



**County Employees Retirement System
Kentucky Retirement Systems
Boards of Trustees – Special Training Meeting
January 26, 2023 at 2:00 pm ET (1:00 pm CT)
Live Video Conference/Facebook Live**

AGENDA

- | | |
|---|--------------------------------------|
| 1. Call to Order | Betty Pendergrass |
| 2. Opening Statement | Betty Pendergrass |
| 3. Roll Call | Sherry Rankin |
| 4. Public Comment | Sherry Rankin |
| 5. Pension Performance Analytics | Tom Sgouros
Scott McCarty |
| 6. Adjourn | Betty Pendergrass |

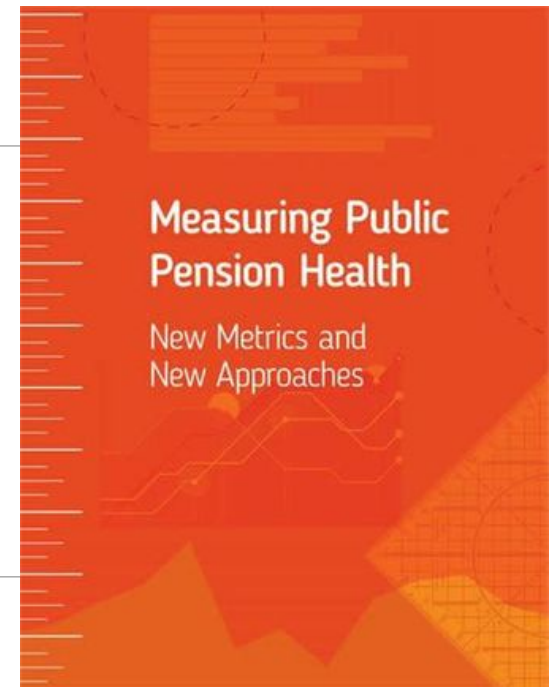
Measuring Public Pension Health: New Metrics and New Approaches

KENTUCKY RETIREMENT SYSTEM

JANUARY 26, 2023

TOM SGOUROS, BROWN UNIVERSITY

SCOTT MCCARTY, BOARD CHAIR, ARIZONA PUBLIC SAFETY PERSONNEL RETIREMENT SYSTEM



Tom Sgouros, Brown University

- Senior Policy Advisor to Rhode Island General Treasurer 2015-2016
- Public policy consultant for 35 years to governments, advocacy groups, candidates. Budgets, tax policy, public finance, statistics.
- Fellow, The Policy Lab at Brown University
- Research Faculty, Computer Science Department

Scott McCarty, Chair-Arizona PSPRS

- Appointed by Senate President Steve Yarbrough in January 2019
- Elected chairman in January 2020
- More than 30 years of public service experience
- Finance Director for the Town of Queen Creek, Ariona
- Chair of the Arizona League of Cities and Towns Pension Task Force (2016)
- Certified Public Accountant

Arizona PSPRS: Overview

- ~60K Members, Retirees, and Beneficiaries
- 3 Defined Benefit Plans
 1. Public Safety
 2. Corrections Officers
 3. Elected Officials
- Agent, Multiple Employer Plan
 - ~250 Individual Plans with Unique Funded Status and Financial Condition
 - Multi-Tiers Based on Hire Date

