Welcome to the Joint Meeting of the Retirement Boards

June 20, 2024

Meeting will begin at: 9:00 a.m.

WIFI

WI-GUEST

No Password is needed

Please Sign In

- Who? All meeting attendees
- Sheet available at the door

Meeting Materials

- Scan the QR Code
- Available at etf.wi.gov

Please Silence your Cell Phone and Mute your Microphone

Announcements

Item 1 – No Memo

Consideration of Open Minutes of September 21, 2023, Meeting

Item 2 – Memo Only

Action Needed

- Motion needed to accept the Open Minutes of September 21, 2023, Meeting as presented by the Board Liaison.

Appeals Refresher Training

Item 3A – Joint Meeting of the Retirement Boards

Peter Rank, Attorney
Office of Legal Services

Sarah Huck, Assistant Attorney General
Wisconsin Department of Justice

Overview of the Appeals Process

- This presentation is for educational purposes.
- No Board action is required.

Appeals process

ETF Appeals Process

- Determinations
- Informal Review Process by ETF
- Division of Hearings and Appeals
- Proposed Decision

Board Functions in an appeal

- Quasi-judicial
- Closed Session deliberation
- Review on the record
- Final Decision

Board Oversight

Examples of Appeal Types

ETF Board	Teachers Retirement Board	Wisconsin Retirement Board
Wis. Stat. Sec. 40.03(1)(j)-determinations made by the department, other than appeals regarding disability annuities • Eligibility/Calculations • Classification • Sick Leave • And others...	Wis. Stat. Sec. 40.03(7)(f)-determinations on disability annuity for teacher participants • Sec. 40.63 disability claims	Wis. Stat. Sec. 40.03(8)(f)-determination on disability annuity for participants other than teachers • Sec. 40.63 disability claims

Group Insurance Board	Deferred Compensation Board
Wis. Stat. Sec. 40.03(6)(i) – determinations affecting any right or benefit under a group insurance plan • Health Insurance/Rx • Life Insurance	Wis. Stat. Sec. 40.80(2g) – determinations affecting any right or benefit under any deferred compensation plan

Departmental Determinations

The appeals process cannot begin prior to a Determination being made.

- Departmental Determination
  - ETF determination
- Notice of appeal rights
- Statutory time limit to submit appeal of determination
  - 90 days from date of the letter

Independent Review Organizations

- Independent Reviews are not administered by ETF.
- They are requested by a participant and can get to IRO through multiple channels.
- Examples of types of disputes decided by IRO:
  - Coverage issues
  - Medical necessity
  - Experimental treatment
  - Rescission of health policy
- If a participant pursues an IRO, there is no option for ETF review or appeal.

Direct Appeals

Appeal of an Employer's Determination:

- Decision to report, or not report, as a participating employee
- Category of employment:
  - Teacher, executive, general elected official
  - Protective

Some ETF determinations are based directly upon employer's determination:

- Disability determinations based upon employer non-certification
- 40.63(1)(c) or 40.65(2)(b)2

Informal Review Process

- Resolution without a formal appeal being filed
- Resolution upon formal appeal being filed
  - Office of Legal Services internal review
- Resolution and Settlement authority of the ETF Secretary

Division of Hearings and Appeals

- Chapter 11 of ETF’s Administrative Code
- Role of Administrative Law Judge:
  - Oversees the formal appeals process
  - Conducts hearings, receives relevant evidence, rules on objections and motions
  - Issues the proposed decision
- Steps in the process vary depending on the legal issues presented.

Proposed Decision

- Findings of Fact
- Conclusions of Law
- Order
- Parties have the opportunity to file objections to the proposed decision.
    - These objections will be included in the appeal record.

The Board's Attorney for ETF Administrative Appeals

Wisconsin Department of Justice:
AAG Sarah Huck

The Board’s Function

- Quasi-judicial
- Closed session deliberation—parties not present during the deliberation
- Review on the record—Board does not take evidence or hear testimony
- Provide oversight of the initial decision-making process—either that of the Department, or, in direct appeals, the member’s employer
- The hearing examiner issues a proposed decision, but the Board need not adopt it, either in part or in full. The proposed decision is not entitled to deference by the Board.

Who are the Parties?

- A “substantial interest” in the issue to be decided.
- The Department is a party but may choose not to participate.
  - ETF often may choose not to participate in direct appeals.
- In cases involving death benefits, the parties may include potential beneficiaries.
- In cases involving insurance benefits, the third-party administrator or health insurance program may be a party.

Decision-making Process

Board staff provides appeal record to each Board member.

Prior to Board meeting: Board members read the record, identify the specific issues to be resolved and any factual and legal disputes.

Board meets to consider the appeal.

At Board meeting: counsel provides summary of case and a recommendation for deciding the appeal.

Board discusses members’ views of the facts and law at issue.

Final Decision

- Parties to the appeal
- Must include findings of fact and conclusions of law, and facts establishing the Board's jurisdiction
- A statement of the disposition of the appeal: whether the decision of the Department or employer is affirmed, reversed, or remanded for further proceedings

What happens next?

- Participant accepts the board's decision and ends appeal
- Petition for re-hearing
- Judicial review in Dane County Circuit Court


Questions?

Wisconsin Retirement System (WRS) 43rd Annual Valuation of Active Lives and Gain/Loss Analysis – December 31, 2023

Item 3B – Joint Meeting of the Retirement Boards

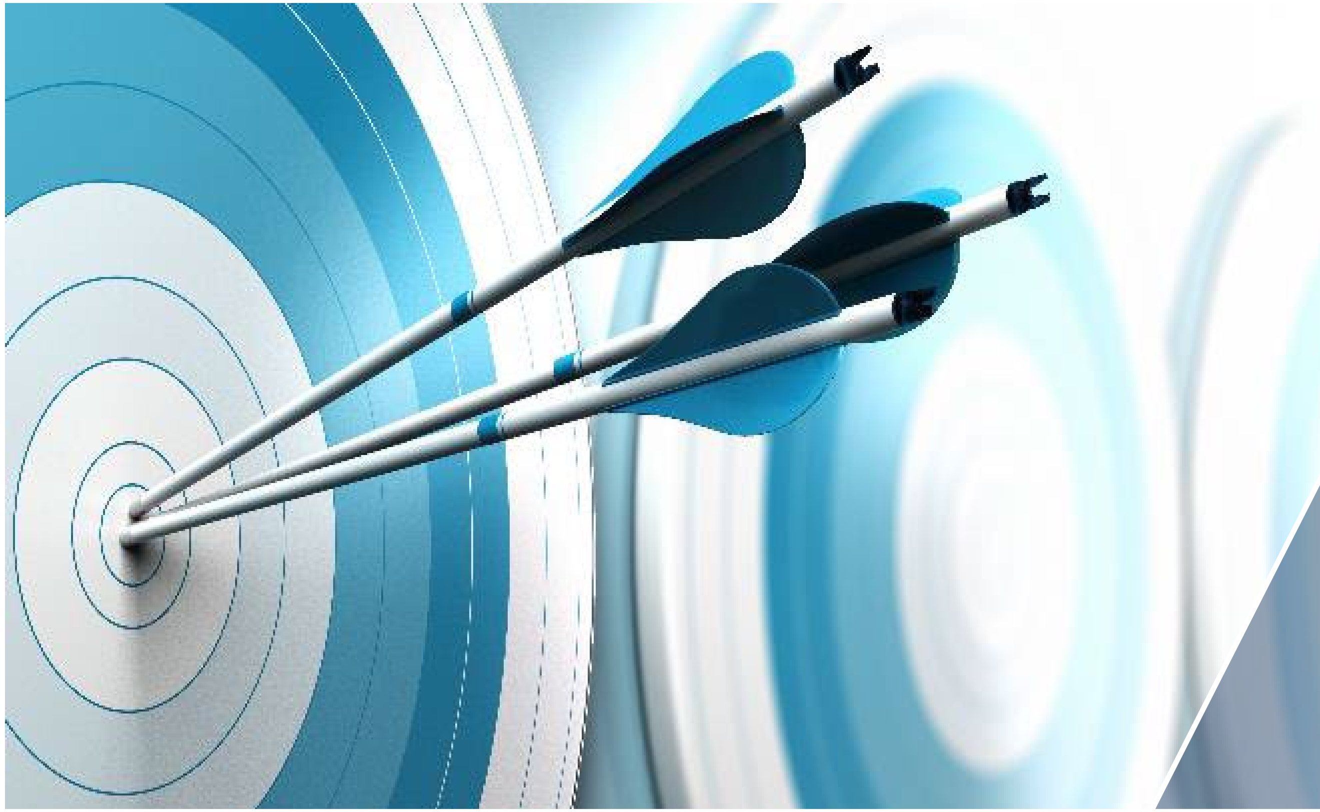
Mark Buis, FSA, EA, FCA, MAAA

Rich Koch, FSA, EA, MAAA

Gabriel, Roeder, Smith & Company (GRS)

Informational Item Only

- No Board action is required.



