%
	5	3.0%	1.3%	3.4%	4.3%	7.6%	9.2%	9.5%	4.7%	6.2%
	6	2.8%	1.2%	2.9%	3.7%	6.2%	7.8%	9.0%	4.3%	5.3%
	7	2.5%	1.0%	2.5%	3.2%	5.3%	6.8%	7.5%	4.0%	4.7%
	8	2.3%	0.9%	2.3%	2.7%	4.1%	6.0%	7.0%	3.5%	4.4%
	9	1.9%	0.9%	2.0%	2.5%	3.6%	5.3%	6.5%	3.0%	4.0%
25	10 & Over	1.9%	0.9%	2.0%	2.0%	3.5%	5.3%	6.5%	3.0%	4.0%
30		1.9%	0.8%	1.7%	1.9%	3.5%	5.3%	6.5%	3.0%	3.7%
35		1.7%	0.8%	1.3%	1.7%	3.5%	5.3%	6.2%	2.5%	3.2%
40		1.3%	0.7%	1.1%	1.3%	3.2%	4.4%	5.1%	1.9%	2.6%
45		1.1%	0.7%	1.0%	1.1%	2.6%	3.0%	4.2%	1.5%	2.1%
50		1.0%	0.6%	0.8%	0.9%	1.9%	1.9%	3.9%	1.3%	1.8%
55		1.0%	0.6%	0.8%	0.9%	1.5%	1.5%	3.8%	1.2%	1.7%
60		1.0%	0.6%	0.8%	0.9%	1.5%	1.5%	3.8%	1.2%	1.7%

Disability Rates

	% of Active Participants Becoming Disabled									
	Protective		Public Schools		University		Exec. & Elected		General	
Age	With SS	W/O SS	Males	Females	Males	Females	Males	Females	Males	Females
20	0.02%	0.05%	0.01%	0.01%	0.01%	0.01%	0.00%	0.00%	0.01%	0.01%
25	0.02%	0.05%	0.01%	0.01%	0.01%	0.01%	0.00%	0.00%	0.01%	0.01%
30	0.02%	0.05%	0.01%	0.01%	0.01%	0.01%	0.00%	0.00%	0.01%	0.03%
35	0.03%	0.06%	0.01%	0.01%	0.01%	0.03%	0.01%	0.01%	0.01%	0.04%
40	0.04%	0.08%	0.02%	0.02%	0.01%	0.05%	0.01%	0.01%	0.04%	0.06%
45	0.06%	0.16%	0.05%	0.07%	0.03%	0.05%	0.02%	0.02%	0.08%	0.09%
50	0.09%	0.92%	0.13%	0.14%	0.05%	0.08%	0.03%	0.03%	0.18%	0.14%
55	1.47%	0.68%	0.23%	0.20%	0.14%	0.13%	0.12%	0.12%	0.34%	0.25%
60	2.48%	0.20%	0.39%	0.29%	0.18%	0.20%	0.15%	0.15%	0.60%	0.35%

MISCELLANEOUS AND TECHNICAL ASSUMPTIONS

Expenses:	Assumed investment return is net of administrative and investment expenses.
Marriage Assumption:	Everyone is assumed married for purposes of death-in-service benefits. Male spouses are assumed to be three years older than female spouses.
Pay Increase Timing:	Beginning of (calendar) year for most people. Middle of calendar year for teachers.
Pay Annualization:	Reported pay for members with less than twelve contributing months was annualized by the ratio of 12 to the number of contributing months in the year.
Final Average Salary:	For present value of future benefit purposes, final average salary was calculated in accordance with pay increase assumptions, but was not permitted to fall below the final average salary reported in the data.
Decrement Timing:	Decrements of all types are assumed to occur mid-year.
Decrement Operation:	Disability and Turnover operate during the retirement pattern.
Decrement Relativity:	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
Eligibility Testing:	Eligibility for benefits is determined based upon the age nearest birthday and total service (in all benefit groups) nearest whole year on the date the decrement is assumed to occur.
Benefit Service:	Exact fractional service on the decrement date is used to determine the amount of benefit payable.
Non-Benefit Service:	Liabilities for service in divisions other than the division in which the individual is currently active are calculated as indexed deferred vested benefits. Benefits are indexed in accordance with the salary adjustment factors (shown on page III-4) for the division where the member was formerly employed. People are assumed to retire at the earliest age that full benefits will become available. The liabilities are assigned to the division in which the service was rendered.
Service Credit Accruals:	It is assumed that members accrue one year of service credit per year.