Arizona PSPRS 9-Member Board of Trustees

Scott McCarty
Chair

Cities and Towns

Harry A. Papp
Vice Chair

Board of Trustees

Randi Stein

Cities and Towns

Chris Hemmen

Law Enforcement

Brian Moore

Firefighter

Dean M. Scheinert

Counties

Alan Maguire

Cities and Towns

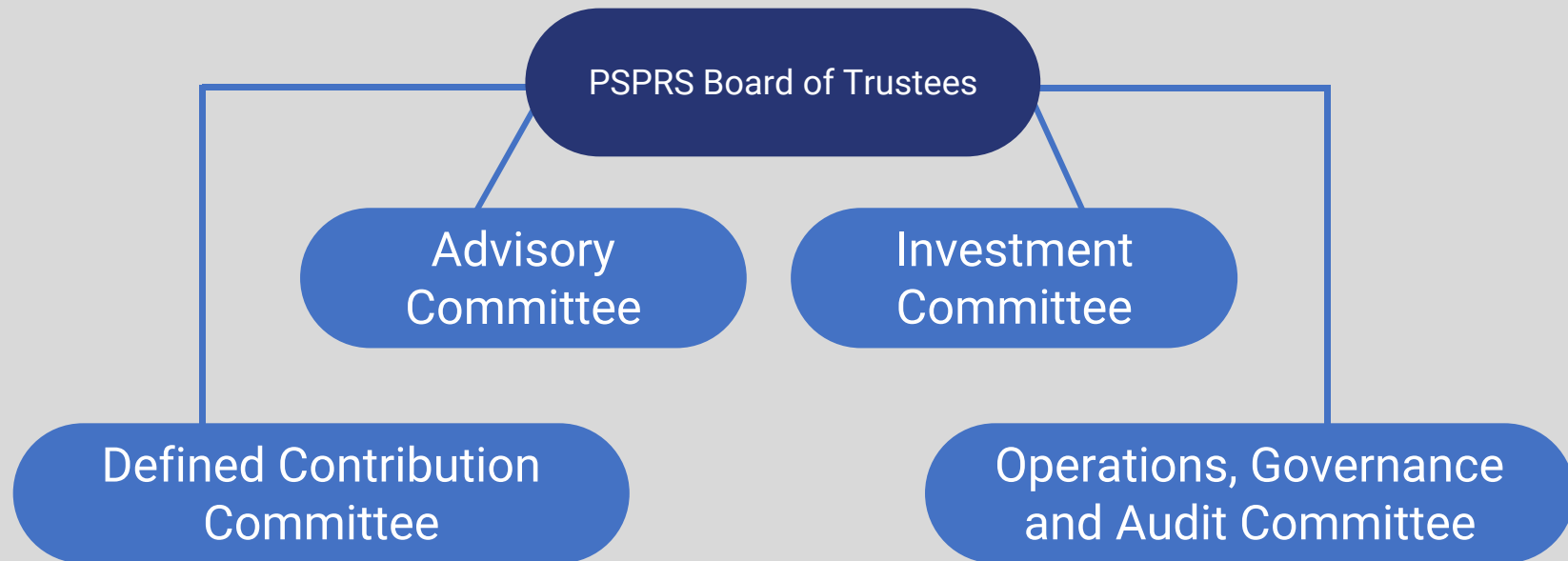
Nate Weber

Firefighter

Daren Wunderle

Law Enforcement

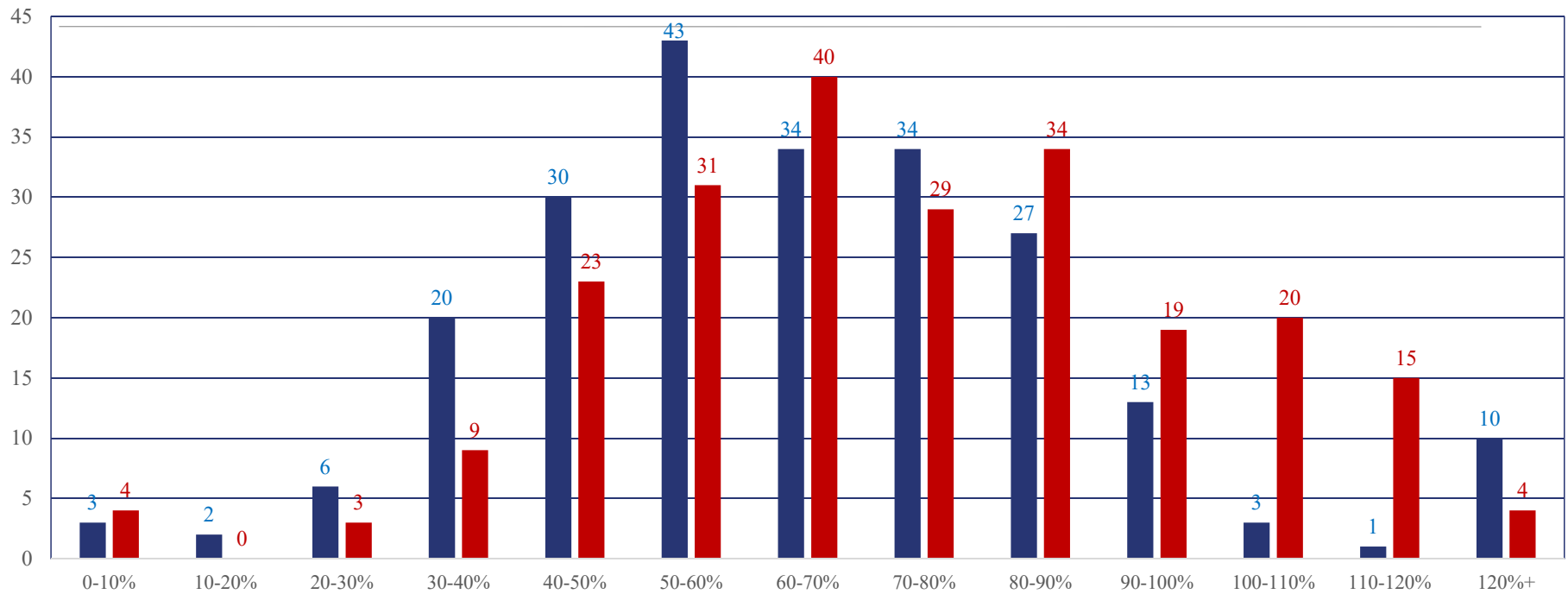
Arizona PSPRS Board / Committee Structure



Arizona PSPRS: Improving Funded Status

- ~\$5B in Excess Employer Contributions from One-Time Payments and Pension Obligation Bonds Received Over the Last Several Years
- Financial Condition at June 30, 2022 (Public Safety Plan Only)
 - Unfunded Pension Liability: \$7B (\$13B Assets, \$20B Liabilities)
 - Funded Status: 65%

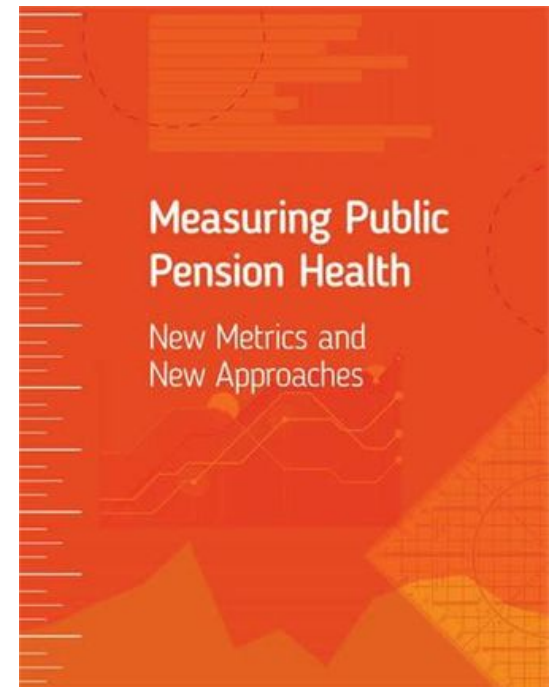
Arizona PSPRS: Funded Status Improving 2021 vs. 2022



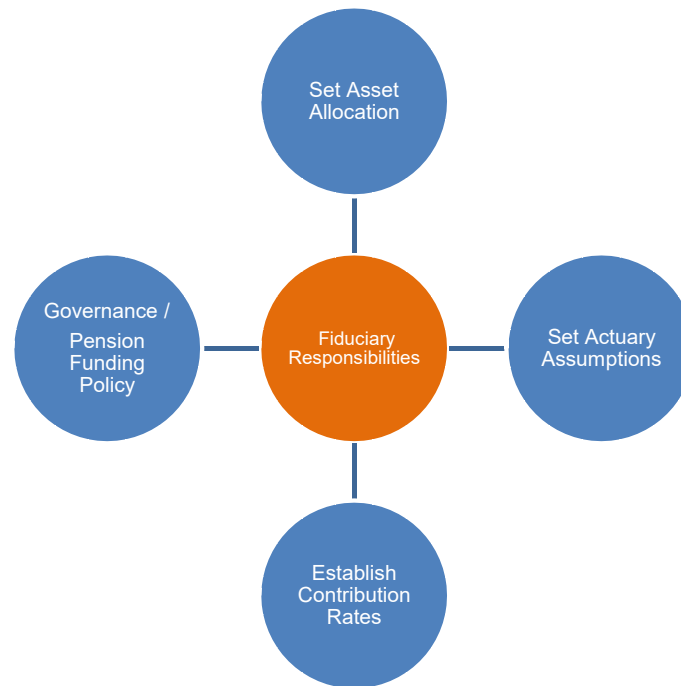
How It Started?

- NCPERS Commissioned a Report: The Case for New Accounting Standards
- Several Items Left Unresolved
- Workgroup Formed to
 1. Identify New Metrics for Assessing the Health of a Pension System
 2. Consider New Ways to Think About Existing Metrics
- Report released June 2022

ncpers.org/files/NCPERS-Pension-Metrics.pdf



Trustee Fiduciary Responsibilities



Common Questions of Board Members

- Is My Pension Plan Financially Sound?
- What is the Funded Status?
- How are the Assets Invested?
- Do we Have Risky Investments?
- What Happens if We Have a Recession and the Assets Lose Value?
- Are Employer Contribution Rates Affordable?
- Are Contribution Rates Expected to Increase?
- What are You the Most Worried About in Managing this Pension Plan?

Kentucky CERS Board: Current Issues

1. Consider Increase to the Interest Rate Assumption
2. Negative Cash Flow
3. No Retiree COLA (until plan is 100% funded)

Report Summary

1. A Scorecard
 - Standardized summary of pension valuation results
2. Scaled Liability
 - Measures a pension liability against the size of the economy that supports it
3. The Stabilization Payment
 - Annual payment required to ensure the funding position of the plan is unchanged
4. Risk-Weighted Assets
 - Assess the plan assets taking into account the downside risks of devaluation
5. Stress Testing and Risk
 - Quantification of risk

1. Scorecard

- Helps to standardize reporting
- Measure the same pension plan over time
- Address the time lag for actions and consequences
- Three Categories
 1. Policy
 2. Action
 3. Condition
- Each category evaluated for benefits, funding, and investments
- Green, Yellow, and Red Scale

1. Scorecard: Policy Category

- Evaluates Management
 - Are strategies adopted in policy?
 - Is there a pension funding policy?
 - Is there an investment policy?