Wisconsin Retirement System

43rd Annual Actuarial Valuation as of
December 31, 2023 and Gain/Loss Analysis

June 2024

GRS

Funding Objectives

1

Intergenerational equity with respect to plan costs

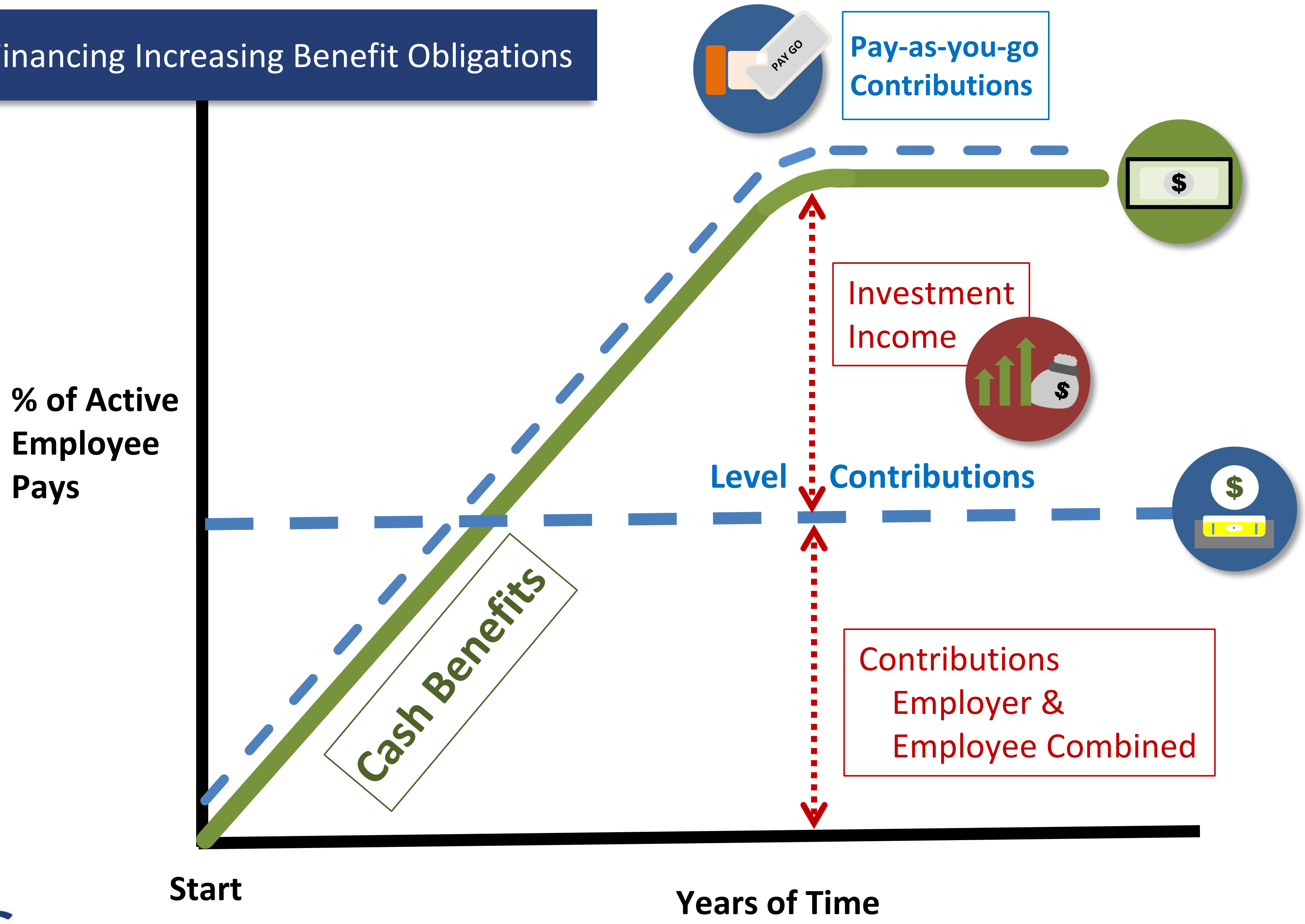
2

Stable or increasing ratio of assets to liabilities

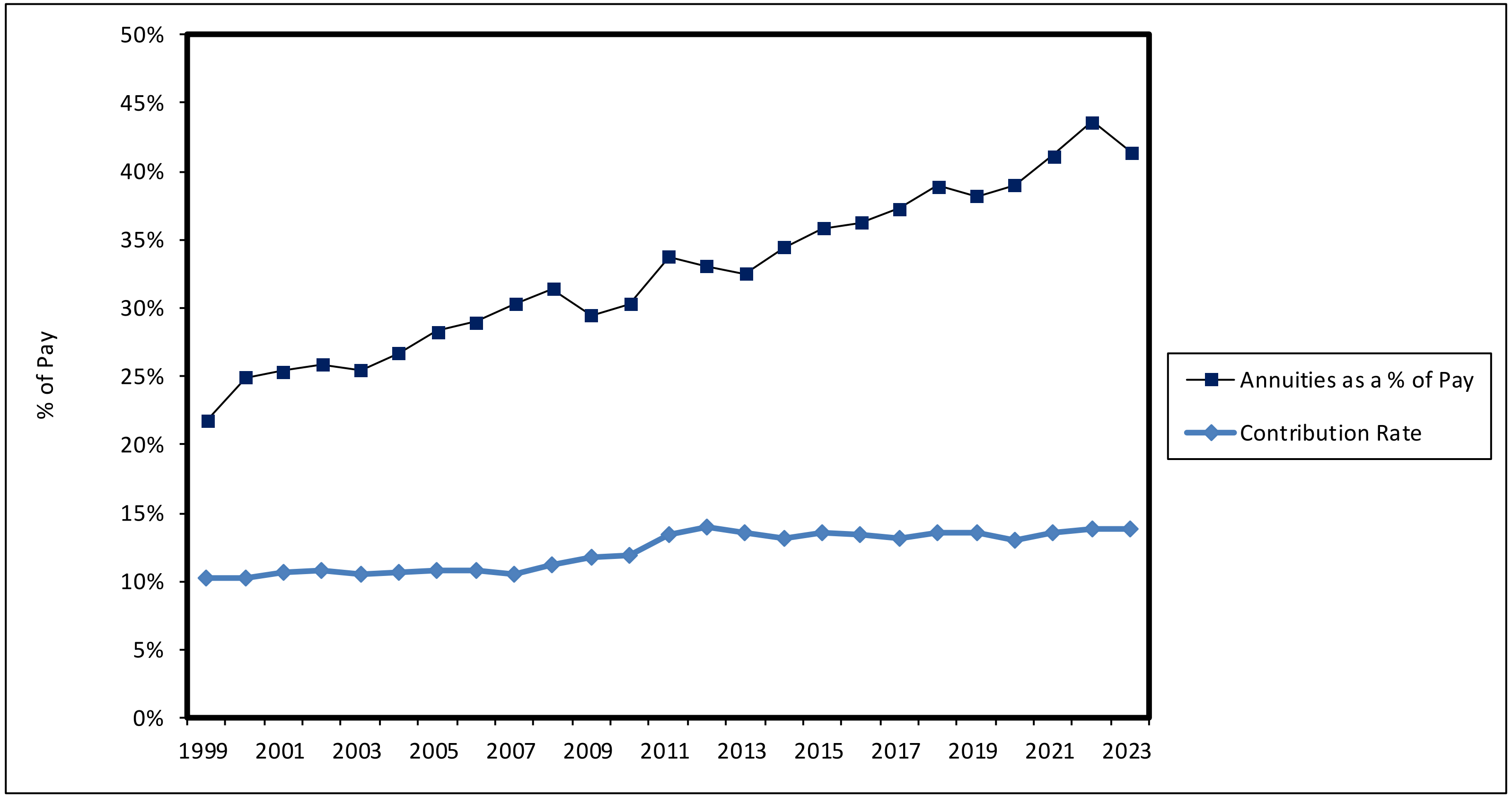
3

Stable pattern of contribution rates

Financing Increasing Benefit Obligations



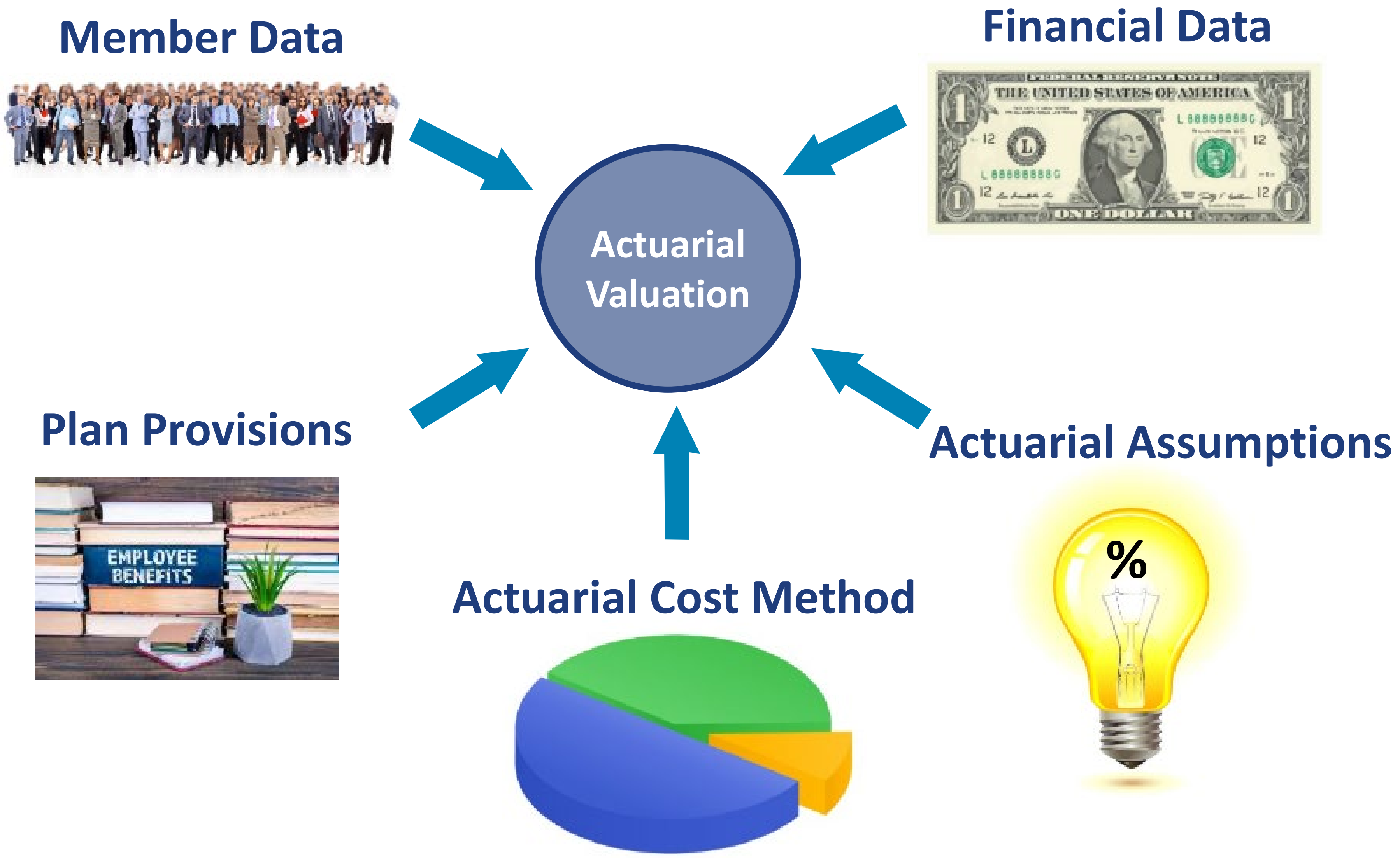
Annuities as a % of Payroll and WRS Average Total Contribution Rate*



Annuities are expected to continue to increase as a percent of payroll for several more decades.

**Average total rate shown is for General Participants.*

Actuarial Valuation Process



Active Participants at December 31, 2023

Valuation Group	Number	Annual Earnings ($ Millions)	Group Averages			
			Earnings	Age	Years of Service	Contribs.
General	240,319	$15,075.2	$62,730	44.7	10.6	$70,421
Executive Group & Elected Officials	1,208	125.1	103,550	54.3	14.4	140,421
Protective Occupation with Social Security	19,338	1,670.0	86,358	39.3	11.5	84,092
Protective Occupation without Social Security	2,872	265.9	92,586	39.4	12.5	98,521
Total Active Participants	**263,737**	**$17,136.2**	**$64,974**	**44.2**	**10.7**	**$72,050**
Prior Year	259,592	$16,025.9	$61,735	44.4	10.9	$69,712

All Participants at December 31, 2023

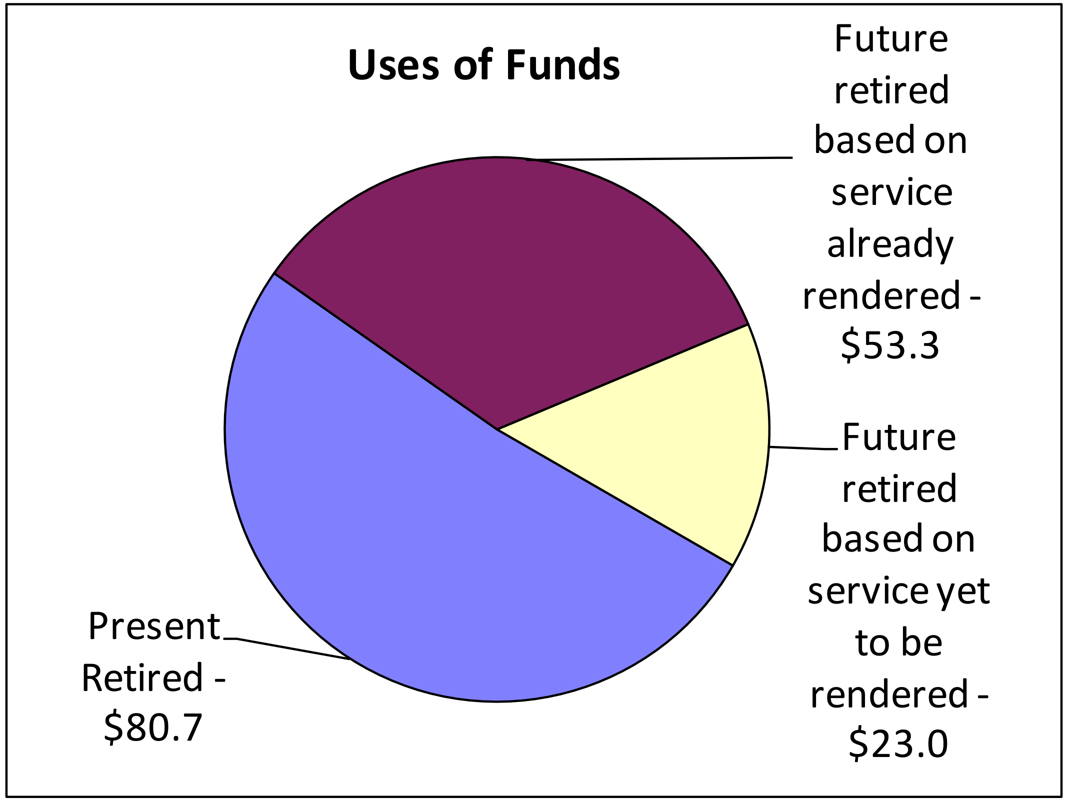
Active Lives
Valuation

Valuation Group	Number	Average Annual Earnings/Benefits[1]
Actives	263,737	$64,974
Inactives	186,977	$22,026
Retirees & Beneficiaries	238,111	$29,805
Total Participants	**688,825**	

Retired Lives
Valuation

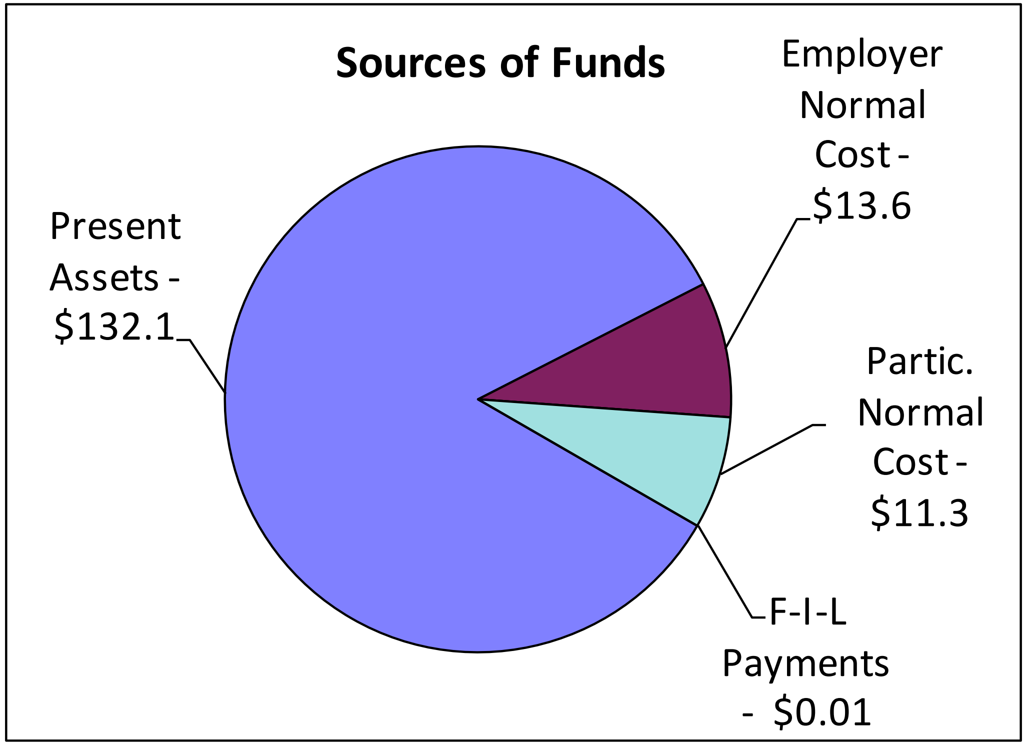
[1] *For inactives, average money purchase balance.*

$157.0 Billion* of Benefit Promises to Present Active and Retired Members

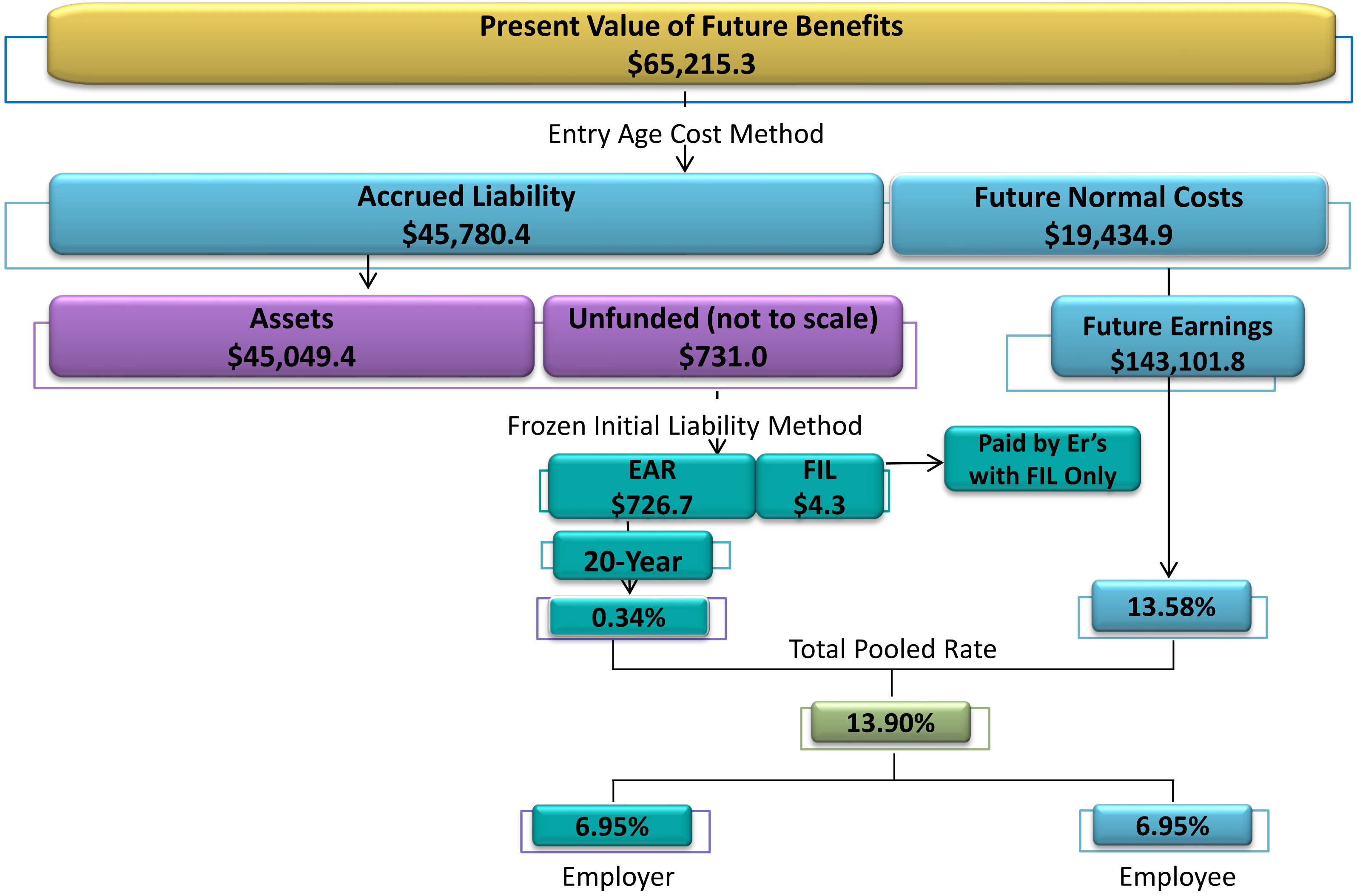


* *Present value of future benefits; all divisions combined.*

Sources of Funds for Financing $157.0 Billion of Benefit Promises



Actuarial Valuation Process
Illustration for General/Elected Group ($ Millions)



