October 29, 2025

Florida GFOA – School of Government

Challenges Continue: Reporting for Pensions and OPEB

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GRS

Happy Halloween (almost)!

- In the spirit of Halloween lets dress up as actuaries for the day!
- Our goal is for you learn how to be an actuary so you can better understand financial statements and actuarial objectives.

Becoming an Actuary for the Day (and Beyond)

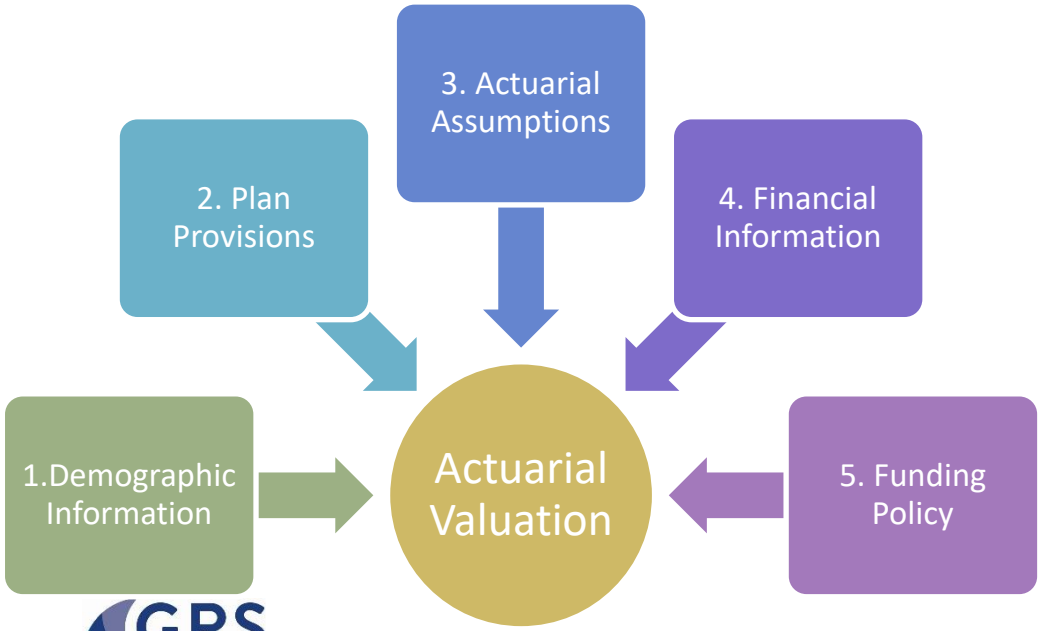
- Getting the Costume: Fundamentals of pension/OPEB plans
- Playing the Part of an Actuary: Actuarial calculations and terminology in reports
- Trick or Treat: Interpreting the results like an actuary

Getting the Costume

30,000 Foot View of Retirement Plan Financing

GRS mathematically combines people data, benefits, assumptions, & financial information

To produce digestible information for decision-making by the Board and City/County/State



- Employer Contributions
- Funded Status
- Unfunded Liability
- GASB Accounting

Pure Defined Benefit Plans (DB)

1. Benefit determined by a formula
2. Usually involves years of credited service
3. Average Final Compensation (AFC)
4. A multiplier such as 2.5%

Example
30 years of service and AFC of $50,000
2.5% x 30 years x $50,000 = $37,500 per year

Other Post-Employment Benefits (OPEB)

- Primarily retiree medical, prescription and life insurance.
- OPEBs are subsidized by the district
  - Sometimes direct subsidies (to ease the cost)
  - Always implicit subsidies (built into the premiums)
- Implicit subsidy is a form of a cross-subsidy between different cohorts of covered population
  - Caused by cost increase for older members

Retiree OPEB Basics

- Implicit Subsidy Example
  - Total Enrollment: 3,690
  - Average Annual Cost for all members: $6,000 ($500 per month)
  - Average Retiree Cost: $9,471 or 158% of the blended average
    - Retiree pays the "full" premium
    - Retiree benefit: average retiree costs $3,471 per year more than pays in premiums
  - Active Employee Cost: $5,659 or 94% of $6,000
    - Employer's cost: average employee costs $341 per year less than stated premium

	Active Enrollment		Average Active Member Cost		Retired Enrollment		Average Retired Member Cost	
Age	Male	Female	Male	Female	Male	Female	Male	Female
< 20	50	20	$2,347	$2,755				
20-24	80	75	1,850	2,935				
25-29	100	125	1,925	4,330				
30-34	200	200	2,416	5,472				
35-39	225	250	3,034	5,636				
40-44	225	250	3,780	5,769				
45-49	250	300	4,773	6,336				
50-54	200	200	6,286	7,454	10	20	6,286	7,454
55-59	150	200	8,172	8,617	50	50	8,172	8,617
60-64	100	50	10,487	10,254	100	100	10,487	10,254
65-69	50	50	13,081	12,292				
70+	10	0	15,675	14,495				
Total	3,360		$5,659		330		$9,471	

GRS Retirement Consulting

Selection of Assumptions – Defined Benefit Plan

What Are They?

Economic

- Investment Return
- Payroll Growth Rate
- Promotional/Step Pay Increases
- Population Growth Rate (Usually, a constant population size is assumed)

Demographic

- Retirement Rates
- Disability Rates
- Turnover Rates
- Mortality Rates

Who Selects Them?

Economic

- Board
- Actuary
- Other Advisors

Demographic

- Mostly Actuary
- Board Approves

Selection of Assumptions – OPEB

What Are They?

Economic

- Investment Return
- Trend Rate
- Premium Rates

Demographic

- Retirement Rates
- Disability Rates
- Turnover Rates
- Mortality Rates
- Participation Rates

Who Selects Them?

Economic

- Bond Market
- Actuary
- Other Advisors

Demographic

- Mostly Actuary

Asset Data

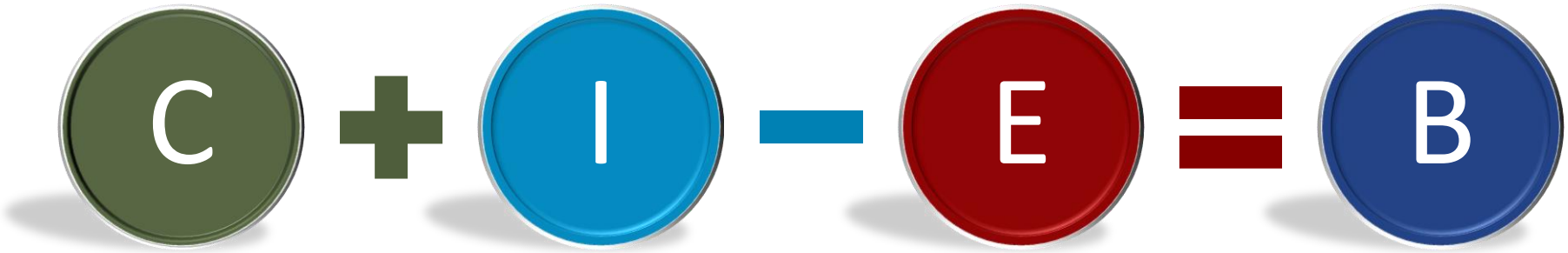
Reasonability Checks

- Asset information typically provided by Plan Staff/Auditor
  - Balance sheet
  - Income and expense
- We check for reasonability and consistency
  - Actual benefit payments are reasonable compared to expected benefit payments
  - Expenses are reasonable compared to last year
  - Actual contributions are reasonable compared to last year's valuation report
  - Investment return looks reasonable when compared to major market indices