Rhode Island ERS (State employees + Teachers) 2021

POLICY		
Benefits	Funding	Investments
<i>Employee part.</i> ●	<i>Ann. employer share</i> ●	<i>Investment strategy</i> ●
<i>Income replacement</i> ●	<i>UAL Sources</i> ●	<i>Risk discussion</i> ●
<i>COLA terms</i> ●	<i>COLA funding</i> ●	<i>Alloc. motivation</i> ●
<i>Other benefits</i> ●	<i>Employee cont.</i> ●	<i>Benchmark defined</i> ●


1. Scorecard: Action Category

- Good policy has minimal effect without action
- Focus on actions, not outcomes

			ACTION				
Benefits			Funding			Investments	
<i>Benefit replacement</i>	10yr 16%		<i>USP % payroll</i>	28.3%		<i>Global Equities</i>	42%
	30yr 53%		<i>ADC % payroll</i>	31.3%		<i>Fixed-income</i>	24%
<i>COLA</i>	Suspended until UAL>80%		<i>Actual Contr.</i>	31.3%		<i>Real estate</i>	7%
			<i>Normal Cost</i>	8.1%		<i>Hedging</i>	9%
<i>SS participation</i>	Some		<i>Experience Study</i>	●		<i>Private equity</i>	14%
			<i>Assumed return</i>	7%		<i>Cash</i>	4%
			<i>Assumed inflation</i>	2.5%		<i>Invest mgmt fees</i>	●
			<i>Wage inflation</i>	3%		<i>Sharpe ratio</i>	●

1. Scorecard: Condition Category

- Traditional collection of financial measurements and sponsor fiscal health

			CONDITION		
Benefits		Funding		Investments	
<i>Active state emp's</i>	N=10,803	<i>Total liability</i>	\$11.89B	<i>Assets/Benefits</i>	8.05
	Age=49.2	<i>Actuarial Assets</i>	\$6.89B	<i>Risk-weighted assets</i>	6.92
<i>Active teachers</i>	N=13,372	<i>Market Assets</i>	\$7.73B	Market returns	
	Age=46.8	<i>UAL as % payroll</i>	266%	1-year	
<i>Retired state emp's</i>	N=9,270	<i>POB debt</i>	\$0	<i>Net</i>	12.2%
	Age=74.3	<i>Scaled liability</i>	0.4%	<i>Bench</i>	11.2%
<i>Retired teachers</i>	N=10,441	<i>Net cash flow</i>	-3.87%	5-year	
	Age=74.2	<i>Extra contribution?</i>	No	<i>Net</i>	10.1%
<i>Actual FY21 COLA</i>	0.0%	<i>Layered amort?</i>		<i>Bench</i>	9.8%
Sponsor Fiscal Health				10-year	
<i>Budgeted gen. revenue</i>	\$4.43 billion			<i>Net</i>	8.5%
<i>Median income p/c</i>	\$61,942			<i>Bench</i>	8.2%
<i>Poverty rate</i>	10.6%			Since 1995	
<i>GO Bonds M/SP/F</i>	Aa2/AA/AA			<i>Net</i>	7.7%

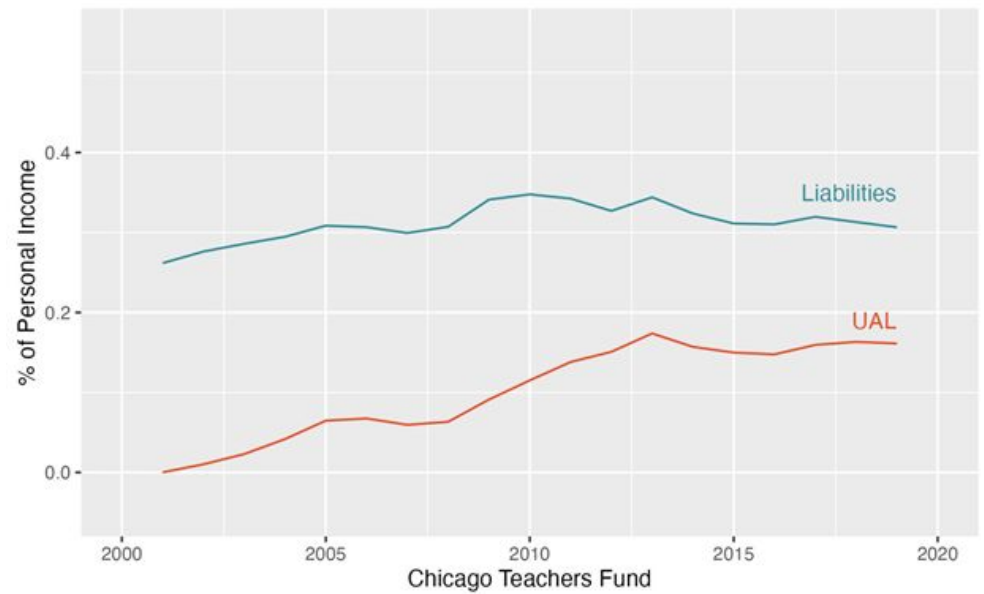
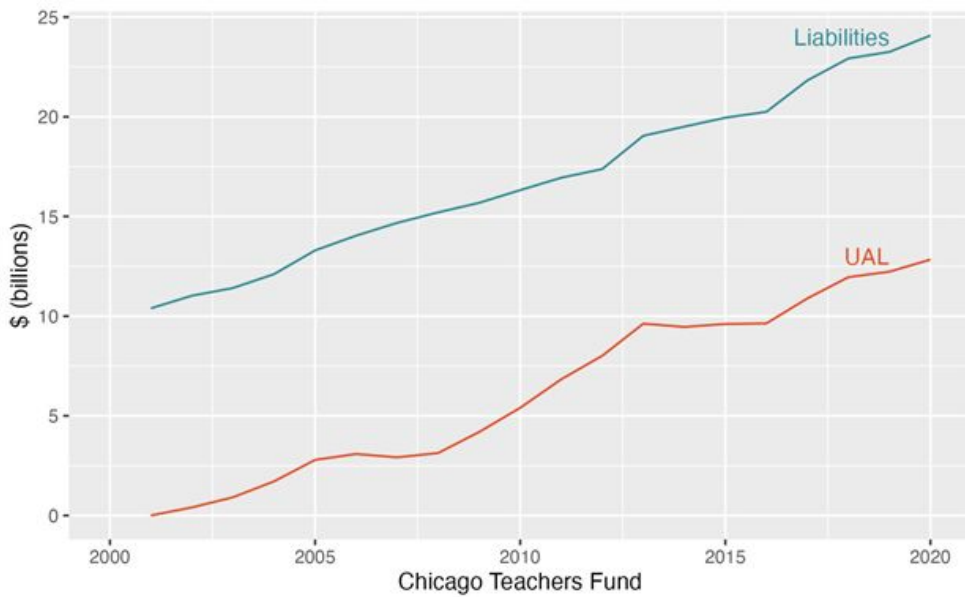
2. Scaled Liability

- Compares pension liabilities to the economy of the plan sponsor
- Helps to assess a plan sponsor's ability to pay
- Similar to Lenney, Sheiner, Schüle and Lutz, 2019 or Kahn, 2022