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.
Normal Form of Benefit:	The assumed normal form of benefit is a straight life benefit, except where otherwise noted.
Disability Valuation:	The Post-10/15/92 Disability benefit consists of one benefit payable to age 65 (10% of FAE) plus another benefit payable on and after age 65 (WRS benefit accrued to date of disability plus 7% of FAE during disability). For valuation purposes, the 7% of FAE portion of the post 65 benefit was added to the 40% of FAE benefit prior to age 65. Additionally, there are certain cases in which the disability benefit at the member's normal retirement age is larger than the member's benefit under the normal retirement benefit formula. To account for this, an adjustment is made to the member's normal retirement benefit present value calculation which is equal to 15% of the difference between the present values of the LTDI benefit and the normal retirement benefit.
Variable Excess Benefits:	These benefits are valued by increasing the otherwise calculated liabilities by an amount equal to twice the value of the variable excess. (The variable excess is the difference between the variable account and the variable at core account, summed over all participants.)
Liability Adjustments:	Final Average Salaries were increased 2% to account for additional contingencies in actual benefit amount calculated at the time of retirement.
Amortization Payoff Reserve:	Additional reserves in the amount of $76,329,882 (discounted from the year 2029 to the current valuation date) were added to general group liabilities to account for the possibility that some non-state employers may never be able to pay off their unfunded actuarial accrued liability.

SECTION FOUR

THE VALUATION PROCESS

FINANCIAL PRINCIPLES & OPERATIONAL TECHNIQUES OF THE WISCONSIN RETIREMENT SYSTEM

Benefit Promises Made Which Must be Paid For. A retirement program is an orderly means of handing out, keeping track of, and financing contingent retirement promises. As each participant of the Retirement System acquires a unit of service credit he is, in effect, handed an "IOU" which reads: "The Wisconsin Retirement System promises to pay you one unit of annuity benefits, payments in cash commencing when you retire."

The principal related financial question is: ***When shall the money required to cover the "IOU" be contributed?*** This year, when the benefit of the participant's unit of service is received? Or, some future year, when the "IOU" becomes a cash demand?

The law governing the Wisconsin Retirement System financing intends that the money to cover an "IOU" is contributed in the year the "IOU" is handed out. In this way contribution rates expressed as percents of participant payroll can be determined so as to remain approximately level from year to year and decade to decade as long as the basic experience and make-up of the group of participants does not change significantly. This means that for equivalent benefits each generation of Wisconsin taxpayers will contribute at approximately the same payroll rates.

Translated into actuarial terminology, the level percent-of-payroll contribution objective means that the contribution rate must total at least:

> **Normal Cost** (the current discounted value of benefits likely to be paid on account of participants' service rendered in the current year)
>
> ... plus ...
>
> **Interest on Unfunded Actuarial Accrued Liabilities** (unfunded actuarial accrued liabilities are the difference between (i) the present value of future benefits and (ii) the present value of future normal costs, and reduced by the assets on hand at the valuation date).

If contributions to the system are less than the preceding amount, the difference, **plus investment earnings not realized thereon**, will have to be contributed at some later time, or benefits will have to be reduced, to satisfy the fundamental equation under which all retirement programs must operate; that is:

B = C + I - E

Benefit payments to any group of participants and their beneficiaries cannot exceed

Contributions received on behalf of the group
... plus ...
Investment earnings on those contributions
... minus ...
Expenses incurred in operating the program.

There are retirement programs (Social Security is an example) designed to defer the bulk of contributions far into the future. The present contribution rate for such systems is artificially low, but is destined to increase relentlessly to a level which may be greatly in excess of the level percent-of-payroll rate.