The Need for a Funding Policy

- What are the objectives of a Funding Policy?
  - The Government Finance Officers Association's Best Practice, "Sustainable Funding Practices of Defined Benefit Pension Plans," states:
    - The main financial objective of public employee defined benefit plans is to fund the long-term costs of promised benefits to plan participants
    - GFOA also recommends that this be done through a systematic and disciplined accumulation of resources (i.e., contributions and related investment earnings) which are sufficient to pay promised benefits to plan members over their lifetimes

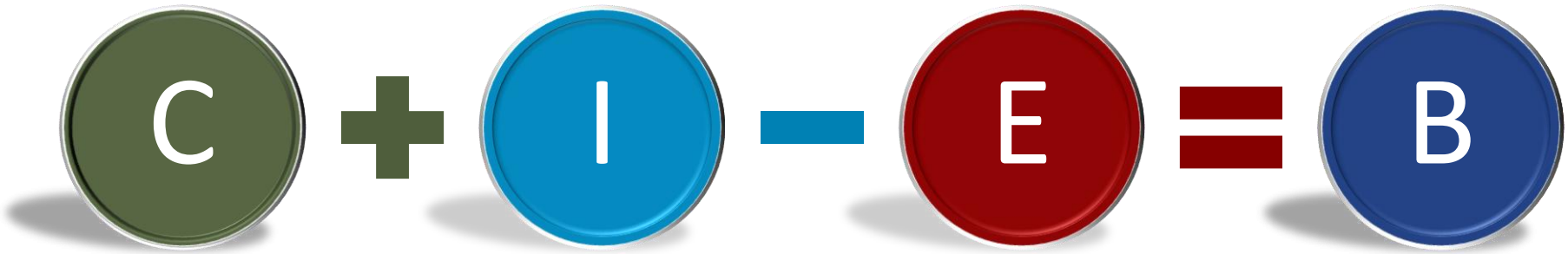
Basic Retirement Funding Equation



Contributions	Investment Income	Expenses	Benefits
• Funding Policy	• Investment Strategy	• Administrative Policy	• Plan Design

"Net Money In = Money Out"

Basic Retirement Funding Equation



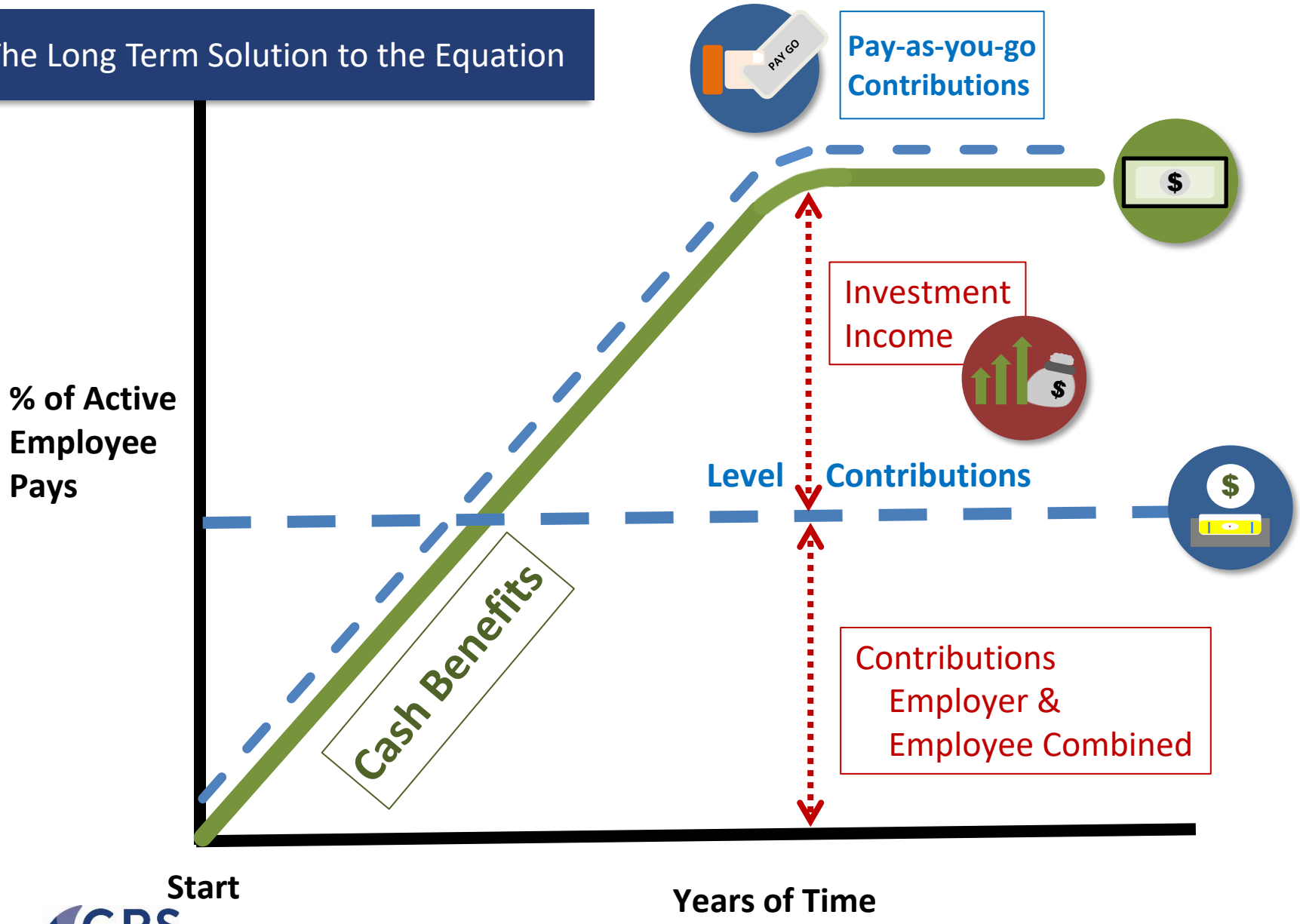
Depends on:

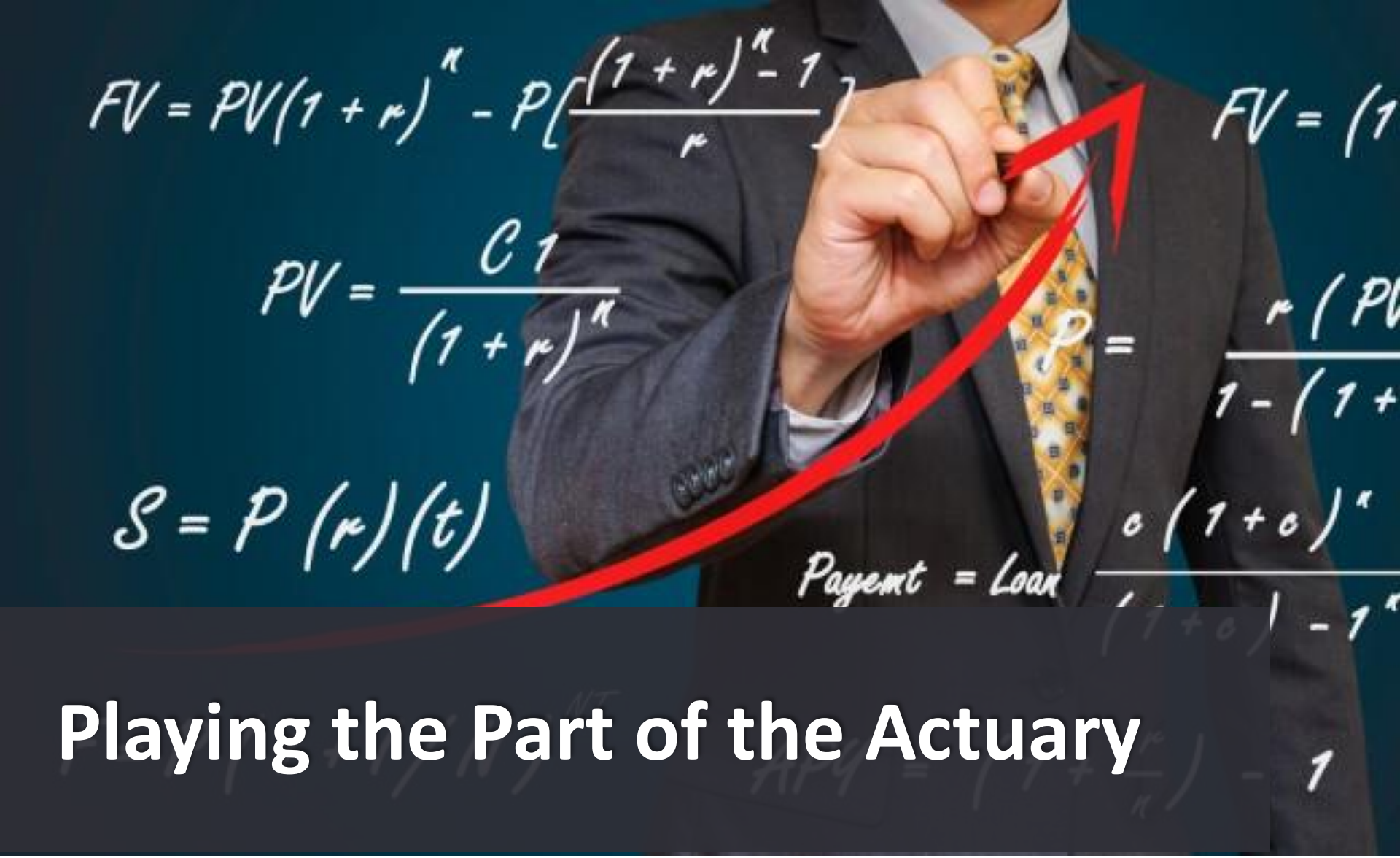
- **Short Term**
  - **Actuarial Assumptions**
  - **Actuarial Cost Method**
- **Long Term**
  - **I, B, E**

Depends on:

- **Plan Provisions**
- **Experience**

The Long Term Solution to the Equation





Playing the Part of the Actuary

DO NOT WORRY ABOUT YOUR DIFFICULTIES IN MATHEMATICS.
I CAN ASSURE YOU MINE ARE STILL GREATER.

-ALBERT EINSTEIN

The Concept of Present Value

1. Actuarial calculations almost always begin with the calculation of a Present Value ("PV")

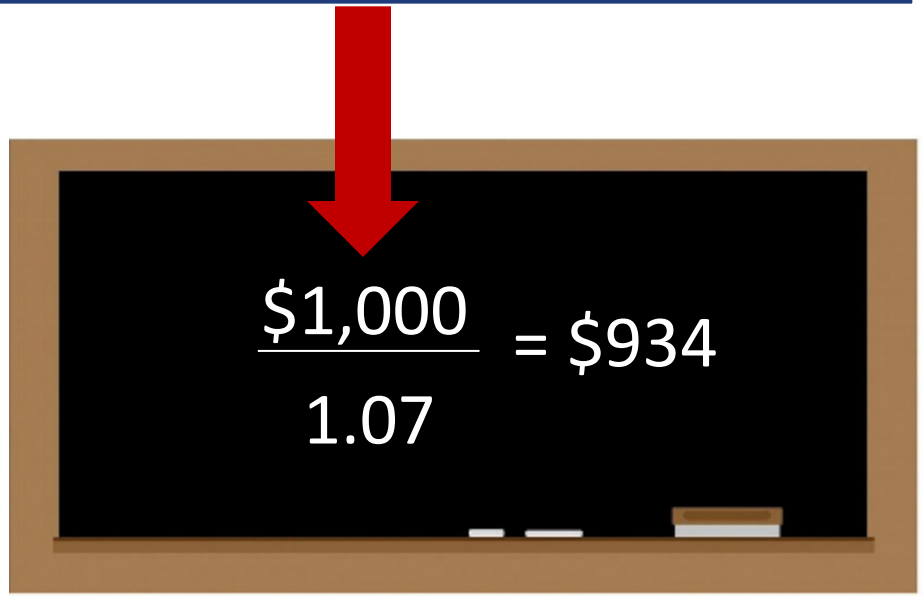
2. PV ($ payable in the future) = the amount of money that, if we had it today, would accumulate to the amount that will be payable considering:
   - Investment Return
   - Probability that money will be paid

3. The calculation of the present value depends upon assumptions

Present Value Example

The present value of $1,000 payable 1 year from now to a bank at 7.0% interest is $934.

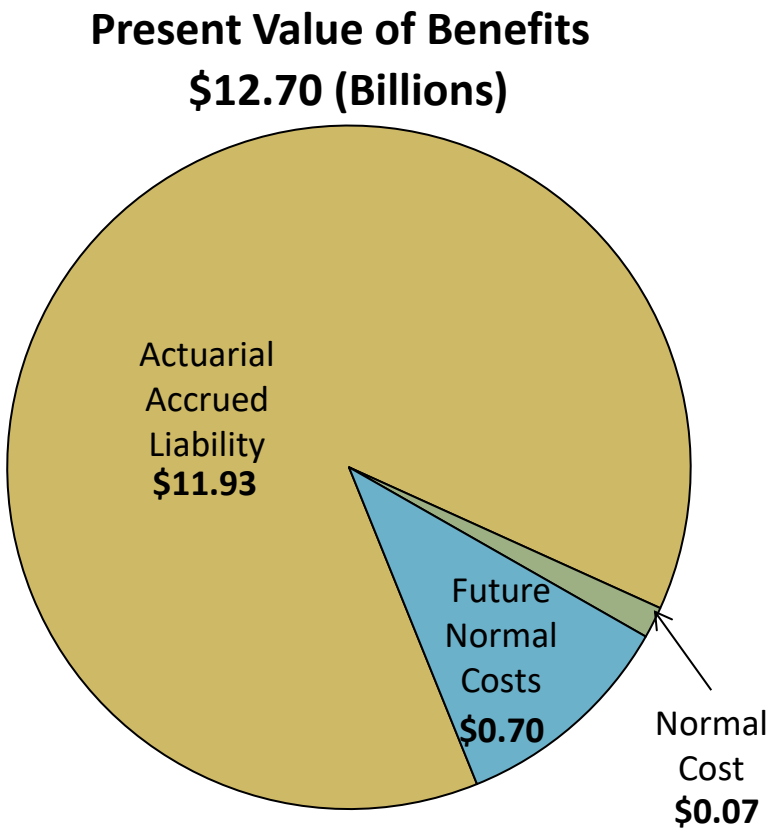
The present value of $1,000 payable 1 year from now to a person who is 99 years old today, provided that the person is alive 1 year from now, is probably around $650.