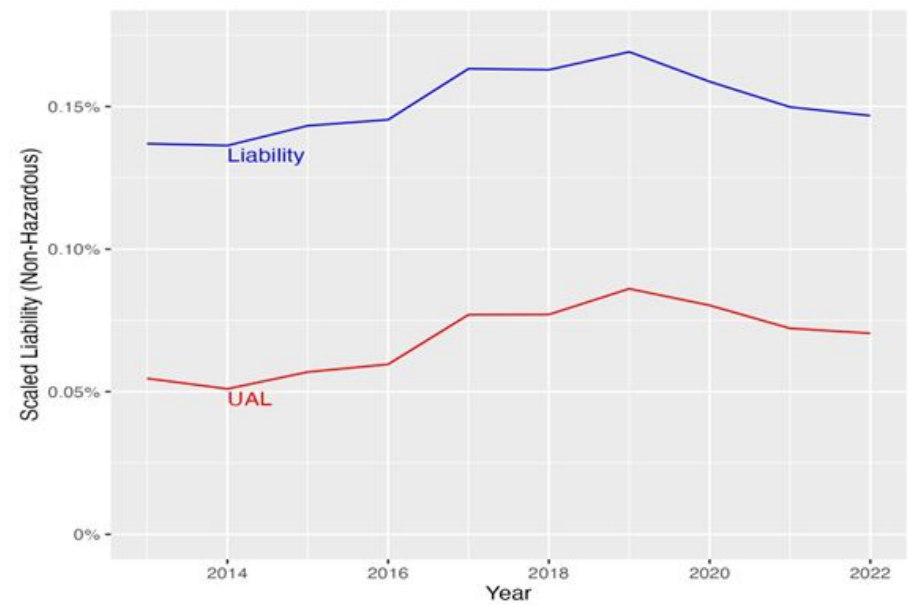
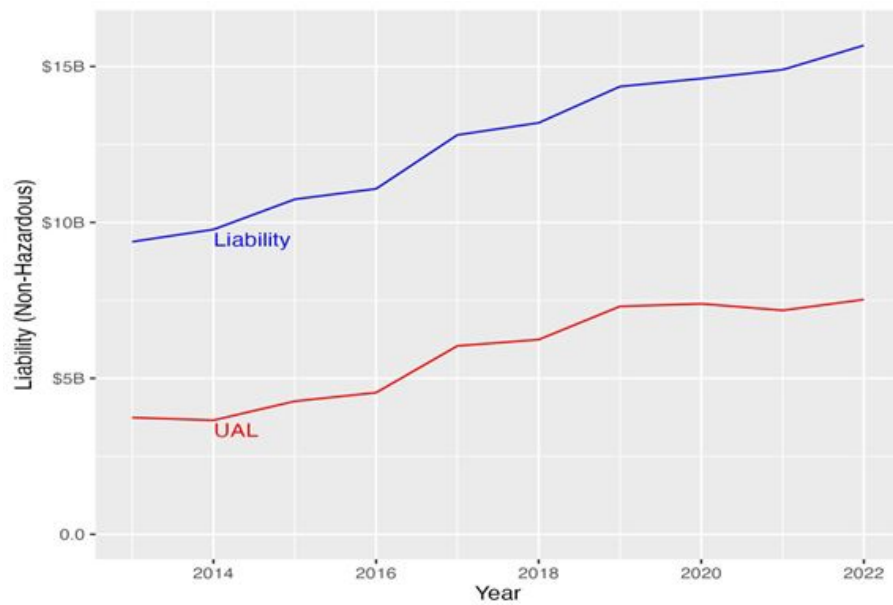
2. Scaled Liability

- Many possible measures of the size of an economy: Gross State Product (BEA), Personal Income (BEA), Money Income (Census Bureau), Total Taxable Resources (Treasury)
- Personal income metric chosen for availability and ease of use
- BEA reports quarterly for states and counties, easy to impute to sub-county jurisdictions with Census data
- Scaled liability = $\text{Liability} / \text{Personal Income}$

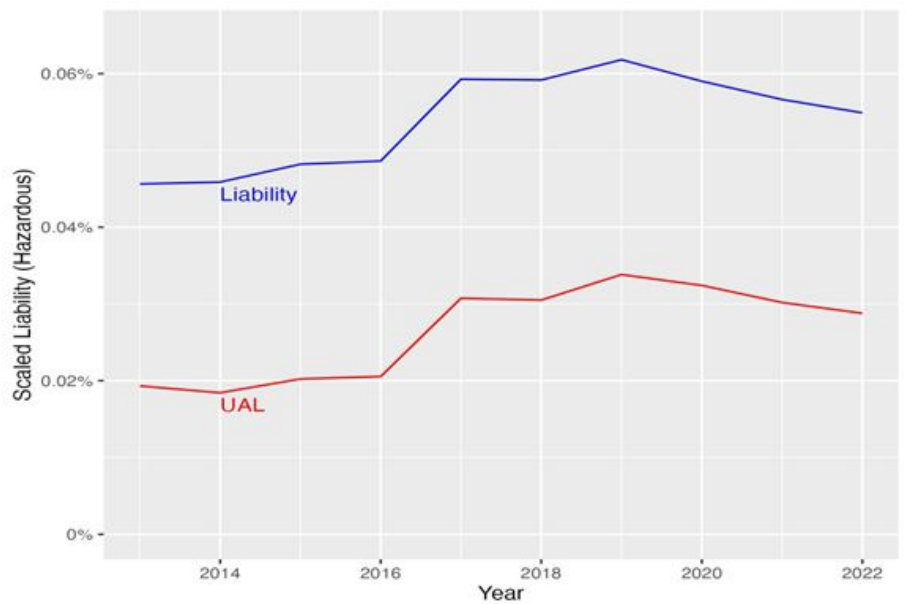
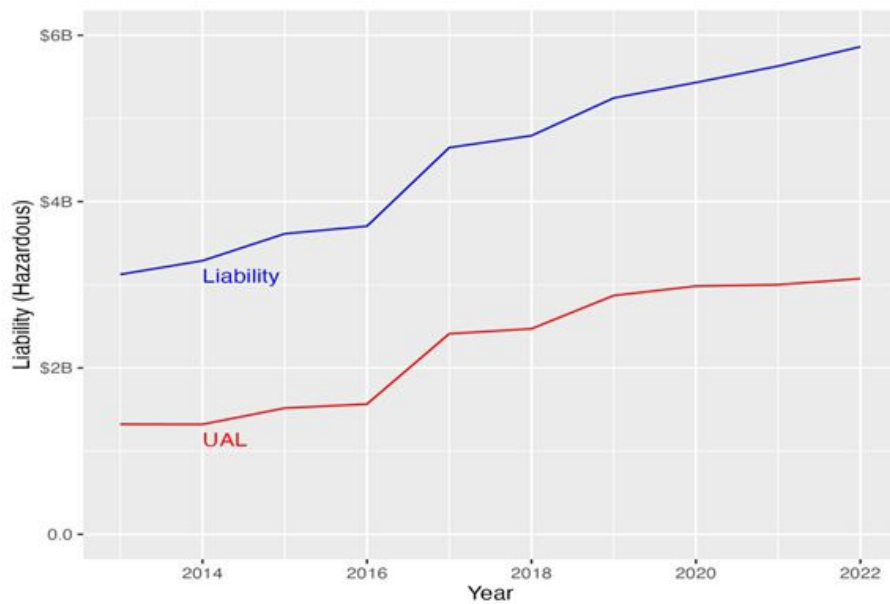
2. Scaled Liability