A by-product of a level percent-of-payroll contribution objective is the accumulation of invested assets for varying periods of time. Investment income becomes the third and largest contributor to the retirement system and the amount is directly related to the amount of contributions and investment performance.

Computing Contribution Rates To Finance Benefits. From a given schedule of benefits and from the data furnished, the actuary calculates the contribution rates **by means of an actuarial valuation** - the technique of assigning monetary values to the risks assumed in operating a retirement program.

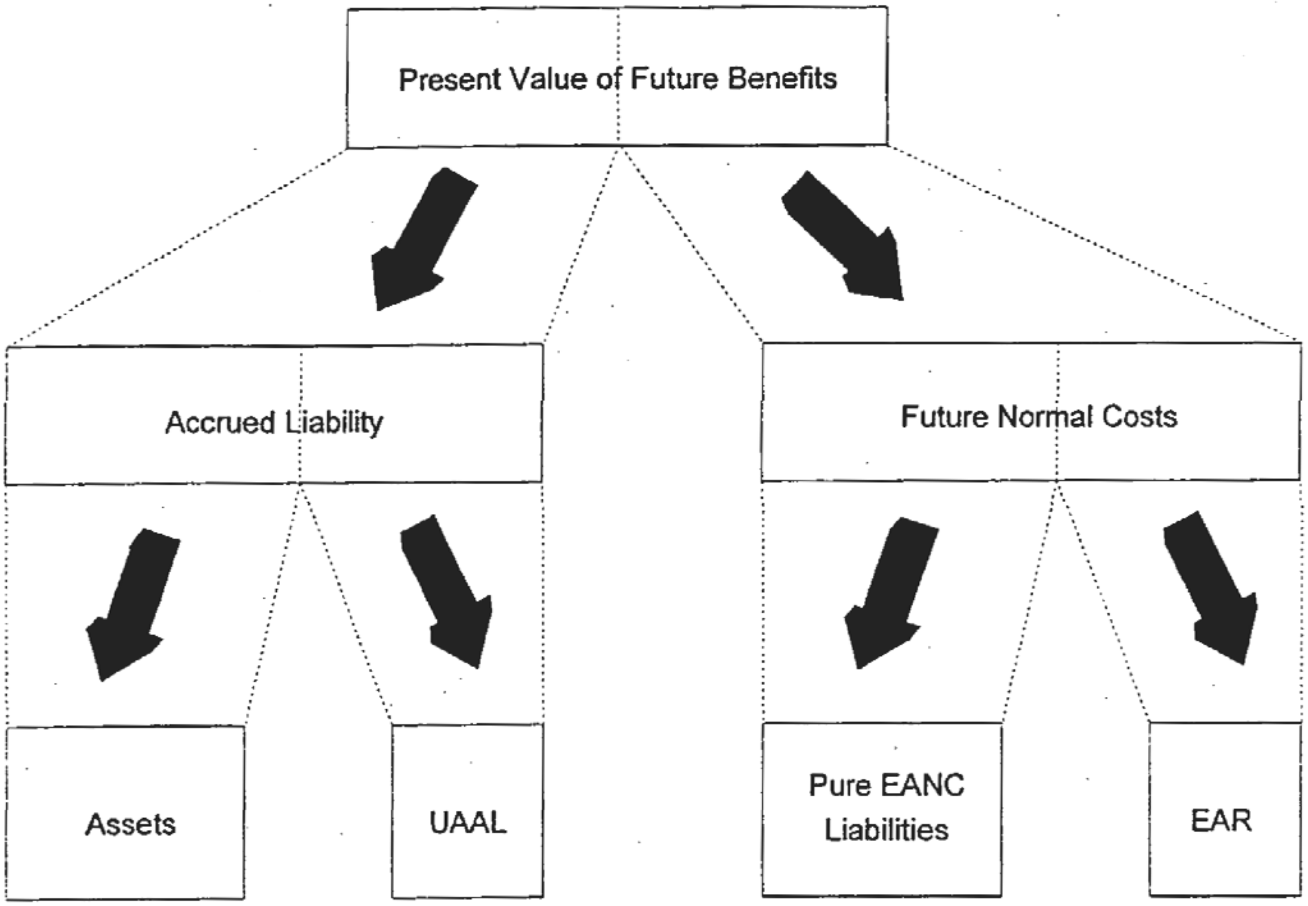
The principal areas of risk assumption are:

- long-term ***rates of investment income*** likely to be generated by system assets
- ***rates of mortality*** among participants, retirants and beneficiaries
- ***rates of withdrawal*** of active participants
- ***rates of disability*** among participants
- ***patterns of salary increases*** to be experienced by participants
- the age and service ***distribution of actual retirements***

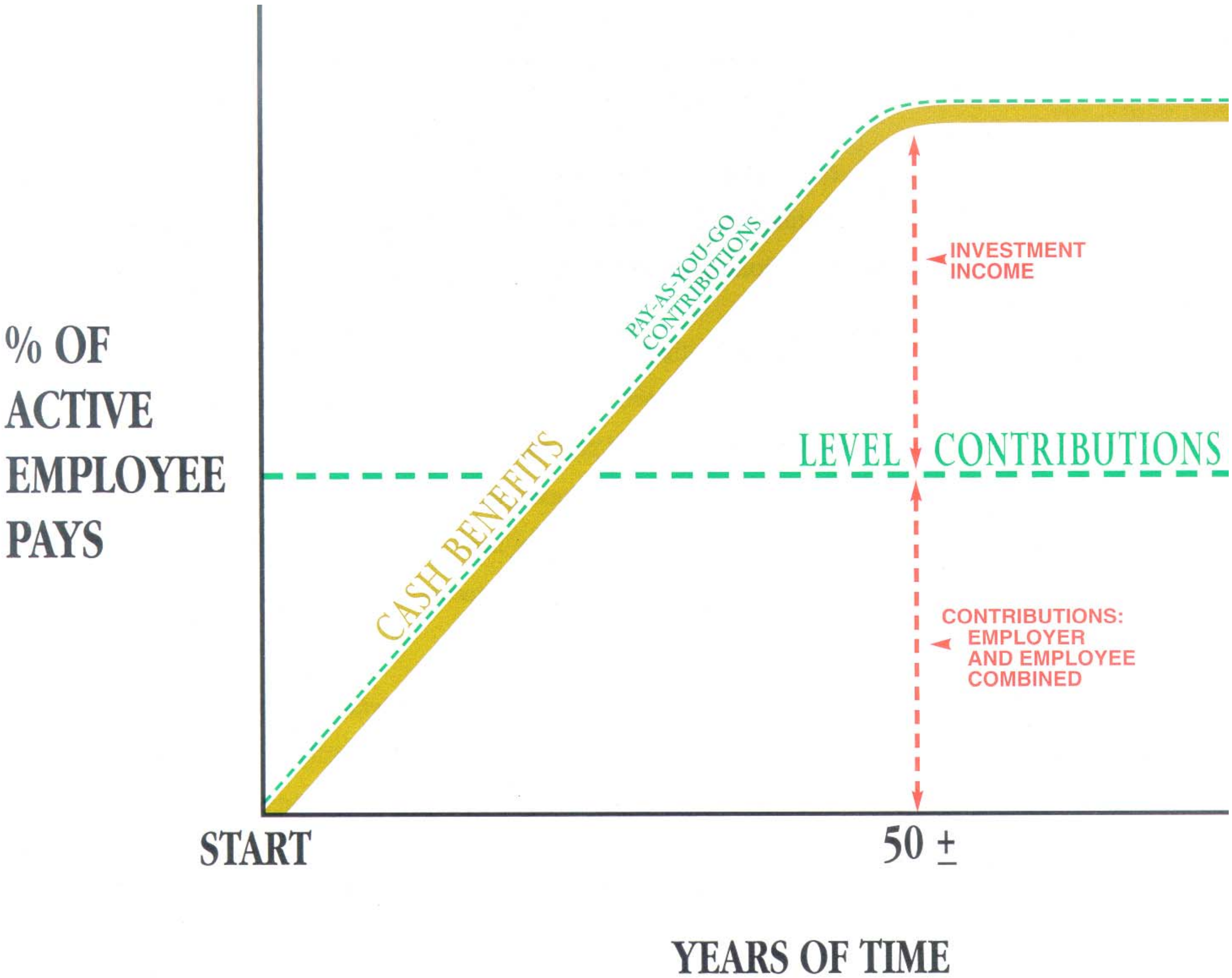
In an actuarial valuation, the actuary projects the monetary effect of each risk assumption for each distinct experience group, for the next year and for each year over the next half-century or longer.