But if the 99-year old lives the entire year, you will owe the whole $1,000.

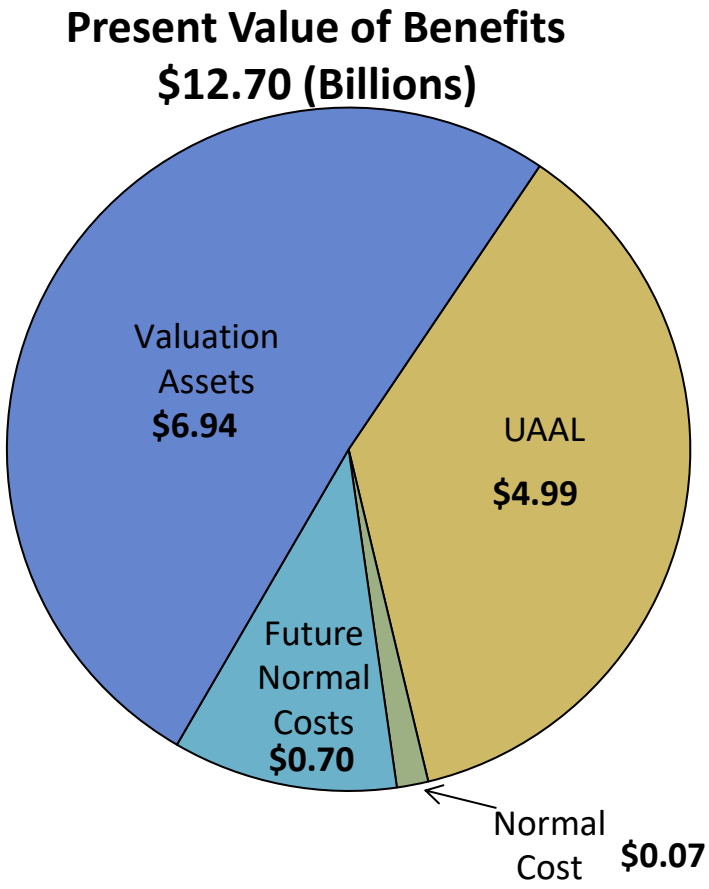
Liability Calculation

- **Present Value of Benefits (PVB)** – present value of all future benefits payable to current participants (active, retired, terminated vested)
- **Actuarial Accrued Liability (AAL) / Total Pension/OPEB Liability (TPL** – portion of PVB allocated to prior years (equal to unfunded actuarial accrued liability plus assets), also represents the ***target value of assets*** at a specific point in time based on the funding objectives
- **Normal Cost / Service Cost** – portion of PVB allocated to current year, also represents cost of accruing next year's benefit
- **Future Normal Costs** – portion of PVB allocated to future years

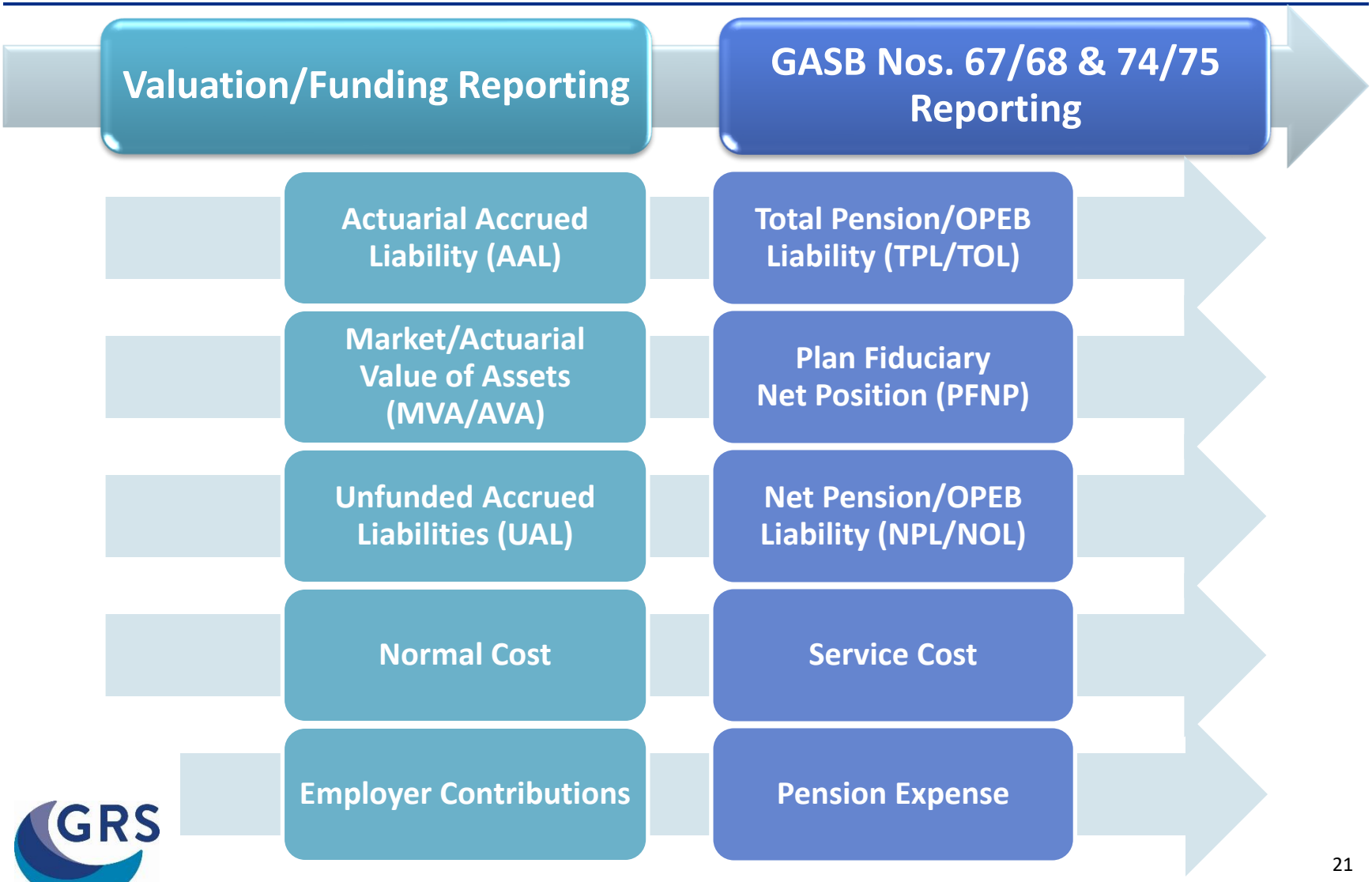


Liability Calculation – Sources of Payment

- **Unfunded Actuarial Accrued Liability (UAAL) / Net Pension/OPEB Liability –** shortfall between actuarial accrued liability (or ***target value of assets)*** and the actual value of assets at a specific point in time
- **Funded Ratio / Fund Fiduciary Net Position as a Percentage of TPL –** the actual asset value as a percentage of the target asset value
  - With funded ratio, the trend is your friend
  - Funded ratio for the Plan is 58.2%
  - (AVA of $6.94)/(AAL of $11.93 – prev page)