2. Scaled Liability - CERS Non-hazardous



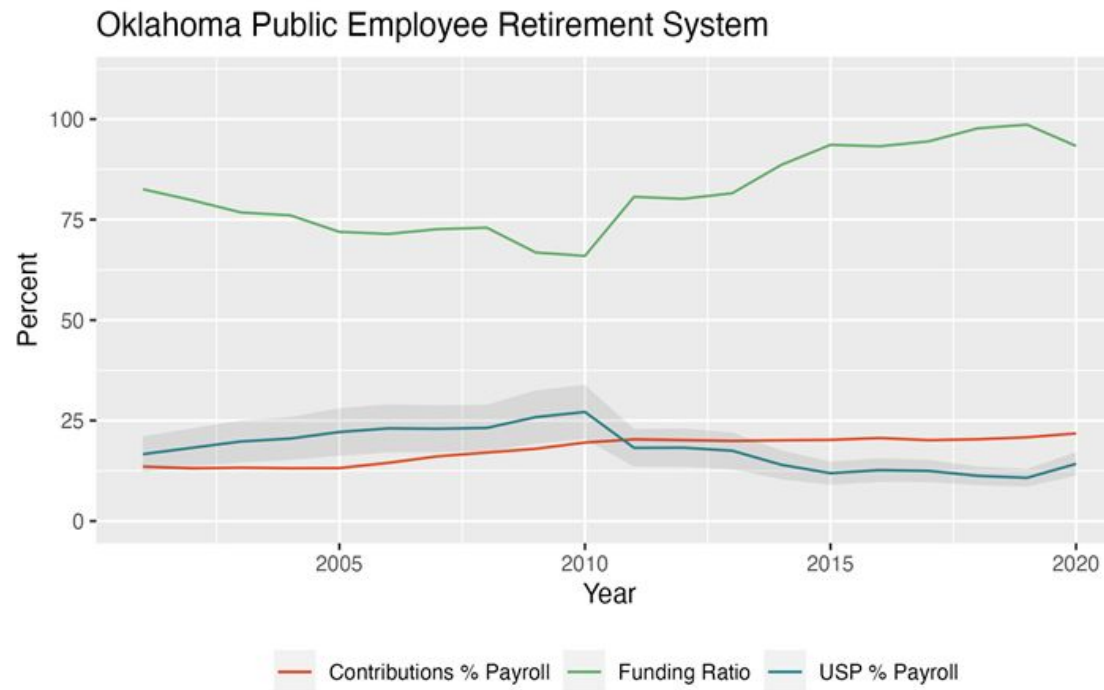
2. Scaled Liability – CERS Hazardous



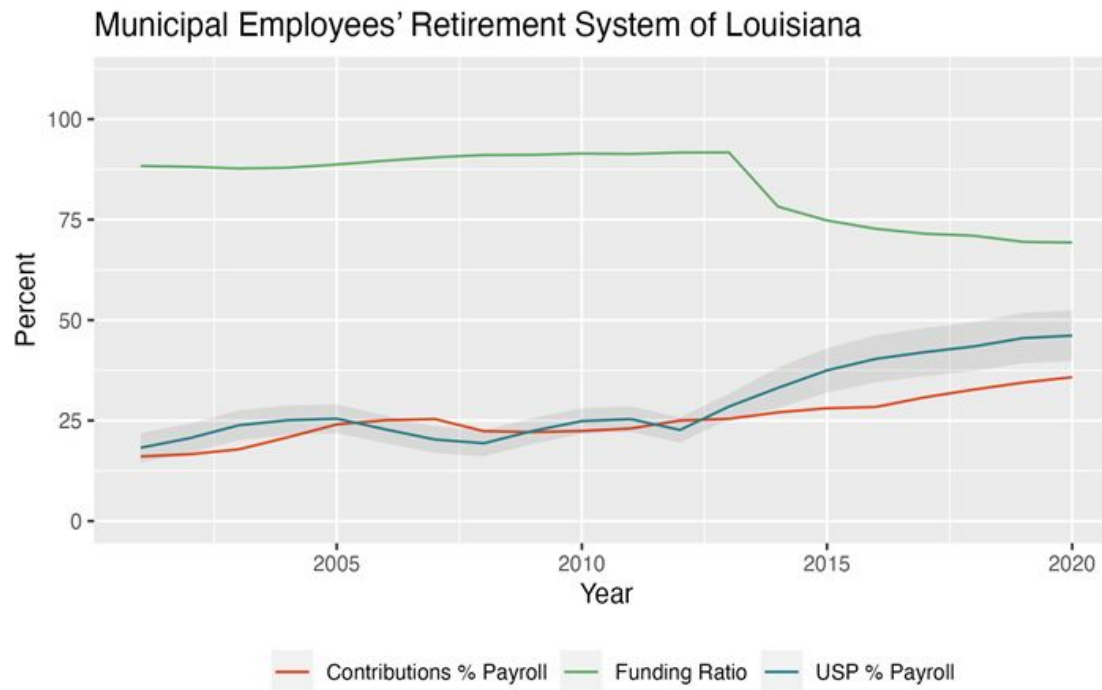
3. UAL Stabilization Payment

- The payment necessary to put a pension plan in the same funding position at the end of the year as the beginning
- Objectively definable, comparable to funding position
- Not a recommendation, just a yardstick
- Related to Moody's "Tread Water" metric and S&P's "Minimum Funding Progress" but uses a different accrual rate to discount liability

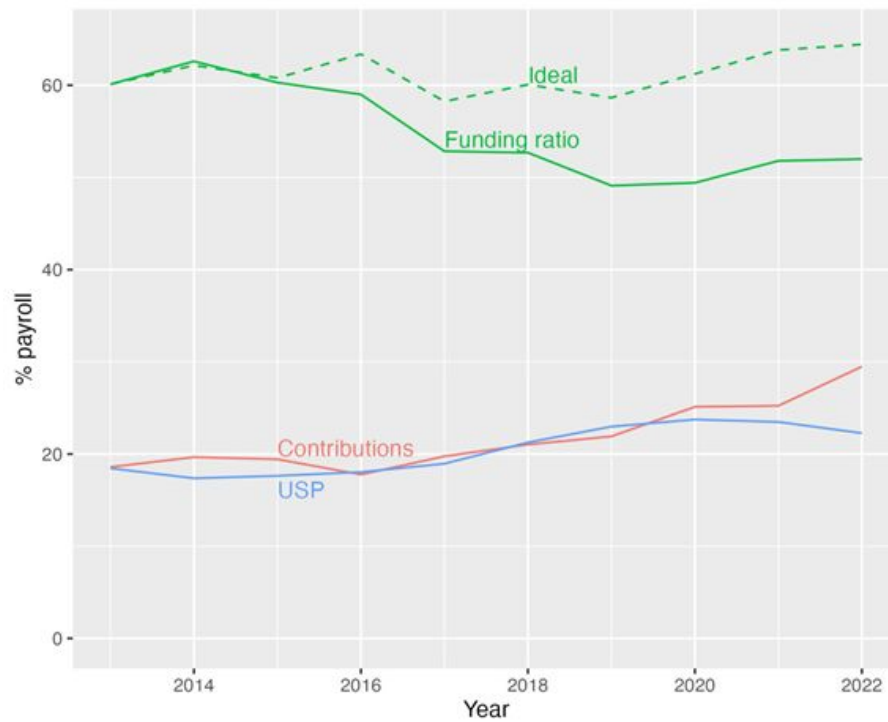
3. UAL Stabilization Payment (USP)



3. UAL Stabilization Payment (USP)



3. UAL Stabilization Payment (USP)



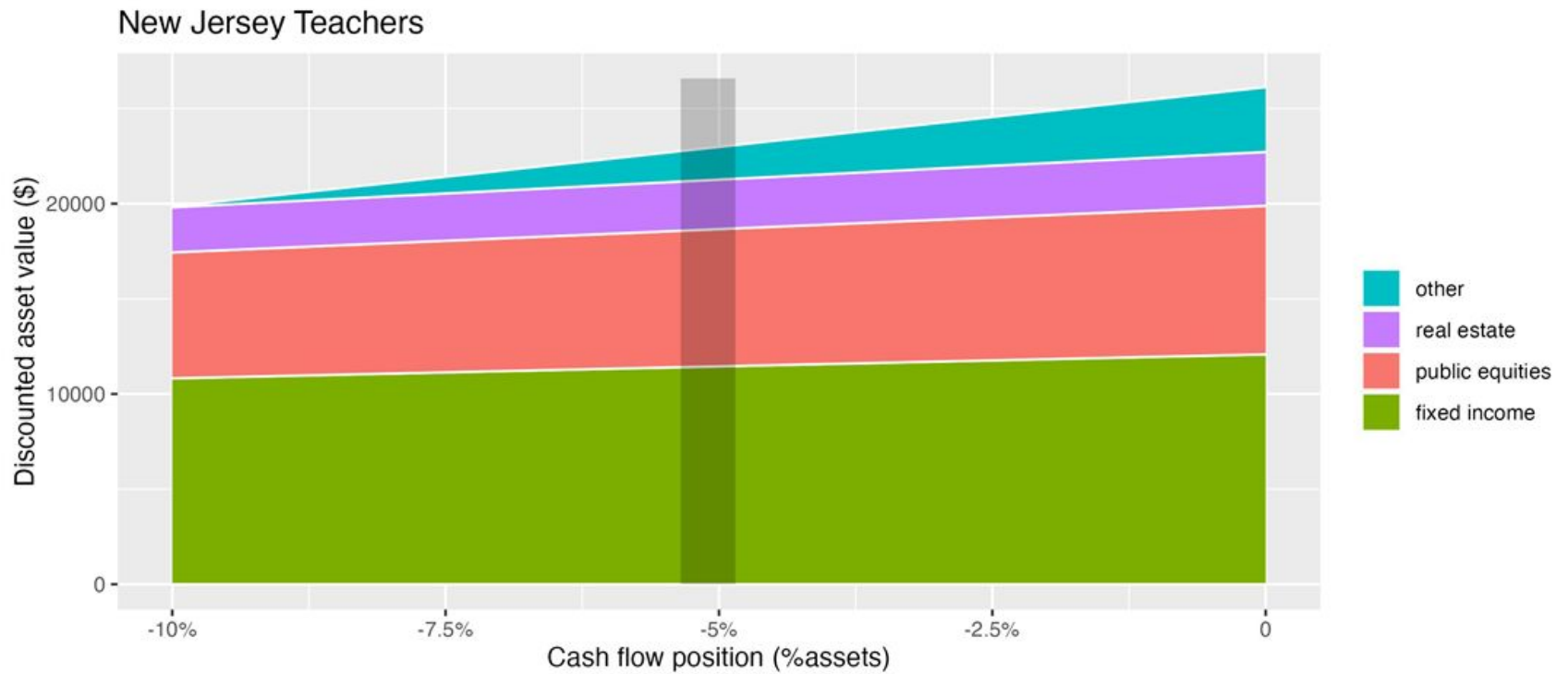
The evidence appears to show the liability appreciates more slowly than the assumed rate of return. If you use the assumed rate, the USP does not predict properly.