Summary of December 31, 2023 Valuation Results

	General, Executive & Elected Officials		Protective Occupation With Soc. Sec.		Protective Occupation Without Soc. Sec.		Average
	2025	2024	2025	2024	2025	2024	2025
Employer Normal Cost	6.95%	6.90%	14.95%	14.30%	18.95%	19.10%	7.90%
Participant Normal Cost	6.95%	6.90%	6.95%	6.90%	6.95%	6.90%	6.95%
Total Normal Cost	**13.9%**	**13.8%**	**21.9%**	**21.2%**	**25.9%**	**26.0%**	**14.9%**
Estimated Total NC ($ millions)*	**$2,241.5**	**$2,089.0**	**$388.0**	**$337.7**	**$73.1**	**$70.5**	

** Based on payroll projected from valuation date to fiscal year using the payroll growth assumption.*

Comparative Statement of Total Average Contribution Rates

Valuation 12/31	General	Executive & Elected	Protective with Soc. Sec.	Protective without Soc. Sec.
2003	10.50%	11.20%	13.00%	14.60%
2008	11.15%	11.95%	14.14%	15.46%
2013	13.60%	15.40%	16.30%	20.20%
2018	13.54%	13.54%	18.41%	23.02%
2019	13.53%	13.53%	18.51%	23.11%
2020	13.00%	13.00%	18.52%	23.86%
2021	13.60%	13.60%	20.03%	24.90%
2022	13.81%	13.81%	21.20%	26.00%
2023	13.90%	13.90%	21.90%	25.90%

Executive and Elected employee and employer rates for CY 2016 and beyond are made in accordance with the combined General/Executive & Elected results.

Pages B-5 & B-6

Protective Contribution Rate Levels

- Higher contribution rates compared to General Employees
  - Higher Benefit Multipliers
    - Protective = 2% or 2.5% (with or without Soc. Security)
    - General & Executive/Elected = 1.6%
  - Earlier Normal Retirement Eligibility
    - Protective at Age 54 or Age 53 with 25 years of service
    - General & Executive/Elected at Age 65/62 or Age 57 with 30 years of service

Protective Contribution Rate Levels

- More volatile contribution rates compared to General Employees
  - Asset/Payroll ratios[1]
    - Protective = 301% - 409% (with or without Soc. Security)
    - General & Executive/Elected = 296%
  - Liability/Payroll ratios[2]
    - Protective = 362% - 454% (with or without Soc. Security)
    - General & Executive/Elected = 301%

[1] Line 8 divided by line 2 from page B-2 in the active lives valuation
[2] Line 7 divided by line 2 from page B-2 in the active lives valuation

Reasons for Contribution Changes

	General, Executive & Elected	Protective with Soc. Sec.	Protective without Soc. Sec.
2024 Normal Cost Rate	13.80%	21.20%	26.00%
Effect of Benefit Change	0.00%	0.00%	0.00%
Effect of Assumption Change	0.00%	0.00%	0.00%
Effect of Asset Performance	(0.20)%	(0.41)%	(0.65)%
Effect of Salary Experience	0.25%	1.01%	0.37%
Effect of Money Purchase Benefit	0.04%	0.02%	0.00%
Demographic and Other Experience	0.01%	0.08%	0.18%
2025 Normal Cost Rate	13.90%	21.90%	25.90%

Generally zero when not an experience study year

The effect of Asset Performance is different for each group because the ratio of assets to payroll is different for each group.

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Impact of Asset Gains/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 valuation date are fully recognized
- Statutory smoothing method in WRS is referred to as the Market Recognition Account (MRA)

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Operation of Market Recognition Account (MRA) - $ Millions

	2023	2024	2025	2026	2027
Actual Investment Return	$ 12,721				
Assumed Investment Return	8,082				
Gain/(Loss) to be phased-in	4,639				
Phased-in recognition					
• Current year	$ 928	?	?	?	?
• First prior year	(5,068)	$ 928	?	?	?
• Second prior year	2,495	(5,068)	$ 928	?	?
• Third prior year	1,773	2,495	(5,068)	$ 928	?
• Fourth prior year	2,204	1,773	2,495	(5,068)	$ 928
Total recognized gain (loss)	$ 2,332	$ 128	$ (1,645)	$(4,140)	$ 928

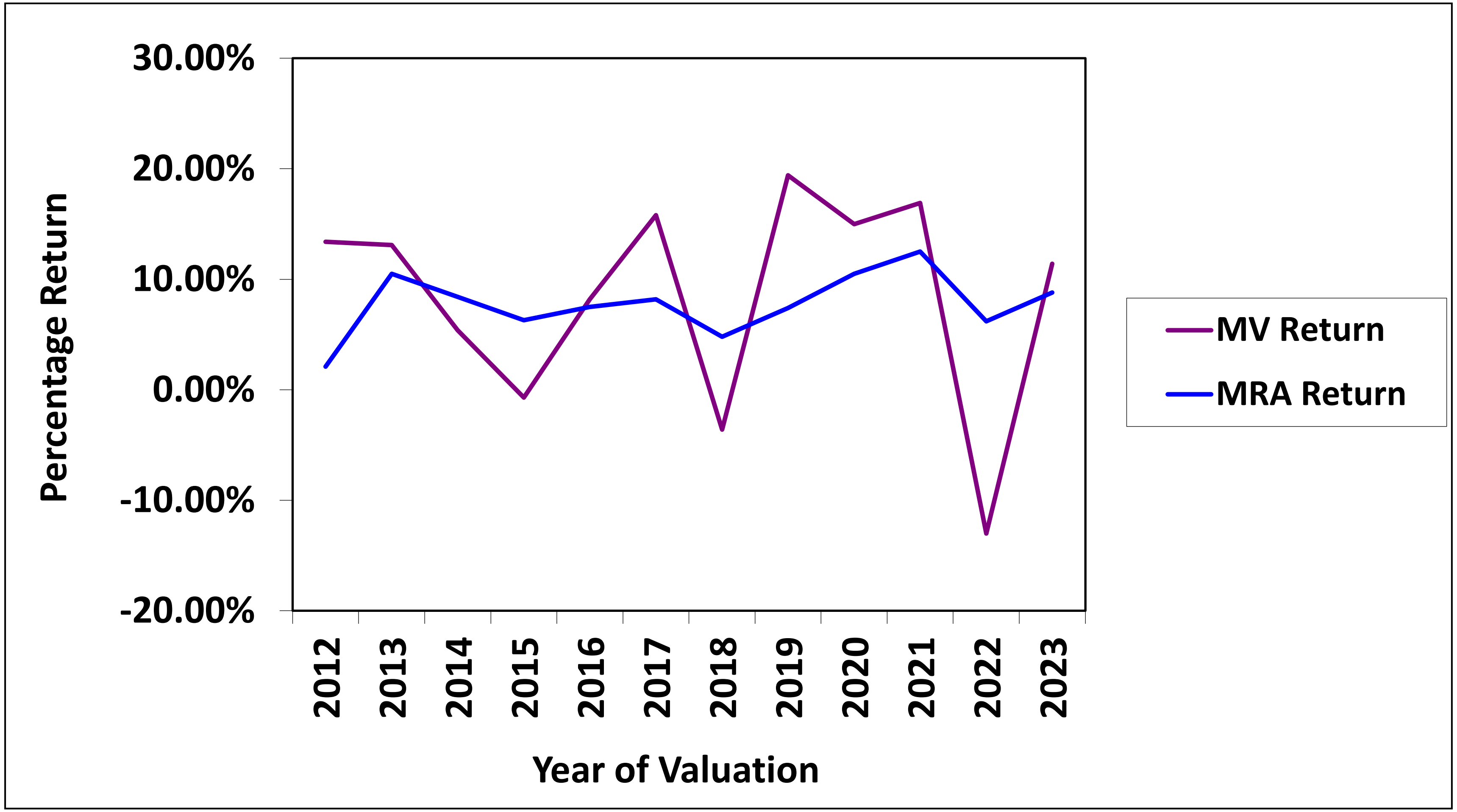
Reconciliation of Market Recognition Account (MRA)

	$ Millions
MRA at Beginning of Year	$121,173.3
Non-Investment Cash Flow	(4,645.8)
Assumed Return (at 6.8%)	8,081.8
Phase-in of Gains/(Losses)	2,331.8
MRA at End of Year	$126,941.1
MRA Rate of Return	8.80%
Market Value Rate of Return	11.40%

Assets in MRA include non WRS programs such as Sick Leave, Duty Disability, etc.

Market value rate of return shown as calculated by GRS and may differ from returns calculated by SWIB and/or ETF.

Market Value Return vs. Market Recognition (Actuarial) Return



WRS Funded Status

	Frozen Initial	Entry Age
2019	100.0%	98.6%
2020	100.0%	99.1%
2021	100.0%	99.3%
2022	100.0%	98.8%
2023	100.0%	98.6%

Concluding Remarks

- There are $4.7 billion of unrecognized losses in the MRA
- Due to the cost sharing nature of WRS, asset gains/losses have been traditionally shared by:

Employees	Employers	Retirees
↑↓ Money Purchase Benefits	↓↑ Contributions	↑↓ Dividends
↓↑ Contributions		

Gain/Loss Analysis

2023 Gain/Loss Analysis

A Gain/Loss Analysis measures differences between actual and assumed experience in each Risk Area.

WRS Assumption Risk Areas

Primary Risks	
Demographic	Economic
Normal retirement	Salary increases
Early retirement	Investment return
Death-in-service	
Disability	
Other separations	

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Why Have a Gain/Loss Analysis?

1. To gain an understanding of reasons for contribution rate changes
2. It is a year-by-year measure of the operation of assumptions
3. To determine when assumption changes are needed
4. To understand the nature of risk

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The Nature of Defined Benefit Plan Risk

Investment Risk	Asset/Liability Mismatch	Contribution Risk
• The risk that actual returns will differ from assumed returns.	• The potential that changes in assets are not offset by changes in liabilities. Because of the way assets are invested in most public plans, this is almost synonymous with investment risk.	• The risk that actual contributions will differ from expected contributions. This could occur, for example, if the plan's funding policy is not followed, or if there are changes in the covered population.

Retirement Sustainability Equation
- Asset/Liability Mismatch

$$C + I = B + E$$

B depends on

- Plan Provisions – at retirement, member receives x% of Final Average Pay times years of service
- Participant Experience – tenure, pay increases, etc.

Most Systems do not have asset changes offset by liability changes

Retirement Sustainability Equation
- Smaller Asset/Liability Mismatch in WRS

C + I = B + E

B depends on plan provisions, which incorporates **I** Experience

- Money Purchase DC benefit (changes with I results)
- Annual post-retirement adjustments to the monthly annuity benefit are based solely on investment returns
  - Dividends can increase or decrease

The Nature of Defined Benefit Plan Risk

Salary and Payroll Risk

- Individual pays and/or total covered payroll may not grow at the assumed rate. If covered payroll grows more slowly than assumed, or shrinks, actual contributions may fall short of expected contributions.

Longevity Risk

- Members may live for more or fewer years than expected, affecting the amount of pension income they will receive from the plan.

Other Demographic Risks

- Members may terminate, retire, or become disabled at rates other than expected, affecting both contribution rates and funded status.

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Population Development During 2023

		Actual	Expected
Beginning Census		259,592	
(-)	Normal Retirement	4,067	4,767
(-)	Early Retirement	3,291	3,958
(-)	Death	127	272
(-)	Disability Retirement		
	- Total Approved	203	150
	- Less Pending	66	
	- Net New	137	
(-)	Other Separations	16,842	14,383
(-)	Transfers Out	3,363	
(+)	Transfers In	3,363	
(+)	New Entrants	28,609	
Ending Census		263,737	

Population Development During 2023

Normal Retirements	Varied by group and gender. Overall, lower than expected, but net result on liabilities is a small loss.
Early Retirements	Lower than expected, overall producing a small loss.
Deaths	Among active participants were lower than expected. The net result for the past year was a small loss.
Disabilities	Slightly higher than expected, producing a small gain.
Other Separations	Varied by group, gender and service. Overall, higher than expected. The net result was a small loss.

Comparative Schedule of Experience Gains/Losses by Decrement

Divisions Combined (Millions)

	2022	2023
Normal Retirement	$ (36.4)	$ (14.7)
Early Retirement	(24.2)	(10.8)
Disability Retirement	2.0	4.6
Death with Benefit	(2.0)	(1.7)
Other Separations	37.5	(20.9)
Total	$ (23.1)	$ (43.5)
As % of Liabilities	-0.05%	-0.09%

Components of Total Gain/(Loss)

	Gain/(Loss) in Millions	
	2022	2023
Economic Risk Areas	$(489)	$(320)
Decrement Risk Areas	(23)	(44)
Other Activity	(76)	(95)
Total Gain/(Loss)	$(588)	$(459)

Investment Earnings in 2023 (Active Participants)

	$ Millions
A. Average balance on Participant and Employer Accumulation Reserves	$47,422
B. Expected earnings: 6.8%	3,225
C. Earnings credited to Participant and Employer Accumulation Reserves	4,649
D. Gain (loss) from earnings: C - B	$ 1,424

Investment Earnings in 2023 (Active Participants)

- $1,424 million is the total recognized asset gain for the year for active participants
- However, part of the total gain/loss is allocated to Variable Excess accounts
- Some of the gain/loss flows through to members via the operation of Money Purchase minimum benefits
- Must net these out to determine remaining core fund gain or loss
- Remaining portion affects contribution rates

Investment Earnings in 2023 (Active Participants)

	$ Millions
Gross Gain/(Loss) for the Year (for Actives)	$1,424
Less Estimated Gain/(Loss) due to Money Purchase	387
Less Estimated Gain/(Loss) due to Variable Excess	453
Net Core Fund Asset Gain/(Loss)	$584

Salary Related Gain/Loss

- Pay increases were overall higher than expected, resulting in a loss

	Gain/Loss $ Millions	% of Group Liabilities
General, Executive & Elected	$(567.2)	(1.3)%
Protective w/Soc. Sec.	(326.0)	(6.5)%
Protective w/o Soc. Sec.	(10.8)	(1.0)%
	$(904.0)	(1.8)%

Concluding Remarks

1 Recognition of remaining prior asset gains and losses are expected over the next few years

2 This Gain/Loss Analysis is the third in a regular 3-year experience cycle

3 This study, together with the 2021 and 2022 results, will form the basis for the next experience study to be performed after the December 31, 2023 valuation cycle

Current Events

Actuarial Standards "ASOPs" Generally

1

Actuarial Standards Board (ASB) develops standards for work in various actuarial practice areas (Life, Health, Pension, etc.)