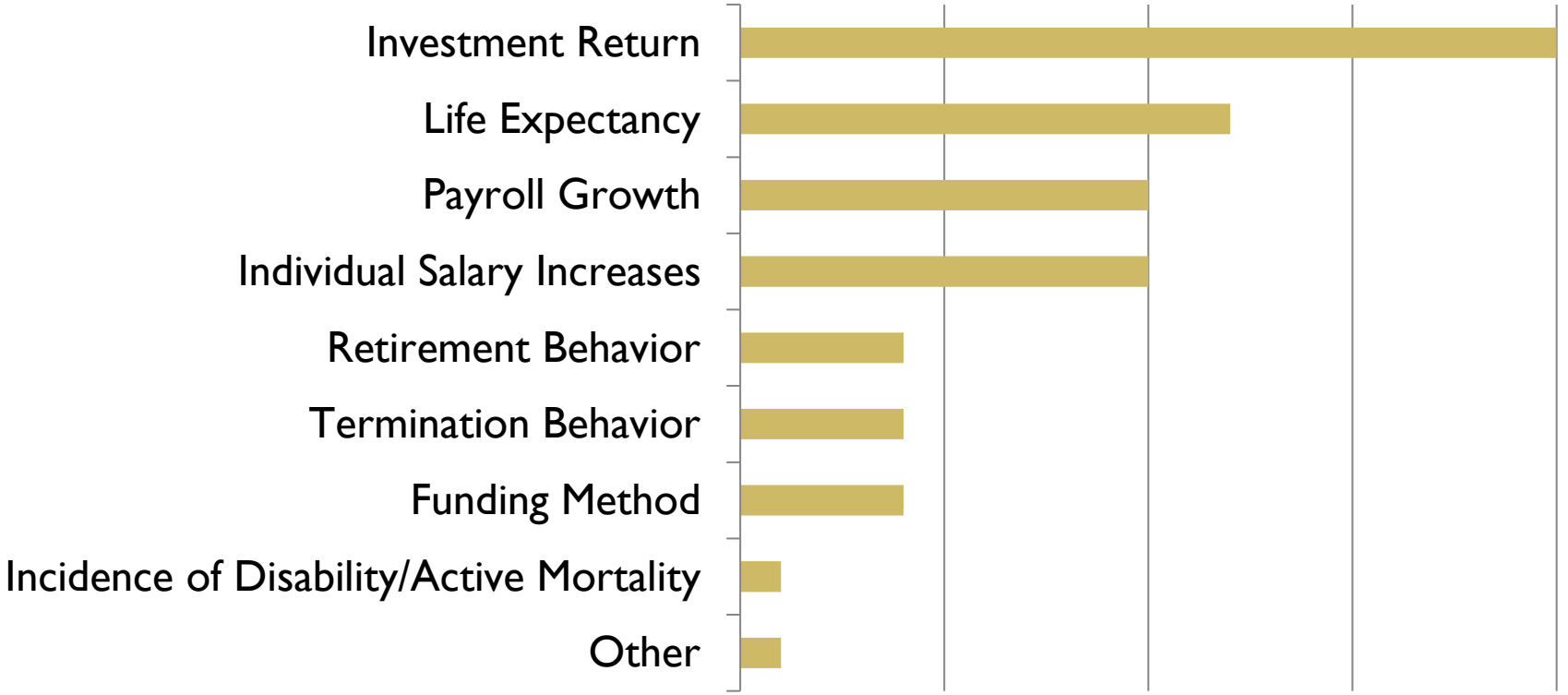


Public Ret. Plan Funding vs. GASB Reporting – Similar Measurements (But Different)



Actuarial Assumptions – Illustrative Impact

Impact on Determination of Funding Requirement – Defined Benefit



Changes in Major Assumptions

General Effect on Liabilities		
Assumption	Action	Usual Effect
Interest Rate	Decrease	Increase
Wage Inflation	Increase	Increase
Trend / Participation (OPEB)	Increase	Increase
Retirement	Retire Younger	Increase
Turnover	More Quits	Decrease
Mortality	Live Longer	Increase

The Nature of Market Value Assets

In the short term, the Market Value of Assets (MVA) is often volatile and subject to temporary conditions and mood swings.

In the long term, the MVA is always right.

For assets that have to be used today, MVA is the only measurement that matters – GASB agrees!