4. Risk Weighting

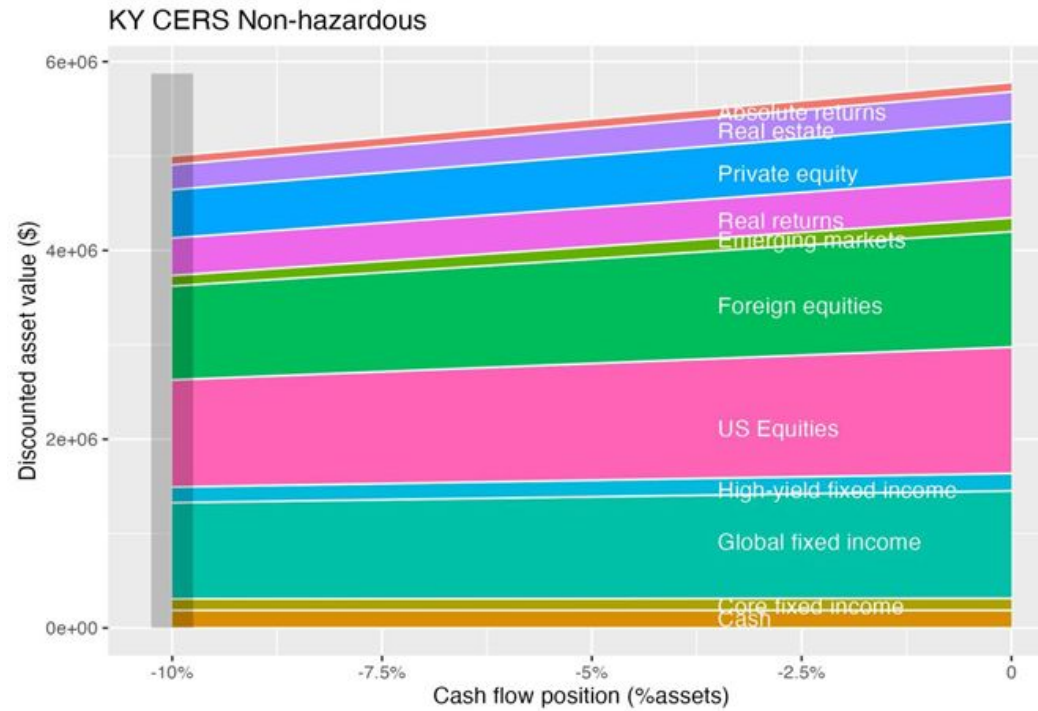
- Evaluates assets for downside risk
- Related to VaR and other risk metrics
- Similar idea to the Basel banking rules
- Use cash flow to decide whether the short or long term is more salient.
- Cheaper and easier than stress test
- A metric one can manage to

Asset Class	Short Discount	Long Discount
Fixed	11.2%	1.2%
Equities	17%	2.1%
Real Estate	19%	3%
Other	99%	1.5%

4. Risk Weighting



4. Risk Weighting



5. Stress Testing and Risk

- Not a metric, but a discussion of risk and how to model it
- Classification of risk, following ASOP 51, but a little further:
 - To the plan: Management risk, contribution risk
 - Internal vs. external
 - To the sponsor: Investment risk, demographic risk
 - Actuarial, volatility, regulatory
 - To the members: Political risk

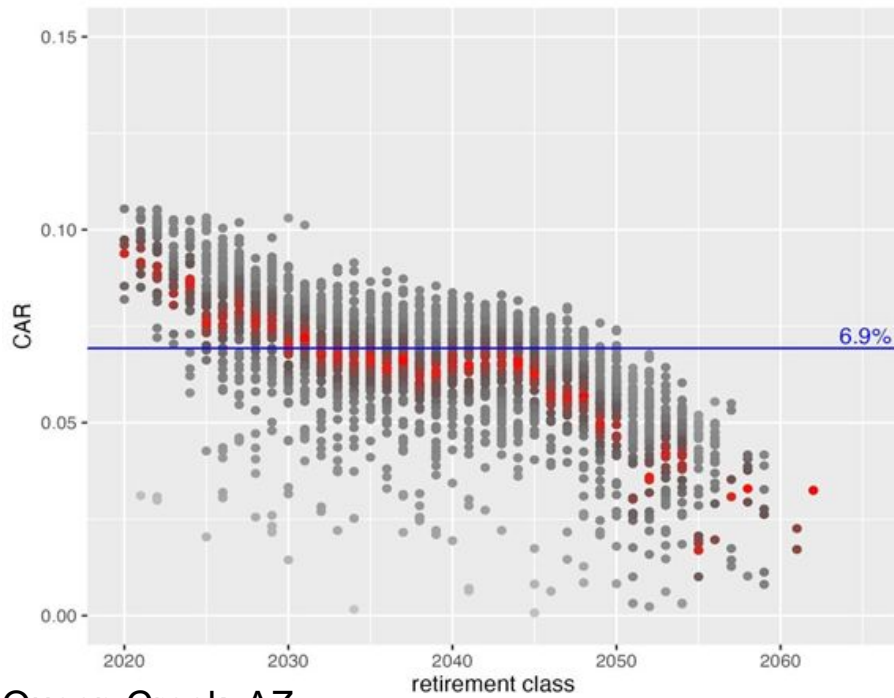
5. Stress Testing and Risk

- Classification of computer modeling:
 - Parameter search
 - Sensitivity testing
 - Stress testing
 - Projections
- Validation of model
- Initial conditions
- This is how you give model results a *meaning*

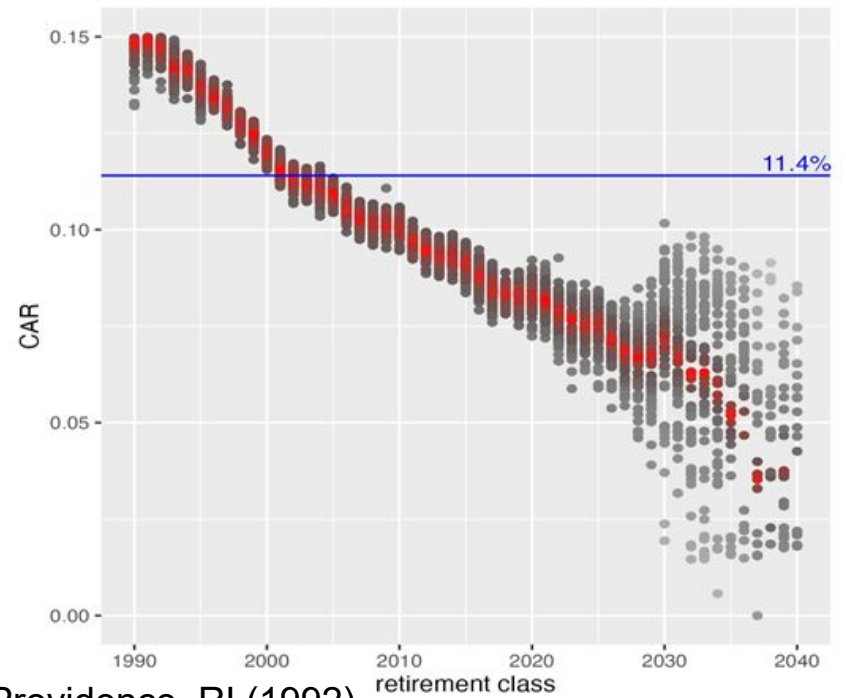
Contractual Accrual Rate (not in report)