2

Our work for the Wisconsin Retirement System (WRS) must follow actuarial standards

Main Pension ASOPS

- ASOP 4: Measuring Pension Obligations
- ASOP 27: Selection of Economic Assumptions
- ASOP 35: Selection of Demographic and other non-economic Assumptions
- ASOP 44: Selection and use of Asset Valuation Methods
- ASOP 51 Assessment and disclosure of Risk

Today’s discussion focuses on ASOP 4

Summary of Notable Changes to ASOP 4

Point 1 Actuaries now must calculate and disclose a reasonable Actuarially Determined Contribution (ADC)

Point 2 Actuaries must disclose a Low-Default-Risk Obligation Measure (LDROM) in funding valuations

Revised standard effective for WRS' 12/31/2023 valuations

Summary of Notable Changes to ASOP 4

Reasonable ADC

- Generally, plans which already develop an ADC following prior ASOP guidance are expected to meet the new reasonable ADC standard
- Plans which do not currently develop an ADC (some fixed rate plans, and some plans using statutory assumptions or methods) will be required to calculate a reasonable ADC

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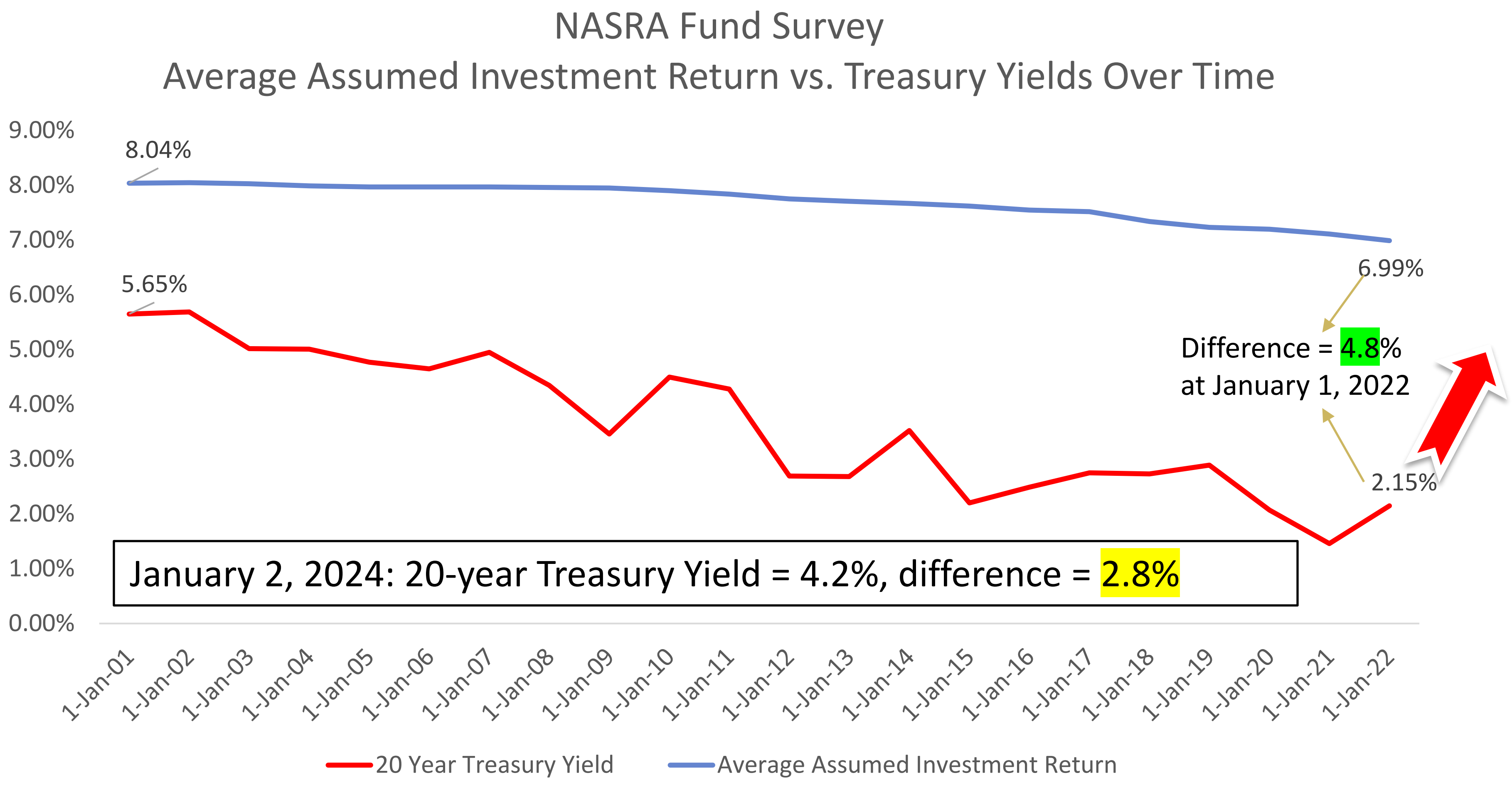
ASOP 4 – LDROM

Most Attention Getting Addition to ASOP 4

- Actuaries must calculate and disclose a liability using a discount rate or rates derived from:
  - Low-default-risk fixed income securities
  - Whose cash flows are reasonably consistent with the pattern of benefits expected to be paid in the future

Assumed Investment Returns vs. Risk-Free Yields



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Understanding LDROM

Calculation and Disclosure

LDROM discount rate examples:
• US Treasury Yields • Rates implicit in the settlement of pension obligations • Yields on corporate, or tax-exempt general obligations bonds • Non-stabilized ERISA funding rates • Multiemployer current liability rates

Other than discount rate – same assumptions as for funding the Retirement System

GRS

Understanding LDROM

Calculation and Disclosure

- LDROM calculated and disclosed as of the measurement date
  - Not to be calculated and disclosed more than once per year
- Performed using an immediate-gain actuarial cost method:
  - • Entry-age normal • Projected Unit Credit • Unit Credit (Traditional)

GRS

WRS AAL vs. LDROM as of December 31, 2023

Actuarial Accrued Liability vs. LDROM*

$133,994.4 Million $149,400.2 Million

- AAL relates to funded ratio and contributions
- E[Future dividends] = 1.7%

- A market-based measure of pension obligation
- E[Future dividends] = 0%

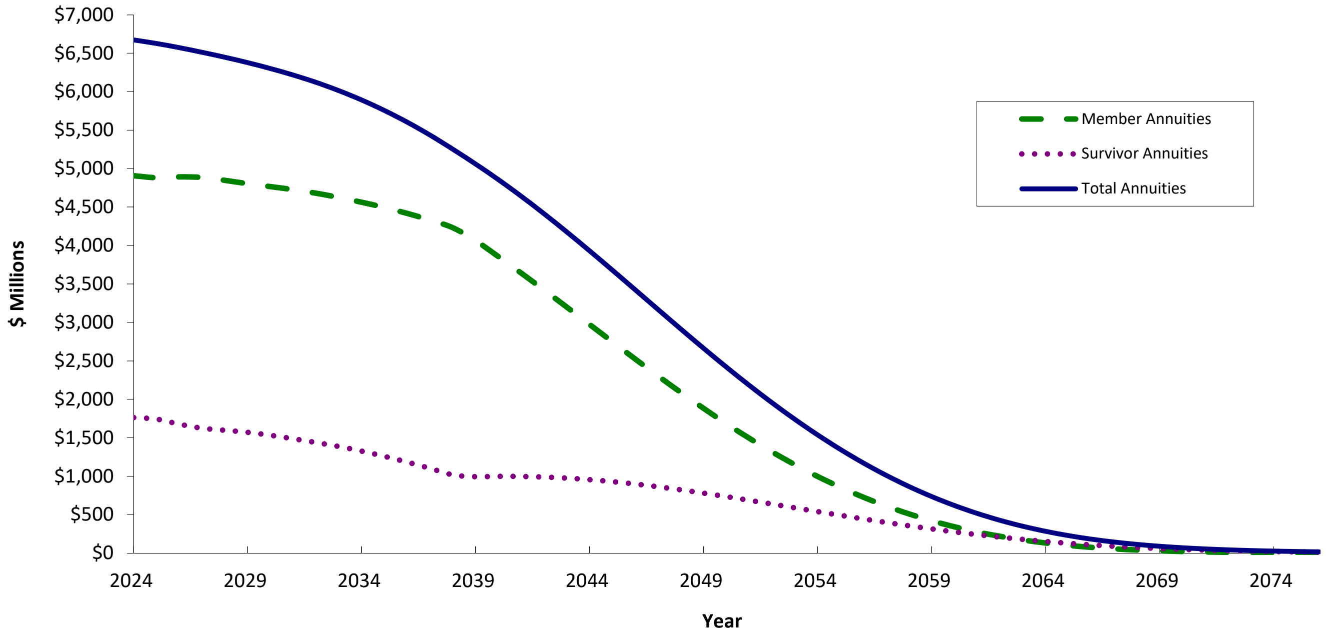
** LDROM based on Entry Age Normal and Dec. 2023 Treasury Yield Curve Spot Rates (end of month)*

– 1-, 5-, 10-, 30-year rates = $\underbrace{4.96\%, 4.06\%, 3.94\%, 4.15\%}_{\text{All Below 5\% dividend threshold}}$

LDROM Summary

- Additional Liability measure based on a Low default risk investment program
- Will NOT impact contributions, funded ratio
- Intended to help stakeholders better understand the funded status of the plan and the risks involved

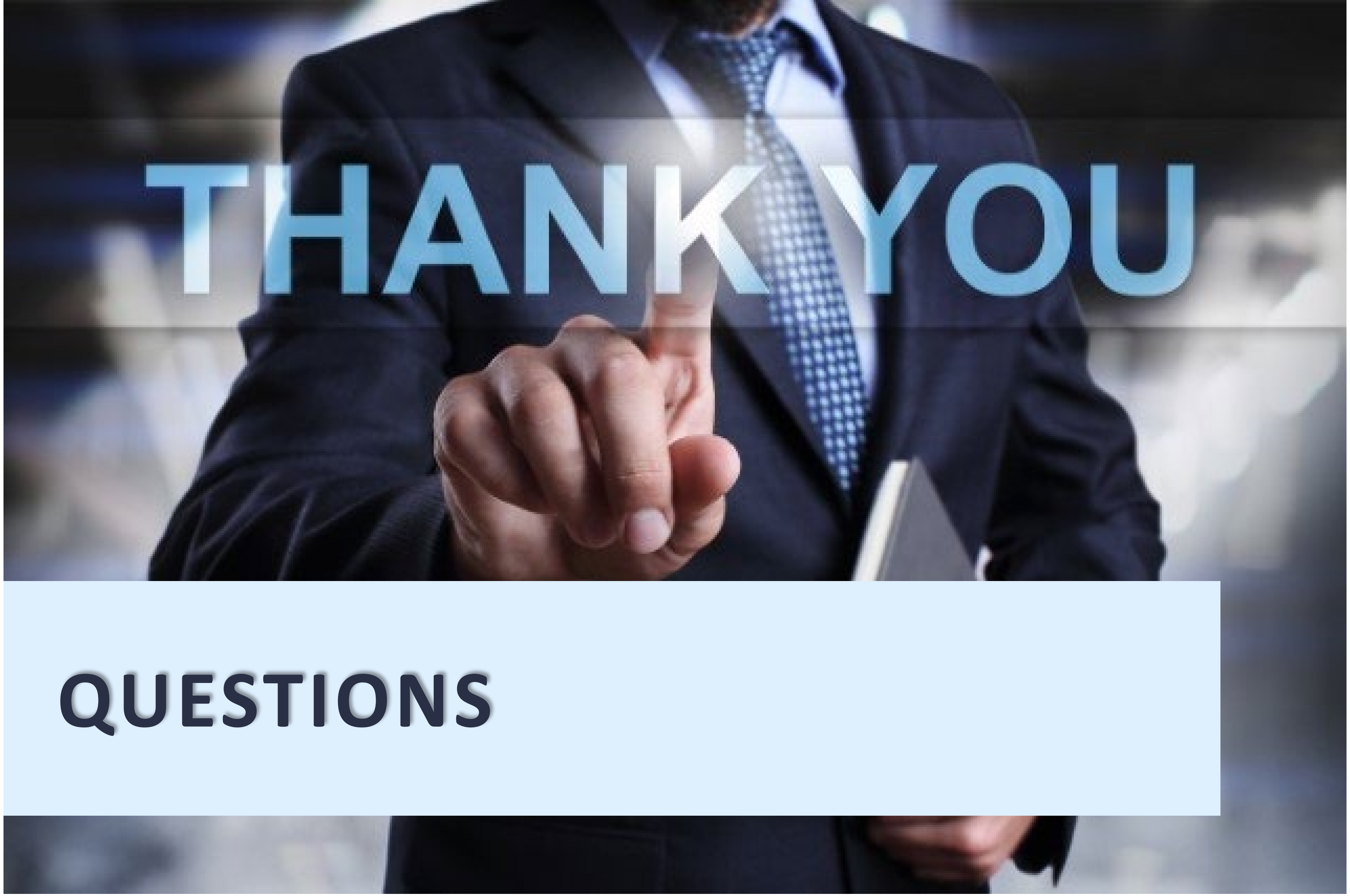
WRS Has Been Disclosing Similar Risk Measures for Years (Total Future Benefits = PV @ 0%)



$ Billions	With Expected Dividends	Without Expected Dividends
Total Future Benefit Payments	$153.0	$121.7
Present Assets	75.6	75.6
Future Investment Return Needed	77.4	46.1

Based upon the assumptions used in the valuation, future dividends are expected to be approximately 1.7% per year. Of course actual dividends will be based upon actual future investment return and the operation of the Market Recognition Account.

(Retired Lives Report-13)



QUESTIONS

Disclaimers

- This presentation shall not be construed to provide tax advice, legal advice or investment advice.
- Jim Anderson, Mark Buis and Richard C. Koch Jr. are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.
- This is one of multiple documents comprising the actuarial report. Additional information regarding actuarial assumptions and methods, and important additional disclosures are provided in the full report entitled "Forty-Third Annual Actuarial Valuation and Gain/Loss Analysis."
- If you need additional information to make an informed decision about the contents of this presentation or the contents of the full report, or if anything appears to be missing or incomplete, please contact us before making use of the information.

GRS

BREAK

The Board is on a short break. Audio and visual feed will resume upon the Board’s return.

etf

Educational Topic: WRS Experience Study

Item 3C – Joint Meeting of the Retirement Boards

Jim Anderson, FSA, EA, FCA, MAAA, GRS

Todd Mattina, Head Economist and Asset and Risk Allocation Chief Investment Officer, SWIB

Joe Nankof, Senior Consultant, NEPC

Informational Item Only

- No Board action is required.