Measuring Assets for Valuation Purposes

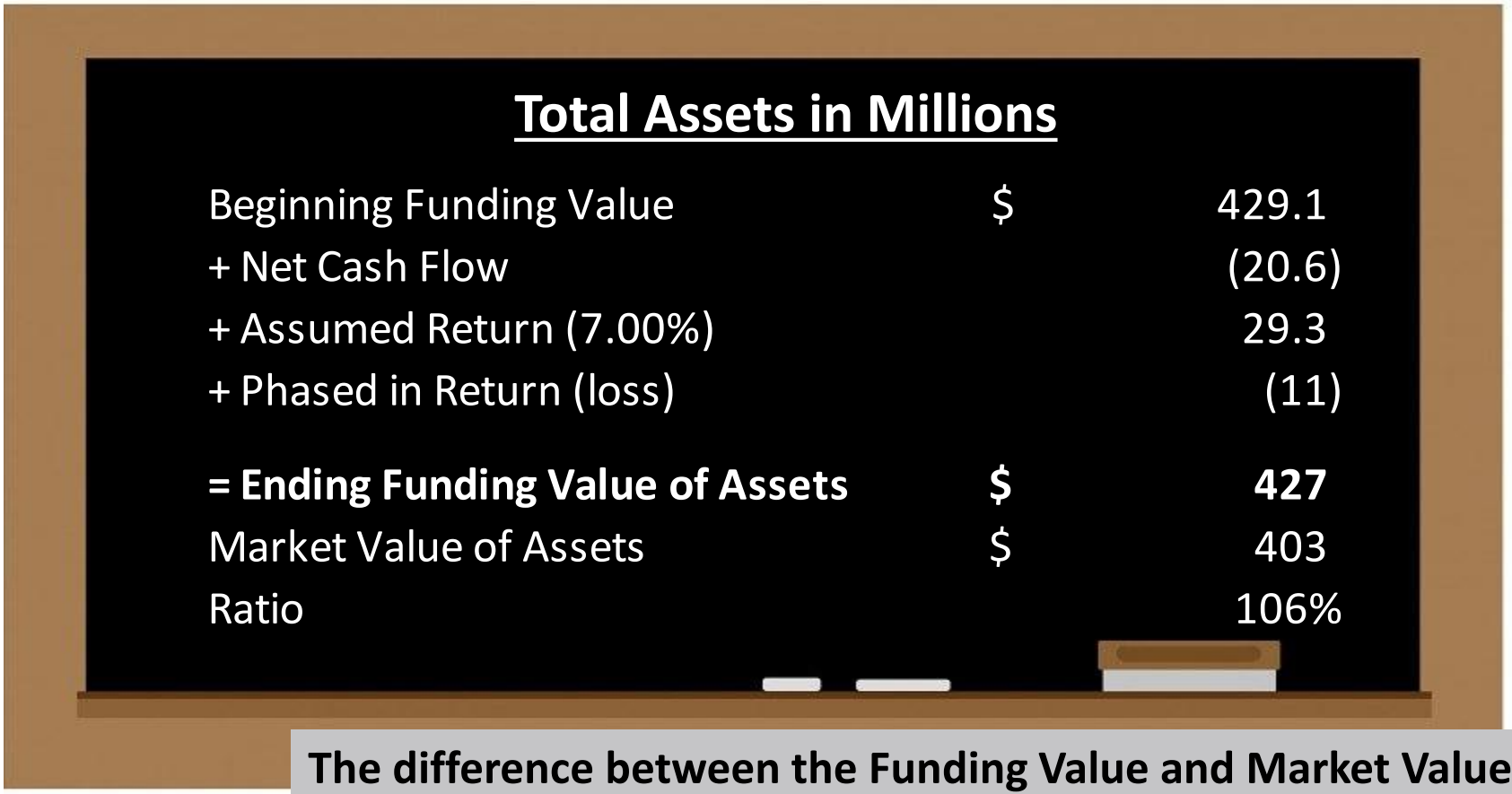
- Typically called the “Actuarial Value of Assets” (AVA) or the “Funding Value of Assets” (FVA)
- Better to use a smoothed market measurement
- FVA reduces volatility in contribution rates and funding progress measurements compared to using MVA
- Pension funding is a long-term commitment so use of MVA is not essential

Measurement of Assets

Funding Value of Assets (FVA) Typically Used By Public Sector Plans

- Tracks closely to MVA with less volatility
- Recognizes the assumed rate of return each year
- Recognizes asset gains and losses over a fixed period of 3 to 5 years
- May use a “corridor” so that the FVA is not permitted to deviate from the MVA by more than a certain percentage in either direction

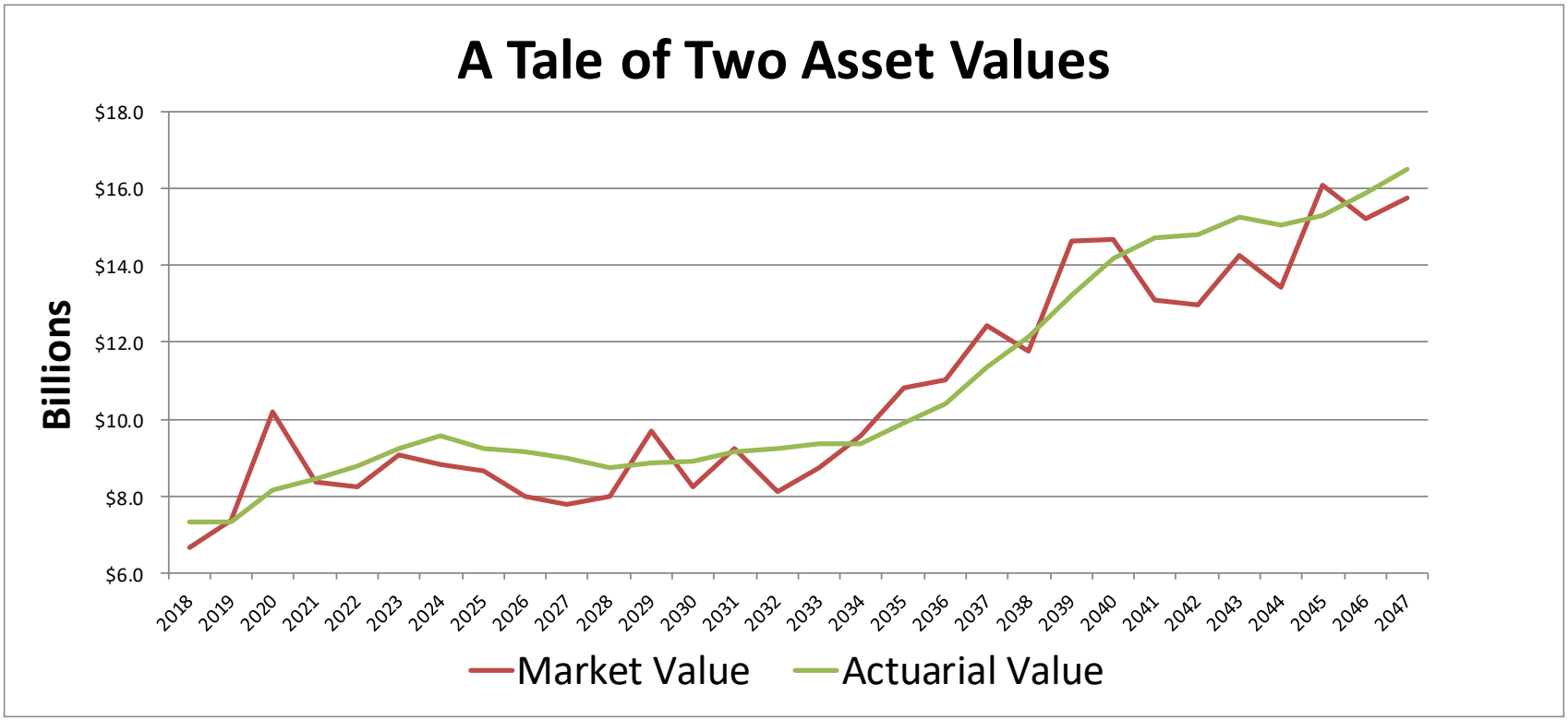
Year-to-Year Calculation – Sample Ret. Sys.