Once actual risk experience has occurred and been observed, it will not coincide exactly with assumed risk experience, regardless of the skill of the actuary, the completeness of the data, and the precision of the calculations. Each valuation provides a complete recalculation of assumed future risk experience and takes into account all past differences between assumed and actual risk experience. The result is a continual series of small adjustments to the computed contribution rate. From time to time it becomes necessary to adjust the package of risk measurements to reflect basic experience trends -- but not random year-to-year fluctuations.

The Actuarial Valuation Process



- **UAAL:** Unfunded actuarial accrued liabilities are amortized over a fixed period of years.
- **Pure EANC:** Entry age normal cost liabilities are financed over the working lifetimes of WRS participants.
- **EAR:** The Experience Amortization Reserve portion of future normal costs is financed over varying periods which are selected to optimize contribution rate stability.



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

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.

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 assumed, under the actuarial funding method, for 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.

Plan Termination Liability. The actuarial present value of future plan benefits based on the assumption that there will be no future 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 valuation assets. Sometimes referred to as “unfunded accrued liability.”

Valuation Assets. The value of current plan assets recognized for valuation purposes. Generally based on book value plus a portion of unrealized appreciation or depreciation.

Wisconsin Retirement System

December 31, 2011

Final Valuation Results

September 2012

Board	Mtg Date	Item #
JI	09.20.12	3B

GRS
Gabriel Roeder Smith & Company
Consultants & Actuaries
www.gabrielroeder.com

Agenda

- Background
- Results (how did we do?)
- Reasons for Contribution Increases
- Looking Ahead
- Actuarial Audit Highlights
- Hot Topic – New GASB rules

Background

- Employer Contribution Rates typically released in May and approved at June Board meeting
- Active member data was not available prior to June Board meeting
- Estimated Valuation results were provided in June
- Actual data was provided by ETF in August
- Next year – return to regular schedule

Results - Active Participants

Valuation Group	Number Counts: Estimated Range		Number Counts: Actual	Average Annual Earnings: Estimated Range		Average Annual Earnings: Actual
General	227,961	239,959	232,518	$46,655	$48,988	$47,080
Executive Group & Elected Officials	1,347	1,418	1,393	71,394	74,964	70,802
Protective Occupation with Social Security	19,018	20,019	19,610	56,184	58,993	57,065
Protective Occupation without Social Security	2,616	2,754	2,711	68,559	71,987	69,898
Total Active Participants	**250,942**	**264,150**	**256,232**	**$47,739**	**$50,126**	**$48,721**

Actual versus Estimated Total Normal Cost Rates for Calendar 2013

	2012 Actual	2013 Scenarios			2013 Actual
		Low Cost	Medium Cost	High Cost	
Total Normal Cost Contribution					
- General	11.8%	12.8%	13.2%	13.7%	13.3%
- Executive & Elected	14.1%	13.8%	14.3%	14.8%	14.0%
- Protective with SS	14.9%	15.6%	16.0%	16.5%	16.4%
- Protective without SS	17.2%	17.9%	18.6%	19.3%	19.0%

Actual Results fell within range for all categories

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Summary of December 31, 2011 Valuation Results

	General Participants		Executives & Elected Officials	
	2013	2012	2013	2012
Employer Normal Cost	6.65%	5.20%	7.00%	9.80%
Benefit Adjustment Contribution	N/A	1.60%	N/A	0.00%
Participant Normal Cost *	6.65%	5.00%	7.00%	4.30%
Total Normal Cost	13.3%	11.8%	14.0%	14.1%
Unfunded Actuarial Accrued Liability (UAAL)	0.1%	0.1%	0.0%	0.0%
WRS Average Total	**13.4%**	**11.9%**	**14.0%**	**14.1%**