WISCONSIN RETIREMENT SYSTEM

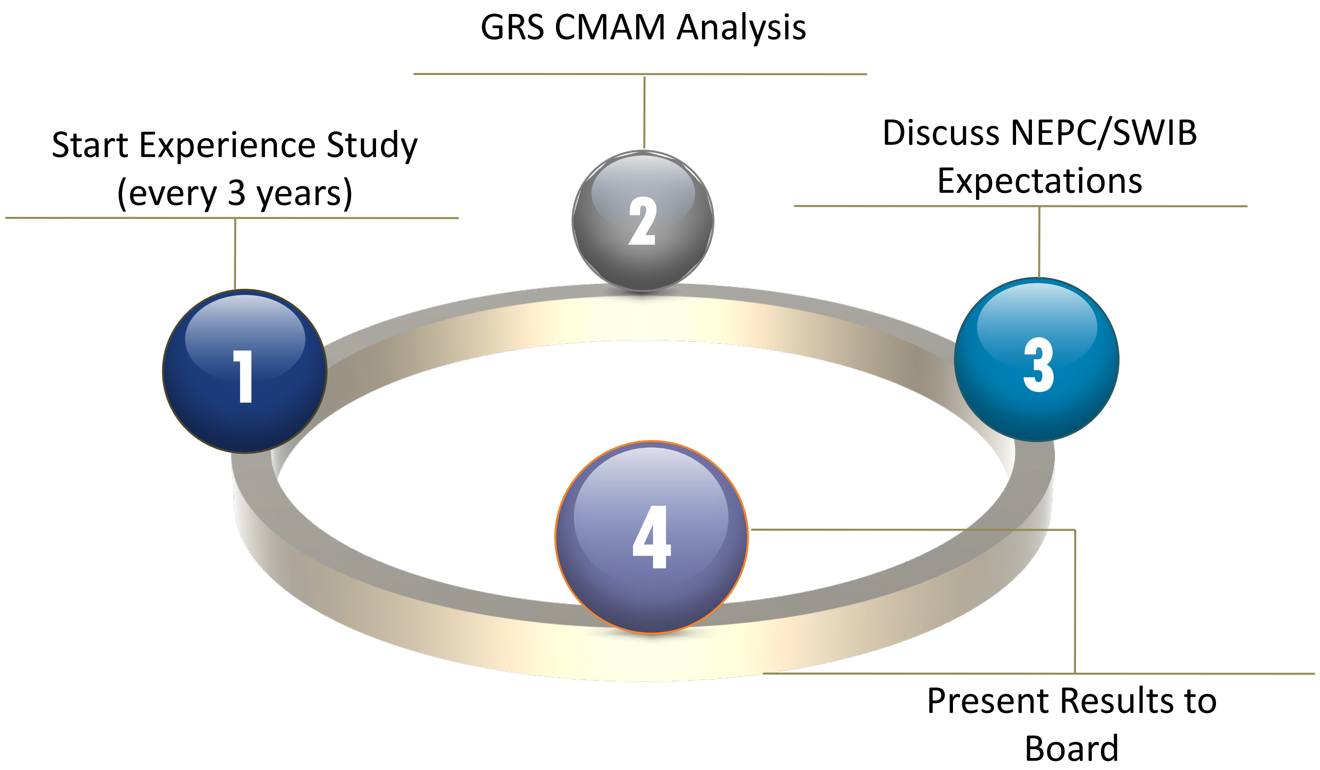
EDUCATIONAL TOPIC: WRS EXPERIENCE STUDY

JUNE 2024

Agenda

- Big Picture Process: GRS
- GRS Experience Study: Investment Return
- Big Picture Process: NEPC and SWIB
- Questions

GRS Process: Setting WRS Investment Return



2021-2023 WRS Experience Study

- A summary of, and expansion on, the annual Gain/Loss analysis
- Performed to refine assumptions every 3 years
- Board selection and approval required
- Delivery at December 2024 Board meeting

GRS confirms the investment return assumption annually, but deeper dive every 3 years along with other assumptions

Selection of Assumptions

Today's Focus

What Are They?

Economic	Demographic
• **Investment Return (6.8%)** • Payroll Growth Rate • Promotional/Step Pay Increases • Population Growth Rate (Usually, a constant population size is assumed)	• Retirement Rates • Disability • Turnover • Mortality

Who Selects Them?

Economic	Demographic
• Board • Actuary • Other Advisors	• Mostly Actuary • Board Approves

GRS

Investment Assumption Selection

- GRS are not investment experts, we look at the following items:
  - Historical trends
  - Forward expectations of Investment Consultants
  - Comparison to other Systems
- Typically, a Board decision with input from Investment Experts (including NEPC and SWIB) and Actuary
- But Actuary must comply with Actuarial Standards of Practice and certify the assumption as reasonable

Inflation for WRS

Price Inflation – a building block for investment return

- Review long-term averages and expectations
  - Investment consulting firm expectations
  - SWIB consultant (NEPC) forecasts
  - Annual report of the Social Security Trustees
- Develop reasonable range
- Recommend price inflation assumption
- No direct impact on liabilities

Investment Return

Capital Markets

- GRS does not provide investment advice
- GRS maintains a database of capital market assumptions from 12 different investment firms
- GRS uses the capital market assumptions to estimate the return that each firm would expect the client's portfolio to produce
  - The intention is to avoid giving undue weight to the expectation of any particular consulting firm

Investment Return

Capital Markets

- Actuarial expected return may differ from Investment Firms
  - Differences in time horizon (10 to 30 years)
  - Actuaries generally not allowed to include alpha
    - Assume that an active investment management strategy will produce superior investment performance compared to a passive management strategy
  - Actuaries are allowed to include margin for adverse deviation

Investment Return

Capital Markets

- Actuarial expected return may differ from Investment Firms
  - Mapping Error – some asset classes may be difficult to map
  - Inflation – tends to vary by investment firm
  - Purpose of Measurement – may be different for actuary (measuring liability) versus investment managers (benchmark)
  - Current Year Expectation – year to year forecasts can vary by 50 to 100 basis points/year, actuary may want to apply smoothing to forecasts

Investment Firms/Institutions Surveyed

- Aon
- Bank of New York Mellon
- Blackrock
- Callan
- Cambridge
- JP Morgan
- Meketa
- Mercer
- NEPC
- RVK
- Verus
- Wilshire

SWIB Target Core Asset Allocation - 2021*

Asset Class	*Asset Allocation*
Global Equities	52.00%
Fixed Income	25.00%
Inflation Sensitive Assets	19.00%
Real Estate	7.00%
Private Equity/Debt	12.00%
Cash Equivalents	-15.00%
Total	100.00%

SWIB investment policy considers liquidity risk

** This allocation was the basis for the last Experience Study, covering 2018-2020*

Investment Return (Geometric Expectation)*

GRS 2021 CMAM							
Capital Market Assumption Set (CMA)	Distribution of 10-Year Average Geometric Net Nominal Return			Probability of exceeding	Probability of exceeding	Probability of exceeding	Probability of exceeding
	40th	50th	60th	7.00%	6.75%	6.50%	6.25%
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	4.39%	5.47%	6.57%	36.28%	38.45%	40.65%	42.90%
2	4.37%	5.51%	6.65%	37.10%	39.19%	41.32%	43.48%
3	4.74%	5.76%	6.78%	37.96%	40.32%	42.72%	45.16%
4	4.88%	5.86%	6.86%	38.67%	41.11%	43.58%	46.09%
5	4.88%	5.96%	7.05%	40.48%	42.73%	45.02%	47.32%
6	4.85%	5.98%	7.13%	41.09%	43.24%	45.42%	47.62%
7	5.15%	6.26%	7.39%	43.37%	45.59%	47.84%	50.09%
8	5.15%	6.28%	7.41%	43.59%	45.79%	48.01%	50.25%
9	5.27%	6.39%	7.53%	44.60%	46.82%	49.05%	51.29%
10	5.41%	6.49%	7.59%	45.32%	47.63%	49.94%	52.27%
11	5.54%	6.77%	8.01%	48.13%	50.17%	52.22%	54.27%
12	6.46%	7.56%	8.67%	55.11%	57.39%	59.64%	61.88%
Average	**5.09%**	**6.19%**	**7.30%**	**42.64%**	**44.87%**	**47.12%**	**49.38%**
Average from last 3 CMAMs over 10-year horizon		**6.59%**					

** From last Experience Study.*

Summary of Forward-Looking Geometric Returns – WRS Portfolio*

	GRS CMAM 2019 Survey	GRS CMAM 2020 Survey	GRS CMAM 2021 Survey	SWIB/ NEPC
10-Years	7.04%	6.54%	6.19%	5.40%
20-30 Years	8.11%	7.61%	7.26%	6.60%

- Based upon this data and the liability structure of the WRS, our preferred assumption would be at the 50% percentile of investment return over 10 years
- Other assumptions are also reasonable and a longer horizon can be considered
- To assist the Board with decision making, we provide illustratative results

* *From last Experience Study.*

Observations

- There is no universal method to setting this assumption, but generally based on future forecasts of investment experts (not historical averages)
- There is no universal agreement on time horizon for this assumption, but generally between 10 and 20 years
- Survey data is not an exact science

Investment Return

Comments

- Changing the assumed return should not impact the asset allocation or what the fund will actually earn
  - Actuarial assumption is derived from current asset allocation (not vice versa)
  - Reflects future expectation of current allocation
- Changing the assumed rate of return should not materially impact retiree dividends
  - Retiree Reserve is valued at 5%
  - Dividends are granted based on what is actually earned, not what the actuary assumes
  - However, may shift a portion of dividends into the future

GRS Disclaimers

- This presentation shall not be construed to provide tax advice, legal advice, or investment advice.
- Jim Anderson is a Member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.
- Additional information regarding actuarial assumptions and methods, and important additional disclosures are provided in the full report entitled "Forty-Second Annual Actuarial Valuation and Gain/Loss Analysis."
- If you need additional information to make an informed decision about the contents of this presentation or the contents of the full report, or if anything appears to be missing or incomplete, please contact us before making use of the information.

ASSET ALLOCATION FRAMEWORK

A MULTI-DIMENSIONAL APPROACH TO ASSET ALLOCATION

STRATEGIC VIEWS
Long-term

<u>Focus of this review and today's discussion:</u> Serves as an implementation guide for strategic asset allocation targets and investment policy benchmarks

CURRENT OPPORTUNITIES
Intermediate

Recommended actions to improve investment outcomes relative to strategic asset allocation targets

DYNAMIC TILTS
Short-term

Represent an active tilt for public market asset classes relative to strategic asset allocation targets

ASSET ALLOCATION PROCESS

OVERVIEW

- Liability-aware approach that combines the inputs of GRS as actuarial consultant, NEPC as asset allocation consultant, and the Asset & Risk Allocation (ARA) division of SWIB.

- Process begins by identifying the range of feasible portfolios that balance the target rate of return, investment risk and actuarial downside risks based on GRS stress-testing analysis.

- NEPC develops and updates long-term capital market assumptions to evaluate alternative policy asset allocations.

- ARA implements the policy asset allocation changes approved by the SWIB Board and rebalances monthly.

- ARA allocates the active risk budget approved by the SWIB Board to active risk-taking activities.

- ETF Board reviews experience study every three years and approves the actuarial discount rate (currently set at 6.8%).

ASSET ALLOCATION PROCESS

ANNUAL CYCLE

1) Update capital market assumptions (NEPC) and assess economic environment

2) Evaluate specific asset allocation topics and “on year” actuarial stress testing (GRS)

3) Develop an asset allocation recommendation (SWIB-NEPC)

4) SWIB Board reviews and approves asset allocation and active risk budget

5) Implement new policy asset class targets and rebalance (SWIB)

2023 POLICY AND RECOMMENDATION

The biennial asset/liability review is an opportunity to review the asset allocation relative to the liabilities and consider adjustments to long-term investment policy. This exercise is intended to evaluate the long-term strategic decisions outlined in the table below.

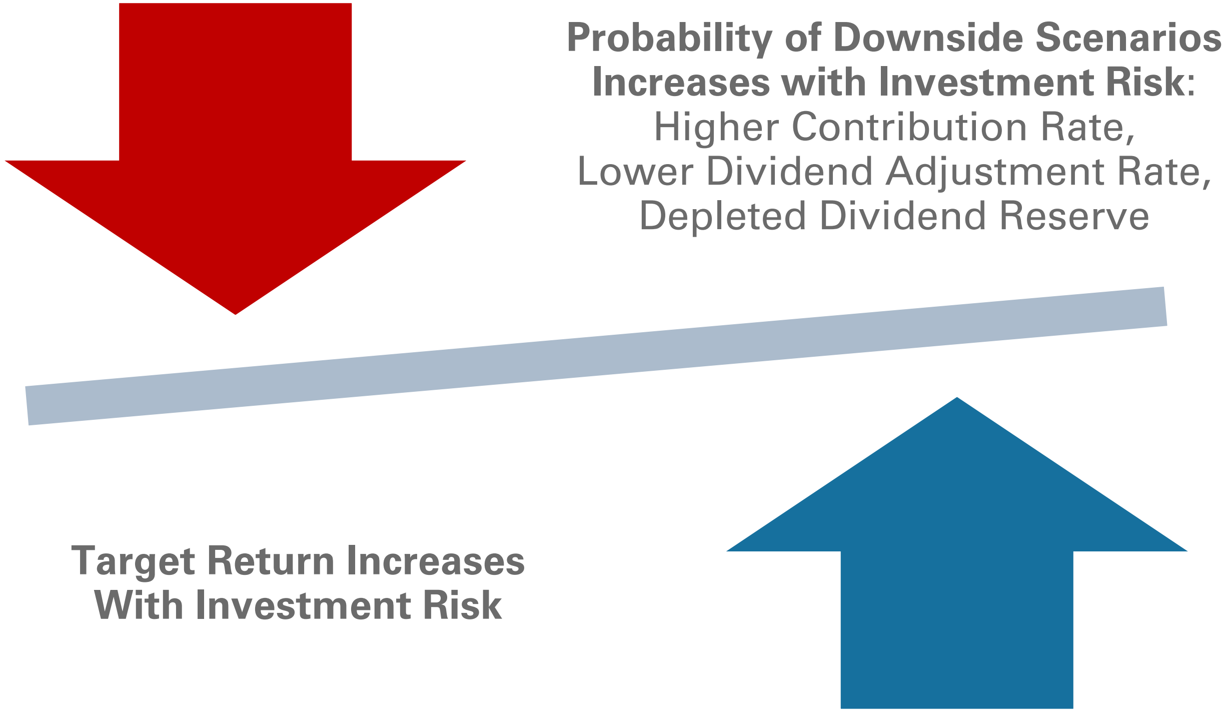
Decision	2023 Current Policy Targets	Approved 2024 Targets
Public Markets Allocation	48% Equity/25% Fixed Income/19% TIPS	40% Equity/27% Fixed Income/19% TIPS
Private Markets Allocation	15% Private Equity & Debt/8% Real Estate	18% Private Equity & Debt/8% Real Estate
Leverage Level	15%	12%
Public Equity Structure	Global Market Capitalization (China Half Weight)	No Change
Public Fixed Income Structure	60% Investment-Grade/40% Below Investment-Grade and Emerging Markets Debt	No Change

The 2024 Targets in the table above were approved during the December 2023 SWIB Board meeting and subsequently implemented by SWIB in the first several months of 2024.