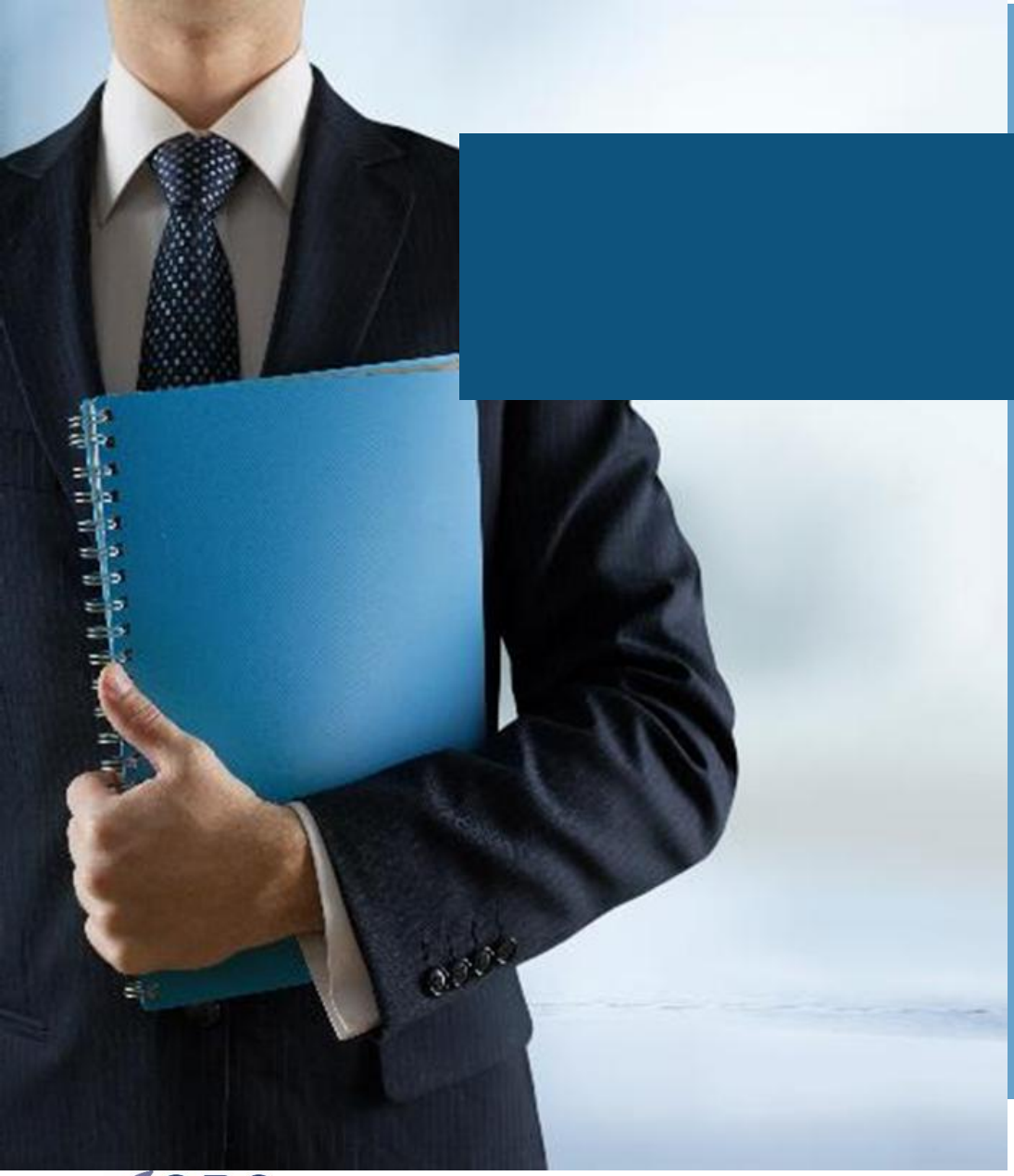


The difference between the Funding Value and Market Value is $(24) million, which is phased-in over 4 future years.

Asset Data

Multi-Year Asset Smoothing





Trick or Treat

INTERESTING REACTION. BUT WHAT DOES IT MEAN.

-JACK SKELLINGTON, THE NIGHTMARE BEFORE CHRISTMAS

Actuarial Reporting

Purpose

- GASB Statement Nos. 67/68 & 74/75 Annual Financial Report
  - Measure System liabilities
  - Explain changes in actuarial condition
  - Track changes over time
  - Transparency
  - Standardization

- Funding Valuation (if not pay-as-you-go)
  - Determine employer contribution rates
  - Measure System liabilities
  - Explain changes in actuarial condition
  - Track changes over time
  - Make recommendations for future improvements

Net Pension Liability and Related Ratios

Sample One-Year

	Measurement Date	9/30/2024
A.	**Total Pension Liability (TPL)**	
	Service Cost	$ 12,000,000
	Interest	96,000,000
	Benefit Changes	1,000,000
	Difference Between Actual and Expected Experience	6,000,000
	Assumption Changes	25,000,000
	Benefit Payments, including Refunds of Member Contributions	(63,000,000)
	Net Change in Total Pension Liability	$ 77,000,000
	Total Pension Liability (TPL) - (beginning of year)	1,248,000,000
	Total Pension Liability (TPL) - (end of year)	$ 1,325,000,000
B.	**Fund Fiduciary Net Position**	
	Contributions - City and State	$ 52,000,000
	Contributions - Member	3,000,000
	Net Investment Income	202,000,000
	Benefit Payments, including Refunds of Member Contributions	(63,000,000)
	Administrative Expenses	(2,000,000)
	Other	-
	Net Change in Fund Fiduciary Net Position	$ 192,000,000
	Fund Fiduciary Net Position - (beginning of year)	1,002,000,000
	Fund Fiduciary Net Position - (end of year)	$ 1,194,000,000
C.	**Net Pension Liability (NPL) - (end of year): (A) - (B)**	$ 131,000,000
D.	**Fund Fiduciary Net Position as a Percentage of TPL: (B) / (A)**	90.11 %
E.	**Covered Employee Payroll ****	$ 94,000,000
F.	**NPL as a Percentage of Covered Employee Payroll: (C) / (E)**	139.36 %
G.	Notes to Schedule:	
	Valuation Date	10/1/2023
	Reporting Date (GASB No. 68)	9/30/2025

Net Pension Liability and Related Ratios

Sample One-Year – Item A.

	Measurement Date	9/30/2024
A.	**Total Pension Liability (TPL)**	
	Service Cost	$ 12,000,000
	Interest	96,000,000
	Benefit Changes	1,000,000
	Difference Between Actual and Expected Experience	6,000,000
	Assumption Changes	25,000,000
	Benefit Payments, including Refunds of Member Contributions	(63,000,000)
	Net Change in Total Pension Liability	$ 77,000,000
	Total Pension Liability (TPL) - (beginning of year)	1,248,000,000
	Total Pension Liability (TPL) - (end of year)	$ 1,325,000,000

- Shows how the liability changed from one year to the next
- Service Cost is the cost of the year's accruals
- Benefit Changes are generally reflected in the fiscal year ordinance is signed/implemented.