** Participant Normal Cost previously paid by employer*

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Summary of December 31, 2011 Valuation Results

	Protective Occupation			
	With Soc. Sec.		Without Soc. Sec.	
	2013	2012	2013	2012
Employer Normal Cost	9.75%	9.00%	12.35%	12.30%
Benefit Adjustment Contribution	N/A	0.00%	N/A	0.00%
Participant Normal Cost *	6.65%	5.90%	6.65%	4.90%
Total Normal Cost	16.4%	14.9%	19.0%	17.2%
Unfunded Actuarial Accrued Liability (UAAL)	0.0%	0.0%	0.3%	0.3%
WRS Average Total	**16.4%**	**14.9%**	**19.3%**	**17.5%**

** Participant Normal Cost previously paid by employer*

Comparative Statement of Total Average Contribution Rates

Valuation 12/31	General	Executive & Elected	Protective with Soc. Sec.	Protective without Soc. Sec.
1987	12.0%	17.4%	18.3%	24.9%
1992	12.3%	17.6%	17.3%	23.8%
1997	11.6%	15.1%	13.8%	19.7%
2002	10.8%	11.5%	12.5%	15.0%
2007	10.6%	11.5%	13.2%	14.1%
2008	11.2%	11.9%	14.1%	15.5%
2009	11.7%	13.1%	14.7%	17.3%
2010	11.9%	14.1%	14.9%	17.5%
2011	13.4%	14.0%	16.4%	19.3%

Reasons for Contribution Increases

	General	Executive & Elected	Protective with Soc. Sec.	Protective without Soc. Sec.
2012 Normal Cost Rate	11.8%	14.1%	14.9%	17.2%
Effect of Asset Performance	0.8	0.8	1.2	1.9
Effect of Benefit Changes	0.7	(1.0)	0.2	(0.2)
Other Effects*	0.0	0.1	0.1	0.1
2013 Normal Cost Rate	13.3	14.0	16.4	19.0

** Other effects will be studied further in the Gain/Loss valuation.*

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Impact of Asset Losses

- Asset gains and losses above or below the assumed rate of return are smoothed in over the current year, and four future years
- Four years after a valuation date, all asset gains or losses known at that time are fully recognized
- Smoothing method in WRS is referred to as the Market Recognition Account (MRA)
- This process generally works well, but the 2008 asset loss was very large and smoothing can only do so much

Operation of Market Recognition Account (MRA) - $millions

	2011	2012	2013	2014	2015
Actual Investment Return	867				
Assumed Investment Return	5,540				
Gain/(Loss) to be phased in	(4,673)				
Phased-in recognition					
• Current year	(934)	?	?	?	?
• First prior year	399	(934)	?	?	?
• Second prior year	1,288	399	(934)	?	?
• Third prior year	(5,370)	1,288	399	(934)	?
• Fourth prior year	211	(5,370)	1,288	399	(934)
Total recognized gain (loss)	(4,406)	(4,617)	753	(535)	(934)