FINDING THE 'GOLDILOCKS' ZONE

LIABILITY-AWARE APPROACH TO ASSET ALLOCATION

Objective is to balance the target rate of return with tolerance for investment volatility and downside risks in adverse scenarios, such as higher contribution rates, low dividend rates, weak funded ratios and depleted dividend liability.



FINDING THE 'GOLDILOCKS' ZONE

LIABILITY-AWARE APPROACH TO ASSET ALLOCATION

Objective is to balance the target rate of return (ROR) and investment volatility (StdDev) with downside risks in adverse scenarios, such as higher contribution rates, low dividend rates, weak funded ratios, and depleting the dividend liability.

2033 Results by %-tile of Investment Return Outcomes

				Contribution Rates			Dividend Rates			Highest	Worst Retiree
		ROR	StdDev	95th	50th	5th	95th	50th	5th	Div. Dep. PRB	Funded %
	1	4.0%	3.8%	16.4%	17.2%	18.0%	-0.2%	-1.1%	-2.0%	100%/Year50	51%/Year50
	2	5.0%	4.6%	15.5%	16.6%	17.6%	1.0%	-0.1%	-1.2%	73%/Year50	78%/Year50
	3	5.5%	5.5%	14.9%	16.2%	17.5%	1.7%	0.4%	-0.9%	18%/Year50	95%/Year50
	4	6.0%	9.4%	13.4%	15.9%	18.0%	3.1%	0.8%	-1.3%	18%/Year50	95%/Year10
Actuarial Rate 6.8%	5	6.5%	12.9%	11.9%	15.6%	18.4%	4.4%	1.3%	-1.7%	21%/Year50	89%/Year10
→	6	7.0%	13.6%	11.1%	15.3%	18.3%	5.0%	1.8%	-1.4%	18%/Year50	91%/Year10
	7	7.5%	17.1%	9.3%	15.0%	18.7%	6.3%	2.3%	-1.7%	23%/Year50	84%/Year10
	8	8.0%	22.4%	6.5%	14.7%	19.4%	8.0%	2.7%	-2.5%	29%/Year50	73%/Year10
	9	9.0%	28.1%	2.1%	14.1%	20.0%	10.3%	3.5%	-3.0%	33%/Year50	64%/Year10

Source: GRS. Note that "Div. Dep. PRB" represents dividend depletion probability.

ASSET ALLOCATION APPROVAL

SWIB BOARD REVIEWS AND APPROVES POLICY ALLOCATIONS

Strategic Asset Allocation Targets and Ranges

2024 Core Trust Fund recommendation and expectations:

	Policy Targets*	Ranges*
Public Equity	40%	34% - 46%
Public Fixed Income	27%	21% - 33%
Inflation Sensitive Assets	19%	14% - 24%
Private Equity/Debt	18%	10% - 26%
Real Estate	8%	4% - 12%
Leverage	-12%	-4%† to -20%
Total (Including Leverage)	100%	
10 Yr. Expected Return	*6.5%*	
30 Yr. Expected Return	*7.4%*	
Expected Standard Deviation	*12.4%*	
10 Yr. Expected Sharpe Ratio	*0.20*	
30 Yr. Expected Sharpe Ratio	*0.32*	
Target Active Risk	120bps +/- 60bps	

2024 Variable Trust Fund recommendation and expectations:

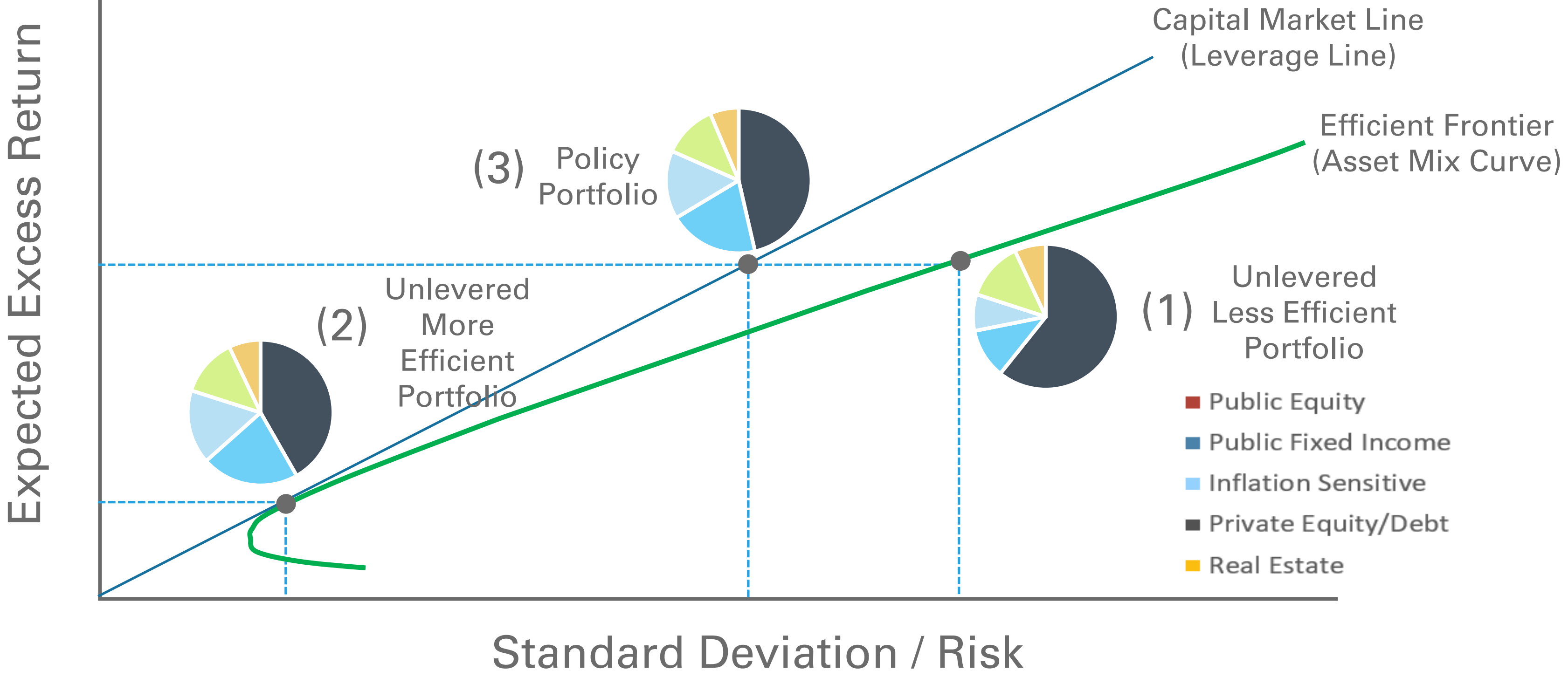
	Policy Targets	Ranges
U.S. Equities	70.0%	65.0-75.0%
International Equities	30.0%	25.0-35.0%
	100.0%	
10 Yr. Expected Return	*5.5%*	
30 Yr. Expected Return	*7.3%*	
Expected Standard Deviation	*17.7%*	
10 Yr. Expected Sharpe Ratio	*0.09*	
30 Yr. Expected Sharpe Ratio	*0.22*	
Target Active Risk	60bps +/- 30bps	

Source: SWIB Board decision, December 2023

DEVELOPING THE ASSET ALLOCATION RECOMMENDATION

POLICY LEVERAGE FRAMEWORK

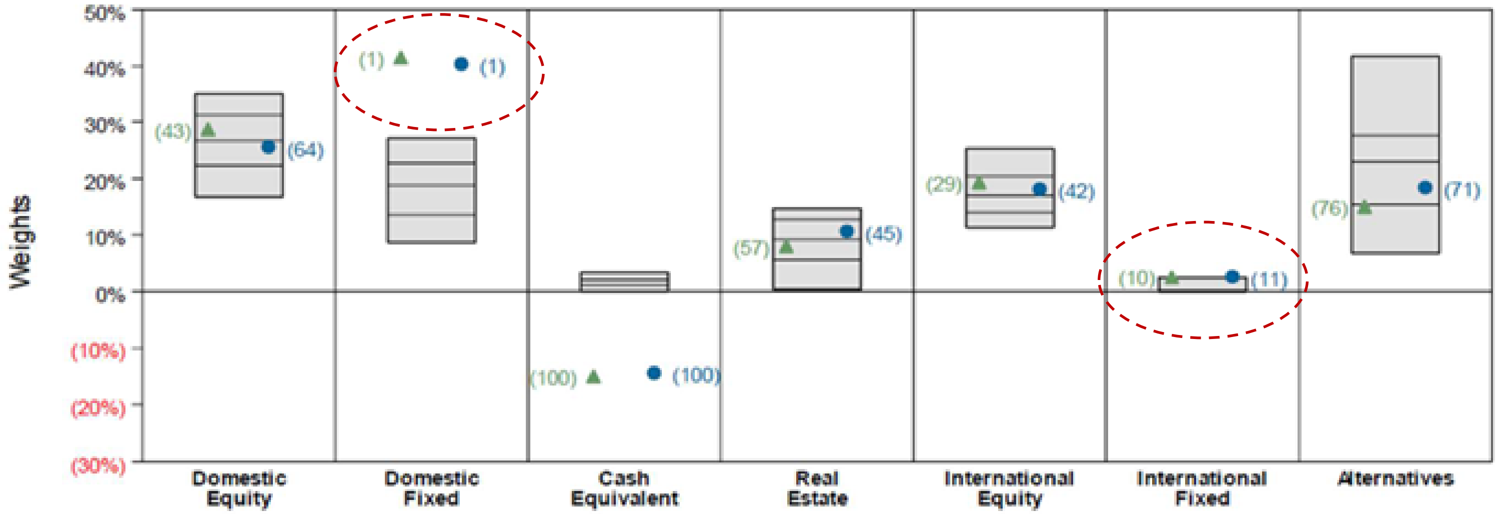
By levering a more efficient portfolio an investor can achieve a similar rate of return as a less efficient unlevered portfolio, but with lower volatility and usually with less equity risk.



Source: SWIB/ARA

PORTFOLIO ALREADY BEGINNING WITH A HIGH FIXED INCOME ALLOCATION RELATIVE TO PEERS

Asset Class Weights vs Callan Public Fund Spons- V Lg DB (>10B)



	Domestic Equity	Domestic Fixed	Cash Equivalent	Real Estate	International Equity	International Fixed	Alternatives
10th Percentile	35.16	27.13	3.31	14.62	25.28	2.49	41.76
25th Percentile	31.19	22.69	2.09	12.76	20.38	0.22	27.60
Median	26.65	18.82	1.16	9.23	16.97	0.00	22.95
75th Percentile	22.26	13.54	0.06	5.63	14.00	0.00	15.37
90th Percentile	16.73	8.65	0.00	0.38	11.28	0.00	6.76
Fund ●	25.39	40.20	(14.62)	10.48	17.93	2.42	18.21
Target ▲	28.71	41.50	(15.00)	8.00	19.29	2.50	15.00

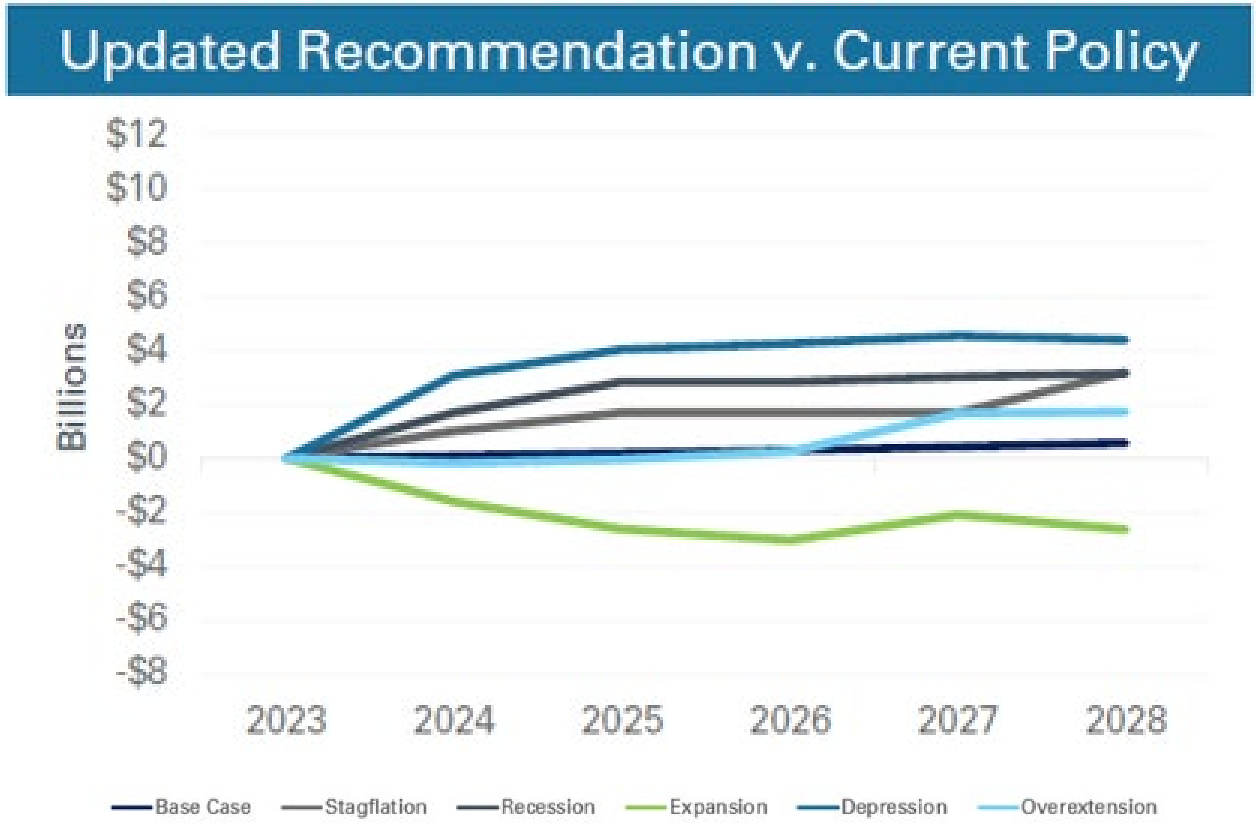
- SWIB's use of financial leverage (now 15%) enables more risk reducing/diversifying assets w/o sacrificing growth assets.
- This somewhat unique strategy is a more diversified and risk-balanced portfolio than most peers.
- Much more fixed income in US especially, and Int'l as a hedge against equity-like risks (and using less risky fixed income).
- Slightly less illiquid non-real estate "Alternatives"

Source: Callan. Data as of 12/31/2022

MACROECONOMIC SENSITIVITY ANALYSIS

EVALUATING SENSITIVITY TO MACRO SCENARIOS

Recommended policy portfolio allocation that was approved in December 2023 outperformed in most macroeconomic scenarios.