- Each member in a system represents a cash flow
- Can ask what interest rate would make the cash flow net out to zero *at current contributions*
- Same equation used to predict contributions, but turned around
- Rate is independent of the investment markets
- Provides a measure of risk associated with a given level of benefits and contributions. Also possibly a more familiar measure to some.

Contractual Accrual Rate (continued)

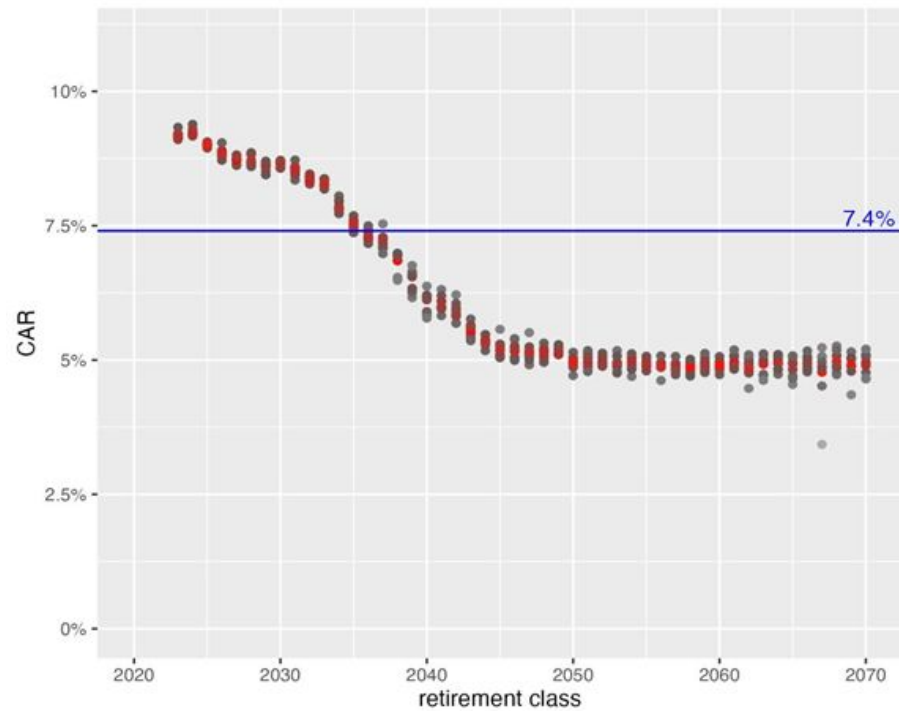


Queen Creek, AZ

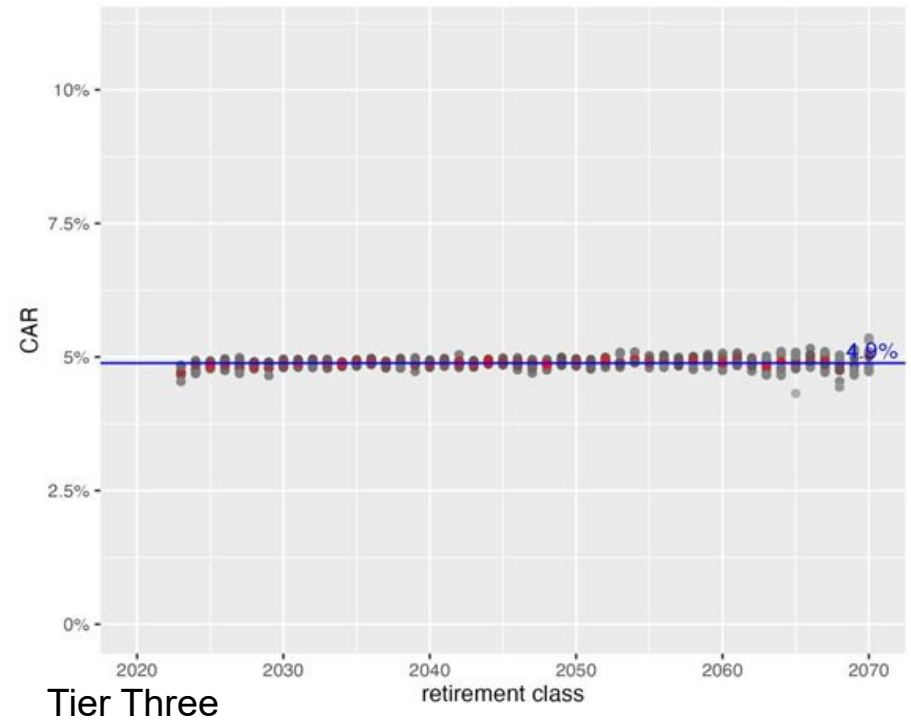
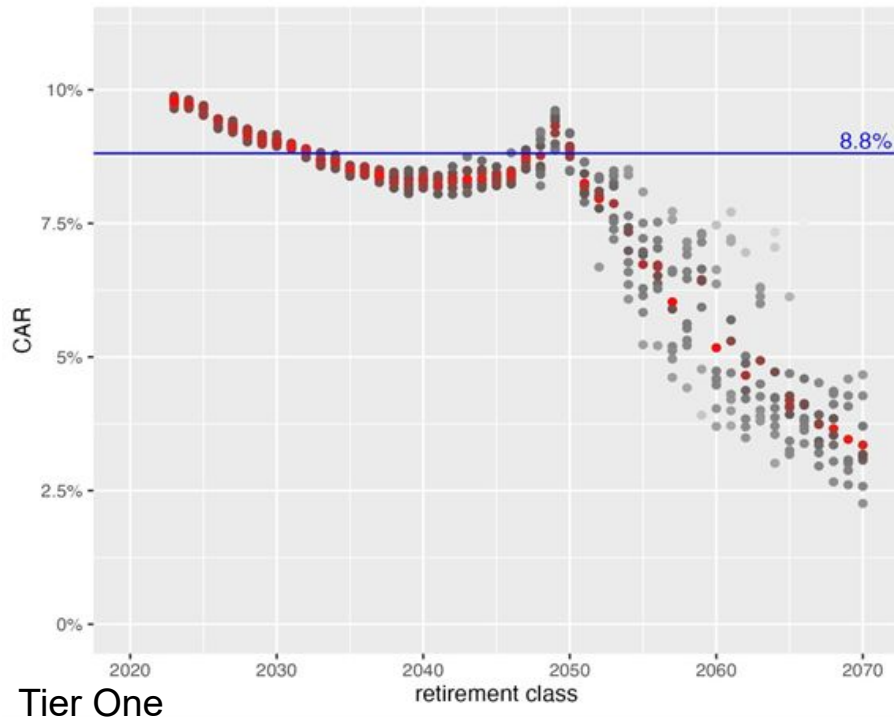


Providence, RI (1992)