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Cost Sharing of Asset Loss

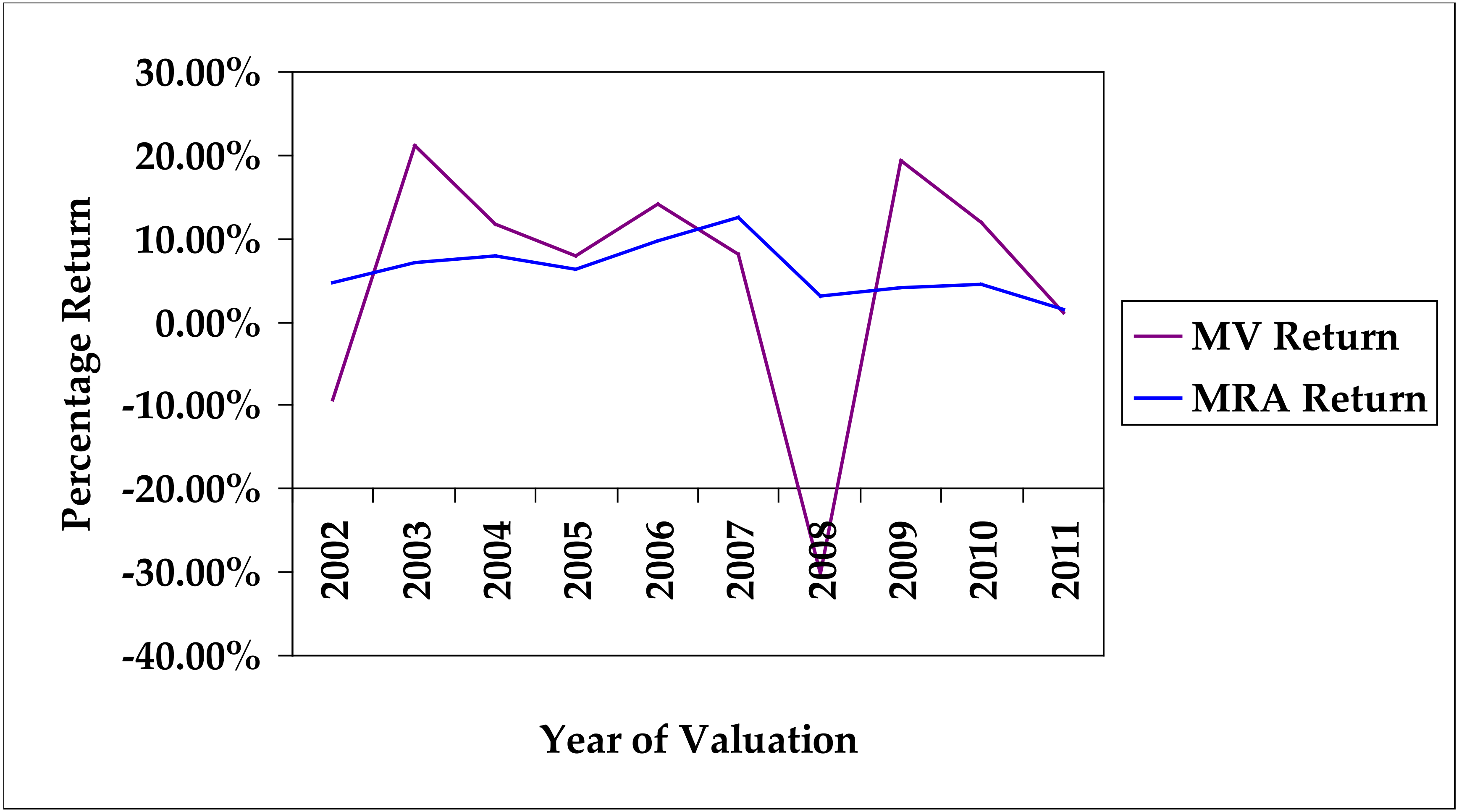
- Due to cost sharing nature of WRS, asset losses have been traditionally shared by:
  - Employees (through reduced money purchase benefit)
  - Employers (through increases in contributions)
  - Retirees (through reduced dividends)
- In most systems, employers pick up entire cost of asset losses (and reap the rewards of gains)
- WRS contribution rates have been more stable when compared to other systems

Impact of Prior MRA Asset Losses (flow through EAR component)

	2008	2009	2010	2011
1) Total MRA Asset Loss (millions)	$ 3,489	$ 2,720	$ 2,406	$ 4,406
2) Portion of asset loss affecting contributions	1,027	912	876	1,492
3) Amortization Factor	13.79	13.79	13.79	13.79
4) Payroll (millions)	$ 12,289	$ 12,622	$ 12,744	$ 12,856
5) Impact of Asset Loss on Contributions (2) / (3) / (4)	0.6%	0.5%	0.5%	0.8%

- Note: Impact of 2010 MRA Asset loss was offset by lower than assumed pay increases

Market Value Return vs. Market Recognition (Actuarial) Return



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Impact of Benefit Changes

- For General and Executive members, contribution rate split equally between employees and employers
- For Protective members, employee rate set equal to the General member rate
- For Executive members, benefit formula multiplier reduced prospectively from 2.0% to 1.6%
- Prohibits employers from paying the employee required rate