Source: NEPC

ASSET CLASS ASSUMPTIONS

DEVELOPMENT

- **Assumptions are published for over 70 asset classes**
  - NEPC publishes return forecasts for 10-year and 30-year periods
- **Market data as of 6/30/2023**
  - Capital market assumptions as of 6/30/2023 support design of policy asset allocation
  - Assumptions are developed with NEPC valuations models and rely on a building block approach
- **The return outlook supports strategic asset allocation analysis, actuarial inputs, and long-term planning**

Asset Allocation Process

1. Finalize list of new asset classes
2. Calculate asset class volatility and correlation assumptions
3. Set model terminal values, growth, and inflation inputs
4. Model data updated at quarter-end
5. Review model outputs and produce asset class return assumptions
6. Assumptions released on the 15th calendar day after quarter-end

ASSET CLASS BUILDING BLOCKS

METHODOLOGY

- **Asset models reflect current and forecasted market data to inform expected returns**
- **Systematic inputs are paired with a long-term trend to terminal values**
- **Model inputs are aggregated to capture key return drivers for each asset class**
- **Building block inputs will differ across asset class categories**

STABLE LONG-TERM ASSUMPTIONS

Source: NEPC

CORE ASSET CLASS RETURN ASSUMPTIONS

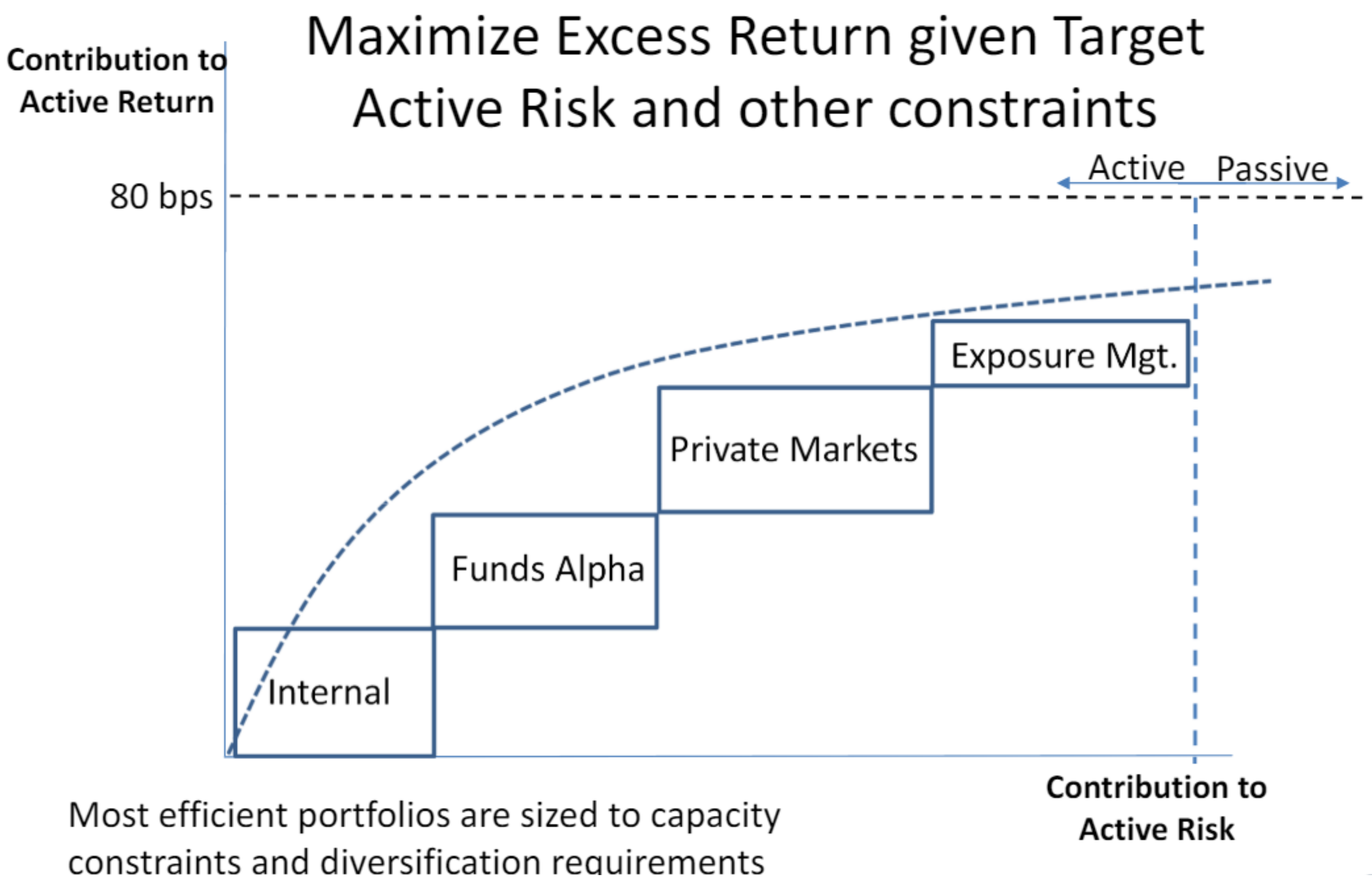
	Asset Class	06/30/23 10-Year Return	06/30/22 10-Year Return	Delta
	Cash	4.0%	2.9%	+1.1%
	U.S. Inflation	2.7%	2.4%	+0.3%
Equity	U.S. Large-Cap Equity	4.6%	5.8%	-1.2%
Equity	Non-U.S. Developed Equity	5.0%	6.4%	-1.4%
Equity	Emerging Market Equity	9.2%	9.6%	-0.4%
Equity	Global Equity*	5.7%	6.8%	-1.1%
Equity	Private Equity*	9.1%	9.8%	-0.7%
Fixed Income	U.S. Treasury Bond	4.2%	3.2%	+1.0%
Fixed Income	U.S. Municipal Bond	4.1%	4.0%	+0.1%
Fixed Income	U.S. Aggregate Bond*	4.7%	3.8%	+0.9%
Fixed Income	U.S. TIPS	4.6%	3.0%	+1.6%
Fixed Income	U.S. High Yield Corporate Bond	6.8%	6.9%	-0.1%
Fixed Income	Private Debt*	8.6%	8.0%	+0.6%
Real Assets	Commodity Futures	4.8%	3.4%	+1.4%
Real Assets	REIT	6.4%	6.1%	+0.3%
Real Assets	Gold	5.3%	4.4%	+0.9%
Real Assets	Real Estate - Core	5.3%	4.4%	+0.9%
Real Assets	Private Real Assets - Infrastructure	6.3%	6.1%	+0.2%
Multi-Asset	60% S&P 500 & 40% U.S. Aggregate	4.9%	5.3%	-0.4%
Multi-Asset	60% MSCI ACWI & 40% U.S. Agg.	5.6%	6.0%	-0.4%
Multi-Asset	Hedge Fund*	6.3%	6.0%	+0.3%

*Calculated as a blend of other asset classes

ACTIVE RISK BUDGET APPROACH

ALLOCATION OF ACTIVE RISK LIMIT

SWIB Board approves active risk budget of 120 bps +/- 60 bps for the CTF (see stylized diagram below) and 60 bps +/- 30 bps for the VTF.

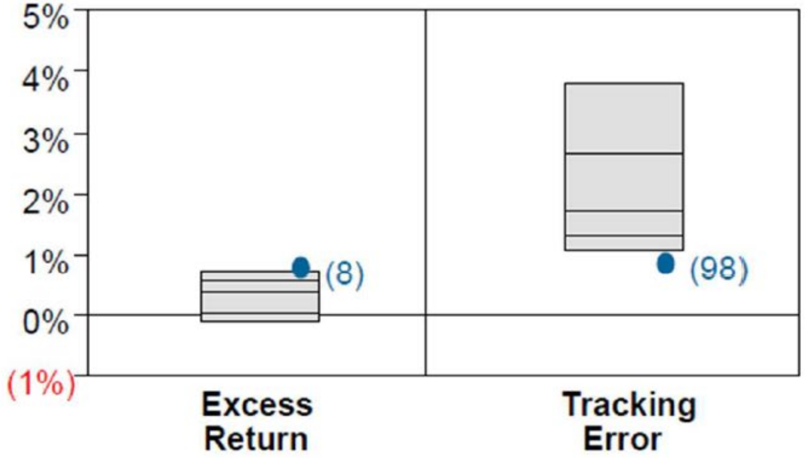


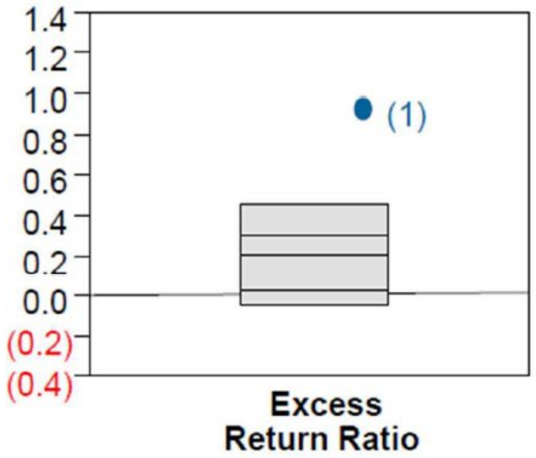
Source: SWIB Board, December 2023.

REALIZED RISK/REWARD TRADEOFF

FIVE YEARS ENDING 12/31/2023

Ranking gross excess returns and tracking error (active risk) relative to other large public funds. Excess returns in top decile with active risk in the bottom decline versus peers, resulting in top excess return ratio in the large public fund category.





	Excess Return	Tracking Error
10th Percentile	0.73	3.79
25th Percentile	0.56	2.66
Median	0.36	1.73
75th Percentile	0.02	1.33
90th Percentile	(0.12)	1.08
SWIB TF ●	0.76	0.83

	Excess Return Ratio
10th Percentile	0.46
25th Percentile	0.30
Median	0.20
75th Percentile	0.03
90th Percentile	(0.05)
SWIB TF ●	0.92

Source: Callan, SWIB Board presentation, March 2024

CTF ACTIVE RETURNS ENHANCE TOTAL RETURN

EXPECTED CONTRIBUTION TO TOTAL RISK AND RETURN

	Return Contribution	Risk
10 Years		
Proposed Policy Portfolio	6.5%	12.4%
Active Return	0.3-0.8%	0.6-1.8%
Total	6.8-7.3%	12.5-12.8%
30 Years		
Proposed Policy Portfolio	7.4%	12.4%
Active Return	0.3-0.8%	0.6-1.8%
Total	7.7-8.2%	12.5-12.8%

Source: SWIB Board, December 2023.

INFORMATION DISCLAIMER

Past performance is no guarantee of future results.

The goal of this report is to provide a basis for substantiating asset allocation recommendations. The opinions presented herein represent the good faith views of NEPC as of the date of this report and are subject to change at any time.

Information on market indices was provided by sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.

All investments carry some level of risk. Diversification and other asset allocation techniques do not ensure profit or protect against losses.

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Operational Updates

Items 4A – 4D – Memos Only

Informational Items Only

- No Board action is required.

Questions?

Future Items for Discussion

Item 5 – No Memo

Questions?

Adjournment

Item 6 – No Memo

BREAK

The Board is on a short break. Audio and visual feed will resume upon the Board's return.

Welcome to the Employee Trust Funds Board

June 20, 2024

Meeting will begin at: 1:00 p.m.

WIFI

WI-GUEST

No Password is needed

Please Sign In

- Who? All meeting attendees
- Sheet available at the door

Meeting Materials

- Scan the QR Code
- Available at etf.wi.gov

Please Silence your Cell Phone and Mute your Microphone

Announcements

Item 1 – No Memo

Consideration of: Open and Closed Minutes of March 28, 2024, Meeting

Items 2A – 2B – Memos Only

Action Needed

- Motion needed to accept the Open and Closed Minutes of the March 28, 2024, Meeting as presented by the Board Liaison.

Committee Reports

Item 3A – 3C – No Memo

WRS Active Lives Valuation and Gain/Loss Analysis – December 31, 2023

Item 4A – Employee Trust Funds Board

Mark Buis, FSA, EA, FCA, MAAA

Rich Koch, FSA, EA, MAAA

Gabriel, Roeder, Smith & Company (GRS)

Action Needed

- Motion needed to approve the WRS Annual Actuarial Valuation and Gain/Loss Analysis as of December 31, 2023.

Summary of December 31, 2023 Valuation Results

	General, Executive & Elected Officials		Protective Occupation With Soc. Sec.		Protective Occupation Without Soc. Sec.		Average
	2025	2024	2025	2024	2025	2024	2025
Employer Normal Cost	6.95%	6.90%	14.95%	14.30%	18.95%	19.10%	7.90%
Participant Normal Cost	6.95%	6.90%	6.95%	6.90%	6.95%	6.90%	6.95%
Total Normal Cost	**13.9%**	**13.8%**	**21.9%**	**21.2%**	**25.9%**	**26.0%**	**14.9%**
Estimated Total NC ($ millions)*	**$2,241.5**	**$2,089.0**	**$388.0**	**$337.7**	**$73.1**	**$70.5**	

** Based on payroll projected from valuation date to fiscal year using the payroll growth assumption.*

Questions?

Action Needed

- Motion needed to approve the WRS Annual Actuarial Valuation and Gain/Loss Analysis as of December 31, 2023.

Wisconsin Sick Leave Conversion Credit Programs Annual Actuarial Valuation – December 31, 2023

Item 4B – Employee Trust Funds Board

Jim Anderson, FSA, EA, FCA, MAAA

Rich Koch, FSA, EA, MAAA

Gabriel, Roeder, Smith & Company (GRS)

Action Needed

- Motion needed to approve the Sick Leave Conversion Credit Programs Actuarial Valuation as of December 31, 2023.

Wisconsin Sick Leave Conversion Credit Programs

Annual Actuarial Valuation as of December 31, 2023

June 2024

Wisconsin Sick Leave Conversion Credit Programs - Valuation

- Benefit provided to State of Wisconsin employees and eligible dependents
  - Covers cost of health insurance premiums until sick leave credits are exhausted
- Assets based on 5-year smoothing of investment earnings in connection with the Market Recognition Account developed for Wisconsin Retirement System (WRS) valuation
- Assumptions and actuarial cost method consistent with the WRS valuation

Accumulated Sick Leave Conversion Credit Program (ASLCC/Basic)

	ASLCC Plan
Eligibility	Termination with 20 or more years of WRS creditable service (not necessarily all State Service) or eligible for an immediate annuity
ASLCC Credits	Credit computed at time of retirement, disability, or death while employed = (# days unused sick leave) x (highest basic pay rate)

Conversion credits used to cover cost of Health Insurance premiums for Employee and Dependents. Unused portion carried forward without interest and may be continued to an insured spouse after the death of the primary annuitant.

Supplemental Health Insurance Conversion Credit Program (SHICC/Supplemental)

	SHICC Plan		
Eligibility	Termination with at least 15 years of continuous service with State of Wisconsin (not the same as WRS creditable service)		
SHICC Matching Credits	**Employment Category**	**First 24 Years of Service**	**Over 24 Years of Service**
	Protective	78 Hours/year	104 Hours/year
	Non-Protective	52 Hours/year	104 Hours/year

Conversion credits used to cover cost of Health Insurance premiums for Employee and Dependents. Unused portion carried forward without interest and may be continued to an insured spouse after the death of the primary annuitant.