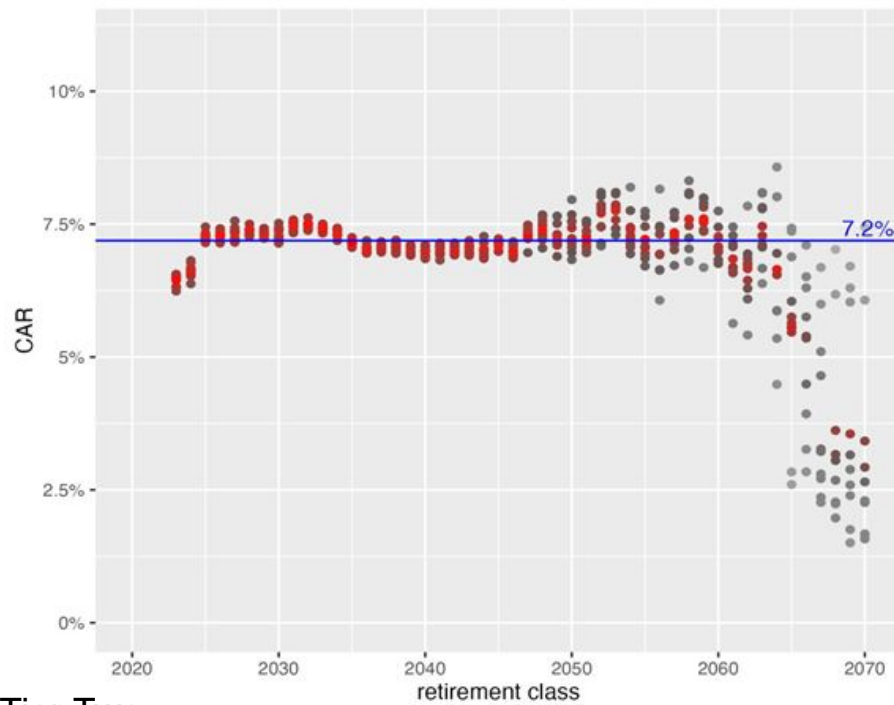
Contractual Accrual Rate, CERS All Tiers



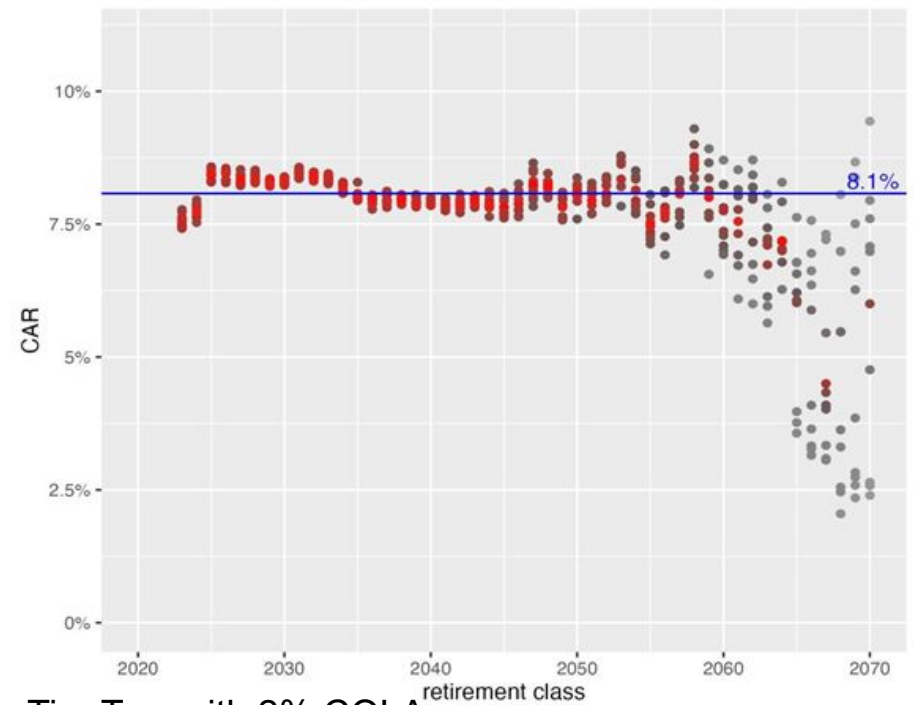
Contractual Accrual Rate, CERS Tiers 1 & 3



Contractual Accrual Rate, CERS Tier 2



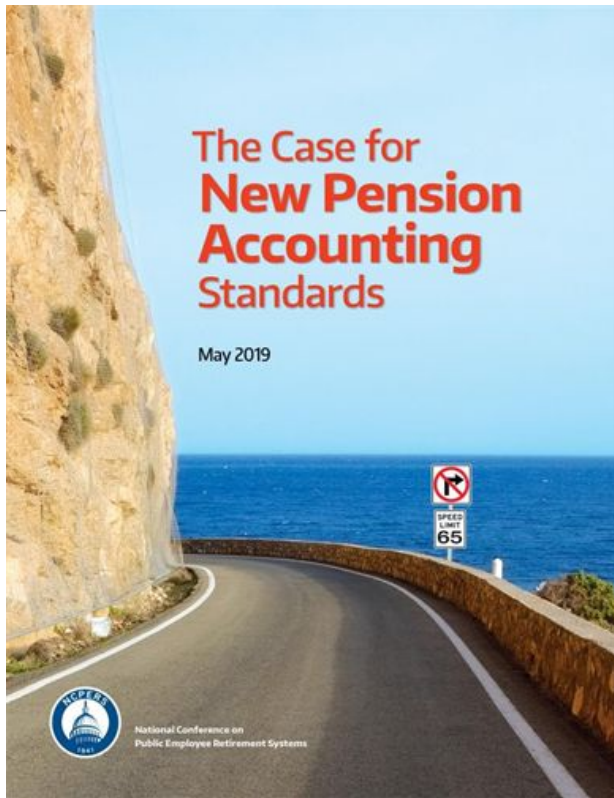
Tier Two



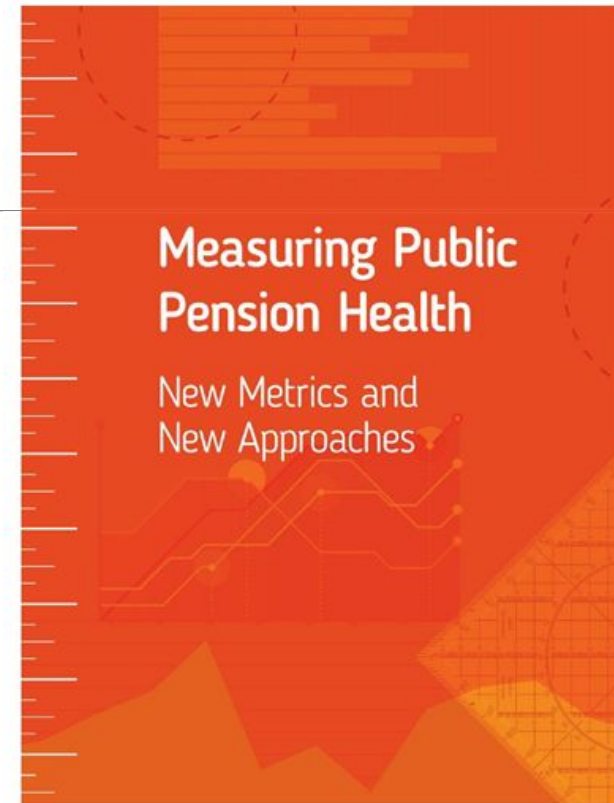
Tier Two with 2% COLA

Final Thoughts

- Intended to add insight for trustee and other decision makers
- Emphasizes the importance of managing liabilities
- Systems are all different, but we don't just want to make comparisons between one system and its peers, but also for a single system over time
- Consider applying these concepts to your pension plan
- Application is just starting in a few pension systems . . . stay tuned



ncpers.org/files/ncpers-research-the-case-for-new-pension-accounting-standards-2019.pdf



ncpers.org/files/NCPERS-Pension-Metrics.pdf