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Impact of Benefit Changes

- Results in an increase in the employee rate
  - Statutory participant contribution for members was 5% (usually picked up by employer)
  - Following the 2010 valuation, General participant rate did increase to 5.9% in 2012 (one half of 11.8% total normal cost)
- In the WRS, the benefit is based on the greater of:
  - Formula Benefit (1.6% x FAE x service)
  - Money Purchase Benefit (2 x value of contributions)
- Increasing the employee rate will increase the money purchase minimum benefit

GRS

Contribution Example (General)

	Initial Employee Rate	Total Contribution	Employee Contribution	
Start →	5.00%	12.6%	6.30%	
	6.30%	13.2%	6.60%	
	6.60%	13.3%	6.65%	
	6.65%	13.3%	6.65%	→ End

In the above example, sharing the contribution equally between members and employers actually added 0.7% to the total rate.

GRS

Money Purchase Effect

Potential Rate Change Due to Asset Gain or Loss (1)	Initial Change in Participant Contribution (2)	Additional Total Change due to Money Purchase (3)
0.80%	0.40%	0.20%
0.40%	0.20%	0.10%
0.00%	0.00%	0.00%
-0.40%	-0.20%	-0.10%
-0.80%	-0.40%	-0.20%

- Column 3 impact is further shared equally between participant and employer
- Majority of impact was in initial year of application
- Impact works both ways (could increase or decrease contribution rate)

GRS

Looking Ahead

- Next year is the last year for recognition of the 2008 asset loss
- Contributions likely to increase next year 0.5% to 1.0% of pay in total
- Total rate increase shared equally between participants and employers (General and Executive)
- Stable contributions more likely after next year

Actuarial Audit Highlights

- Include an assumption for election of optional forms of payment (subsidy for members retiring after NRA)
  - Explicit assumption will be developed in the upcoming experience study (currently valued implicitly with load)
- Reflect pre-2000 benefit multiplier for deferred vested
  - Adjustment had no material impact
- Test recommended mortality assumptions from future experience studies against rates from current tables
  - Routinely reviewed with upcoming experience study

GRS

Actuarial Audit Highlights

- Consider age 54 retirement assumption for protective employees with deferred benefit
  - We agree and will develop assumption with upcoming experience study
- Aggregate some groups with similar characteristics to increase sample size of disability assumption
  - Will be reviewed at time of experience study
- Consider adopting asset corridor
  - Would require statutory change

GRS

GASB Changes - Overview

- New GASB Accounting Standards No. 67 and No. 68 will create accounting results separate from funding results
  - Funding calculations **are not impacted**
  - GASB created a new Net Pension Liability (NPL) and Pension Expense
  - Statement No. 67 replaces Statement No. 25
  - Statement No. 68 replaces Statement No. 27

GASB Changes - Overview

- Requires recognition of a version of unfunded liability on each employer's balance sheet
  - Formerly only in footnotes
- Changes calculation of annual cost
  - Formerly only in footnotes
  - No longer equal to required contribution (ARC)
- Meant to improve transparency and comparability – market assets, single funding method, rigid amortization rules

GASB Changes - Overview

- Special Rules for Cost Sharing Systems
  - Formerly did not have to account for separately
  - Identify participating GAAP entities
  - Determine and apply proportionate shares for allocating collective totals to participating employers
  - Preparation of accounting report for each participating GAAP entity

GASB Changes - Overview

- Key differences for employer accounting
  - New GASB rules do not allow smoothing of assets
  - New GASB rules may require lower (or blended) discount rate to value liabilities
- Key takeaways
  - New GASB rules do NOT change the funding contribution rate
  - New GASB rules do provide a second set of actuarial numbers (may lead to confusion)

GASB Changes - Overview

- Approved Effective Dates
  - Trust's Financial Statement No. 67 – reporting periods beginning after June 15, 2013
  - Employer's Financial Statement No. 68 – reporting periods beginning after June 15, 2014

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