Summary of Participant Data Report Page 3

Active Participants

	State Employees (Non-University)	University	University Hospital	Total
Number	32,747	33,055	10,748	76,550
Annual Payroll	$2,543,517,574	$2,889,636,573	$850,364,861	$6,283,519,008
Accrued Unused Sick Days	2,688,441 days	2,879,045 days	369,834 days	5,937,320 days
Averages: Age	44.6 years	45.5 years	40.4 years	44.4 years
Service	11.1 years	10.5 years	7.7 years	10.4 years
Sick Leave Days	82.1 days	87.1 days	34.4 days	77.6 days

Terminated Vested Participants

Number	Basic Sick Leave Balance	Supplemental Sick Leave Balance	Total Sick Leave Balance
524	$20,927,375	$13,499,514	$34,426,889

GRS

Summary of Participant Data Report Page 3

Retirees & Beneficiaries

Status	Number	ASLCC Sick Leave Balance	SHICC Sick Leave Balance	Total Sick Leave Balance
Active Annuitants with 1-Person Coverage	9,664	$277,547,433	$ 461,379,037	$ 738,926,470
Active Annuitants with Multi-Person Coverage	9,414	419,087,981	643,126,371	1,062,214,352
Escrowed/On-Hold Annuitants	6,019	278,206,444	200,684,136	478,890,580
Total	25,097	974,841,858	1,305,189,544	2,280,031,402

In addition to the counts above, annuitants provided in the data with any of the following were excluded from the valuation:

- An account that is in a closed status; or
- A new account that is still being processed and has a status of pending; or
- An account with a $0 sick leave balance.

Summary of Sick Leave Asset Data Report Page 6

	ASLCC Program	SHICC Program	Total
Beginning Balance	$1,876,961,358	$1,215,058,346	$3,092,019,704
Adjustment	75,074	(45,111)	29,963
Adjusted Beginning Balance	$1,877,036,432	$1,215,013,235	$3,092,049,667
Revenues			
Contributions	$ 41,595,274	$ 11,889,477	$ 53,484,751
Other	26	0	26
Investment Income	161,180,286	104,652,053	265,832,339
Total Revenues	$ 202,775,586	$ 116,541,530	$ 319,317,116
Expenses			
Insurance Premiums	$ 113,161,557	$ 53,045,927	$ 166,207,484
Other	0	0	0
Administration	615,974	580,464	1,196,438
Total Expenses	$ 113,777,531	$ 53,626,391	$ 167,403,922
Ending Balance - December 31, 2023	$1,966,034,487	$1,277,928,374	$3,243,962,861
Internal Rate of Return	8.8%	8.8%	8.8%

Based on Market Recognition Account and provided by ETF.

Blended Net Premium Calculation Report Page 5

Retirees and Beneficiaries

	Rate Category	
	Non-Medicare	**Medicare**
1. Number of 1-Person Contracts[1]	1,959	7,694
2. Total Monthly Premium of 1-Person Contracts	$1,935,681	$3,300,423
3. Average 1-Person Premium as of 1/1/2024 (2./1.)	$ 988.10	$ 428.96
4. Number of Multiple-Person Contracts[1],[2]	1,329	6,642
5. Total Monthly Premium of Multiple-Person Contracts	$3,166,410	$5,250,356
6. Average Multiple-Person Premium as of 1/1/2024 (5./4.)	$ 2,382.55	$ 790.48
7. Blended Net Premium as of 1/1/2024 (50%*3. + 50%*6.)[3]	$ 1,685.33	$ 609.72
First Prior Year	$ 1,408.08	$ 536.37

(1) *Retirees with an account status of active, a premium populated in the data provided and a sick leave balance greater than $0. The number counts above were used strictly for developing average premiums and may be different from retiree counts shown throughout this report.*

(2) *Beginning with the December 31, 2023 valuation, excludes all split contracts where one person covered is non-Medicare and the other is Medicare.*

(3) *Used in the valuation of all non-active annuitants (i.e., current actives, preserved members and on-hold/escrowed annuitants). For active annuitants, the actual premiums provided in the data are used. Blended net premium is a blend of the 1-person and 2-person average premiums based on the 50% 1-person/2-person election percent assumption.*

GRS

December 31, 2023 Sick Leave Valuation Results – Employer Contribution Rates Report Page 1

Valuation Date December 31	Fiscal Year Ending December 31	ASLCC	SHICC	Total	UAAL[(1)] Amortization Years
2014	2016	0.8%	0.4%	1.2%	11
2015[(2)]	2017	0.9%	0.4%	1.3%	10
2016	2018	0.8%	0.4%	1.2%	9
2017	2019	0.8%	0.3%	1.1%	8
2018[(2)]	2020	0.9%	0.3%	1.2%	7
2019	2021	0.8%	0.3%	1.1%	6
2020	2022	0.7%	0.1%	0.8%	5
2021[(2)]	2023	0.7%	0.2%	0.9%	4
2022	2024	0.7%	0.2%	0.9%	3
2023	2025	0.9%	0.3%	1.2%	2

[(1)]Unfunded Actuarial Accrued Liabilities are for one employer Beyond Vision (formerly Wiscraft)
[(2)]Assumption change

GRS

Concluding Remarks

During 2023, pays increases were higher than expected based on actuarial assumptions

During 2023, the increase in the premiums was higher than anticipated based on actuarial assumptions

During 2023, investment return on a market value basis was higher than the assumed level of 6.8%

The Market Recognition Account phases-in gains and losses over 5 years -- resulting in an 8.8% return on a smoothed basis

- Net result: increased contribution rates this year
- If actuarial assumptions are realized, there will be upward contribution pressure in future years

Disclaimers

- This presentation shall not be construed to provide tax advice, legal advice or investment advice.
- James D. Anderson and Richard Koch Jr. 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.
- This is one of multiple documents comprising the actuarial report. Additional information regarding actuarial assumptions and methods, and important additional disclosures are provided in the full report entitled "Wisconsin Accumulated Sick Leave Conversion Credit Programs Annual Actuarial Valuation, December 31, 2023."
- If you need additional information to make an informed decision about the contents of this presentation or the contents of the full report, or if anything appears to be missing or incomplete, please contact us before making use of the information.

Questions?

Action Needed

- Motion needed to approve the Sick Leave Conversion Credit Programs Actuarial Valuation as of December 31, 2023.

Duty Disability Insurance Program Incurred But Not Reported (IBNR) Claims Experience Studies

Item 4C – Employee Trust Funds Board

Jim Guidry, Benefit Services Bureau, Division of Benefits Administration

Paul Correia, FSA, MAAA, Milliman, Inc.

Informational Item Only

No Board action is required.

IBNR Experience Studies for the State of Wisconsin Duty Disability Insurance Program

Paul Correia, FSA, MAAA
Milliman, Inc.
June 20, 2024

Milliman

IBNR Experience Studies and Updated Valuation Assumptions

- Updated assumptions for computing liabilities for incurred but not reported (IBNR) claims, based on experience studies performed by Milliman using historical plan experience.

Lookback Period	Prior IBNR Factors	Current IBNR Factors
First Year	98.41%	96.66%
Second Year	58.20%	60.93%
Third Year	72.07%	53.88%
Fourth Year	NA	42.71%
Fifth Year	NA	12.80%

- IBNR factors are applied to expected annual incurred claims for computing the liability for IBNR claims.

Impact of Updated Valuation Assumptions

- The impact of using the updated assumptions for calculating IBNR claim liabilities as of Dec. 31, 2022, is a $15.7 million increase in the estimated liability, as shown below:

  - ➢ Estimated IBNR claim liability as of Dec. 31, 2022, based on prior assumptions: $29,686,049
  - ➢ Estimated IBNR claim liability as of Dec. 31, 2022, based on updated assumptions: $45,414,779

Impact of Updated Valuation Assumptions On the Estimated Liability for Duty Disability IBNR Claims As of Dec. 31, 2022	
Assumption Change	**Impact on Liability**
Updated Incurred Claims Calculation	$1,285,205
Updated IBNR Factors	$4,618,162
Extended Lookback Period	$9,825,364
Total	**$15,728,730**

Limitations

- We relied on information provided by the Department of Employee Trust Funds (ETF). If any of this information is inaccurate or incomplete, our results may be affected and may need to be revised.
- The valuation uses actuarial assumptions that are individually reasonable and that, in combination, offer our best estimate of anticipated experience. A model was developed for the purpose of projecting future experience. To the extent that actual experience varies from the assumptions, the emerging costs of the plan will vary from the projections we have prepared.
- The calculations in this presentation are consistent with our understanding of Duty Disability funding objectives and requirements. Additional determinations may be needed for other purposes.
- Milliman's work product was prepared exclusively for ETF for a specific and limited purpose. It is not for the use or benefit of any third party for any purpose.
- I, Paul Correia, am a Consulting Actuary with Milliman. I am a member of the American Academy of Actuaries, and I meet its Qualification Standards to render the actuarial opinion contained herein.

Questions

Stay Connected

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Actuarial Valuation of the State of Wisconsin Duty Disability Insurance Program

As of December 31, 2023

Paul Correia, FSA, MAAA
Milliman, Inc.
June, 2024

Milliman

Valuation Assumptions

- Same discount rate, claim termination rate, and estimated offset assumptions as last year.
- Updated assumptions for computing liabilities for incurred but not reported (IBNR) claims, based on experience studies performed by Milliman using historical plan experience.

Duty Disability Liabilities As of December 31, 2023

Liability Component	Estimated Liability
Open Claims	$499,922,132
Future Survivors	$35,883,664
IBNR Claims	$46,660,191
Loss Adjustment Expenses	$12,000,058
Overpayment Recovery	($323,051)
Total	**$594,142,994**

- 1,012 open claims as of December 31, 2023
  - 957 disabled members
  - 55 survivors (spouses and domestic partners)

Comparison to Prior Year

Liability Component	12/31/2022	12/31/2023
Open Claims	$481,530,420	$499,922,132
Future Survivors	$34,830,670	$35,883,664
IBNR Claims	$29,686,049	$46,660,191
Loss Adjustment Expenses	$10,968,617	$12,000,058
Overpayment Recovery	$(251,942)	$(323,051)
Total	**$556,763,814**	**$594,142,994**

- Benefits increased by 5.3% (national wage index) and 1.6% (core annuity index) on 1/1/2024.
- Liability for IBNR claims is higher due to the updated valuation assumptions.

Duty Disability Funding Status as of December 31, 2023

Balance Sheet Component	2023
Beginning of Year Fund Balance	**$754,061,695**
Plus: Smoothed Investment Income	$64,302,141
Plus: Premium Contributions	$1,067,047
Less: Insurance Claims	$40,225,130
Less: Administrative Expenses	$1,148,551
End of Year Fund Balance	**$778,057,202**
Estimated Liability as of December 31, 2023	$594,142,994
Surplus ($)	$183,914,208
Fund Ratio (% of Estimated Liability)	**131.0%**

The fund ratio of 131.0% is within the target range of 125% to 135%.

Duty Disability Funding Analysis

Scenario	Assumed Contribution Rate	Assumed Investment Income	Projected Fund Ratio	
			12/31/2024	12/31/2032
Baseline	Current rates are held level in all years	6.8% in all years	**130%**	**116%**
1	Current rates are held level in all years	3.2% in 2024 then 6.8% in 2025+	**125%**	**109%**
2	Rates increased to 0.55% of payroll in 2025 and held level in future years	6.8% in all years	**130%**	**134%**
3	Rates increased by 10 basis points per year from 2025-2029	6.8% in all years	**130%**	**129%**

- The fund is sensitive to investment income and not very sensitive to premiums.
- The projected fund ratio reduces to 125% when we assume 3.2% investment income in 2024 and remains below target in future years.

Questions

Limitations

- We relied on information provided by the Department of Employee Trust Funds (ETF). If any of this information is inaccurate or incomplete, our results may be affected and may need to be revised.
- The valuation uses actuarial assumptions that are individually reasonable and that, in combination, offer our best estimate of anticipated experience. A model was developed for the purpose of projecting future experience. To the extent that actual experience varies from the assumptions, the emerging costs of the plan will vary from the projections we have prepared.
- The calculations in this presentation are consistent with our understanding of Duty Disability funding objectives and requirements. Additional determinations may be needed for other purposes.
- Milliman's work product was prepared exclusively for ETF for a specific and limited purpose. It is not for the use or benefit of any third party for any purpose.
- I, Paul Correia, am a Consulting Actuary with Milliman. I am a member of the American Academy of Actuaries, and I meet its Qualification Standards to render the actuarial opinion contained herein.

Duty Disability Insurance Employer Rates 2025

Item 4D – Employee Trust Funds Board

Marie Ruetten, Deputy Administrator

Division of Trust Finance

etf

Action Needed

ETF requests that the Employee Trust Funds Board approve the Duty Disability Insurance Program Actuarial Valuation as of Dec. 31, 2023, and increase 2025 contributions rates by 0.1% of covered payroll.

Duty Disability Program Reserves

Data Points:	2022	2023
Actuarial Liability	$556,763,814	$594,142,994
Reserve Balance	$754,059,930	$778,057,202
Surplus / (Deficit)	$197,296,116	$183,914,208
Funded Ratio *Target Range 125%-135%	135%	131%

Duty Disability Rates

- Employer paid contributions
- Contribution rates based on experience-rated tier schedule

Tier	Number of Claims	Claims as a % of Covered Payroll	2024 Contribution Rate as a % of Covered Payroll
1	1	<=1.5%	0.02%
2	2	>1.5% but ≤ 3.0%	0.04%
3	3	>3.0% but ≤ 4.5%	0.09%
4	4	>4.5% but ≤ 6.0%	0.15%
5	5	>6.0% but ≤ 7.5%	0.24%
6	6	>7.5% but ≤ 9.0%	0.35%
7	7	>9.0% but ≤ 10.5%	0.48%
8	8 or more	Claims > 10.5%	0.57%

Recommended 2025 Rates

Tier	Base Contribution Rate	Actuarial Adjustment Rate	Recommended 2025 Contribution Rate	# of Employers
1	0.25%	-0.19%	0.06%	423
2	0.50%	-0.38%	0.12%	42
3	1.00%	-0.76%	0.24%	28
4	1.75%	-1.33%	0.42%	8
5	2.75%	-2.08%	0.67%	7
6	4.00%	-3.03%	0.97%	5
7	5.50%	-4.17%	1.33%	1
8	6.60%	-5.00%	1.60%	1


Questions?

Action Needed

ETF requests that the Employee Trust Funds Board approve the Duty Disability Insurance Program Actuarial Valuation as of Dec. 31, 2023, and increase 2025 contributions rates by 0.1% of covered payroll.

Secretary's Report

Item 5A – Employee Trust Funds Board

John Voelker, Secretary

Office of the Secretary

Questions?

Operational Updates

Items 5B – 5G – Memos Only

Informational Items Only

- No Board action is required.

Questions?

Tentative September 2024 Agenda

Item 6A – Memo Only

Informational Item Only

- No Board action is required.

Questions?

CLOSED SESSION

The Board may meet in closed session pursuant to the exemption contained in Wis. Stat. § 19.85 (1) (c) to discuss employment, promotion compensation or performance evaluation data of any public employee over which the governmental body has jurisdiction or exercises responsibility. If a closed session is held, the Board may vote to reconvene into open session following the closed session.

Item 7 – No Memo

Announcement of Business Deliberated and Action Taken During Closed Session

Item 10 – No Memo

Adjournment

Item 11 – No Memo