Net Pension Liability and Related Ratios

Sample Ten-Year

	Measurement Date	9/30/2015	9/30/2016	9/30/2017	9/30/2018	9/30/2019	9/30/2020	9/30/2021	9/30/2022	9/30/2023	9/30/2024
A.	**Total Pension Liability (TPL)**										
	Service Cost	$ 13,000,000	$ 11,000,000	$ 11,000,000	$ 11,000,000	$ 11,000,000	$ 11,000,000	$ 12,000,000	$ 12,000,000	$ 11,000,000	$ 12,000,000
	Interest	64,000,000	68,000,000	71,000,000	75,000,000	80,000,000	83,000,000	88,000,000	93,000,000	97,000,000	96,000,000
	Benefit Changes	0	0	0	0	0	0	0	0	0	1,000,000
	Difference Between Actual and Expected Experience	0	0	0	0	0	0	0	0	0	6,000,000
	Assumption Changes	0	0	0	0	0	0	0	0	0	25,000,000
	Benefit Payments, including Refunds of Member Contributions	(32,000,000)	(35,000,000)	(37,000,000)	(40,000,000)	(41,000,000)	(43,000,000)	(46,000,000)	(51,000,000)	(55,000,000)	(63,000,000)
	Net Change in Total Pension Liability	$ 45,000,000	$ 44,000,000	$ 45,000,000	$ 46,000,000	$ 50,000,000	$ 51,000,000	$ 54,000,000	$ 54,000,000	$ 53,000,000	$ 77,000,000
	Total Pension Liability (TPL) - (beginning of year)	806,000,000	851,000,000	895,000,000	940,000,000	986,000,000	1,036,000,000	1,087,000,000	1,141,000,000	1,195,000,000	1,248,000,000
	Total Pension Liability (TPL) - (end of year)	$ 851,000,000	$ 895,000,000	$ 940,000,000	$ 986,000,000	$ 1,036,000,000	$ 1,087,000,000	$ 1,141,000,000	$ 1,195,000,000	$ 1,248,000,000	$ 1,325,000,000
B.	**Fund Fiduciary Net Position**										
	Contributions - City and State	$ 31,000,000	$ 32,000,000	$ 33,000,000	$ 35,000,000	$ 36,000,000	$ 37,000,000	$ 37,000,000	$ 39,000,000	$ 41,000,000	$ 52,000,000
	Contributions - Member	4,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000
	Net Investment Income	12,000,000	53,000,000	74,000,000	78,000,000	31,000,000	62,000,000	171,000,000	(118,000,000)	98,000,000	202,000,000
	Benefit Payments, including Refunds of Member Contributions	(32,000,000)	(35,000,000)	(37,000,000)	(40,000,000)	(41,000,000)	(43,000,000)	(46,000,000)	(51,000,000)	(55,000,000)	(63,000,000)
	Administrative Expenses	(1,000,000)	(1,000,000)	(1,000,000)	(1,000,000)	(1,000,000)	(1,000,000)	(1,000,000)	(1,000,000)	(1,000,000)	(2,000,000)
	Other	-	-	-	-	-	-	-	-	-	-
	Net Change in Fund Fiduciary Net Position	$ 14,000,000	$ 52,000,000	$ 72,000,000	$ 75,000,000	$ 28,000,000	$ 58,000,000	$ 164,000,000	$ (128,000,000)	$ 86,000,000	$ 192,000,000
	Fund Fiduciary Net Position - (beginning of year)	581,000,000	595,000,000	647,000,000	719,000,000	794,000,000	822,000,000	880,000,000	1,044,000,000	916,000,000	1,002,000,000
	Fund Fiduciary Net Position - (end of year)	$ 595,000,000	$ 647,000,000	$ 719,000,000	$ 794,000,000	$ 822,000,000	$ 880,000,000	$ 1,044,000,000	$ 916,000,000	$ 1,002,000,000	$ 1,194,000,000
C.	**Net Pension Liability (NPL) - (end of year): (A) - (B)**	$ 256,000,000	$ 248,000,000	$ 221,000,000	$ 192,000,000	$ 214,000,000	$ 207,000,000	$ 97,000,000	$ 279,000,000	$ 246,000,000	$ 131,000,000
D.	**Fund Fiduciary Net Position as a Percentage of TPL: (B) / (A)**	69.92 %	72.29 %	76.49 %	80.53 %	79.34 %	80.96 %	91.50 %	76.65 %	80.29 %	90.11 %
E.	**Covered Employee Payroll ****	$ 72,000,000	$ 69,000,000	$ 69,000,000	$ 71,000,000	$ 72,000,000	$ 75,000,000	$ 80,000,000	$ 80,000,000	$ 81,000,000	$ 94,000,000
F.	**NPL as a Percentage of Covered Employee Payroll: (C) / (E)**	355.56 %	359.42 %	320.29 %	270.42 %	297.22 %	276.00 %	121.25 %	348.75 %	303.70 %	139.36 %

- Need to show 10 year history

Contribution Schedule

Sample Summary to be Reported

Schedule of Employer Contributions (GASB No. 67 & No. 68)

Fiscal Year Ended	Actuarially Determined Contribution	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll [1]	Actual Contribution as a % of Covered Payroll
2015	$ 31,000,000	$ 31,000,000	$ 0	$ 72,000,000	43.06%
2016	32,000,000	32,000,000	0	69,000,000	46.38%
2017	33,000,000	33,000,000	0	69,000,000	47.83%
2018	35,000,000	35,000,000	0	71,000,000	49.30%
2019	36,000,000	36,000,000	0	72,000,000	50.00%
2020	37,000,000	37,000,000	0	75,000,000	49.33%
2021	37,000,000	37,000,000	0	80,000,000	46.25%
2022	39,000,000	39,000,000	0	80,000,000	48.75%
2023	41,000,000	41,000,000	0	81,000,000	50.62%
2024	52,000,000	52,000,000	0	94,000,000	55.32%

Pension Expense

Sample One-Year

Components of Pension Expense (GASB No. 68)

Measurement Date	9/30/2024
Service Cost	$ 12,000,000
Interest on Total Pension Liability	96,000,000
Current-Period Benefit Changes	1,000,000
Contributions - Member	3,000,000
Projected Earnings on Plan Investments	(70,000,000)
Administrative Expenses	(2,000,000)
Other Changes in Plan Fiduciary Net Position	0
Recognition of Beginning Deferred Outflows / (Inflows) due to Liabilities	3,100,000
Recognition of Beginning Deferred Outflows / (Inflows) due to Assets	(14,800,000)
Total Pension Expense	$ 28,300,000

- Same entries as prior schedule:
  - Service cost
  - Interest cost
  - Contributions –Member
  - Administrative Expenses
- Projected Assumed Earnings are deducted from Expense
- Changes in liability recognized over the Average Expected Service Lives
- Changes in assets recognized over 5 years
- Changes in Benefits recognized immediately

Deferred Inflows / Outflows

Sample One-Year

Recognition of Deferred Outflows and (Inflows) due to Liabilities - Measurement Date (GASB No. 68)

Recognition of Deferred Outflows due to Differences Between Actual and Expected Experience on Liabilities

Established	Initial Balance	Initial Recognition Period	Remaining Recognition Period as of 9/30/2024	Recognition Amount for 2023 / 2024	Balance as of 9/30/2024
2023 / 2024	$ 6,000,000	10.0	9.0	$ 600,000	$ 5,400,000
			TOTAL	$ 600,000	$ 5,400,000

Recognition of Deferred (Inflows) due to Differences Between Actual and Expected Experience on Liabilities

Established	Initial Balance	Initial Recognition Period	Remaining Recognition Period as of 9/30/2024	Recognition Amount for 2023 / 2024	Balance as of 9/30/2024
2023 / 2024	$ 0	10.0	9.0	$ 0	$ 0
			TOTAL	$ 0	$ 0

Recognition of Deferred Outflows due to Changes of Assumptions or Other Inputs on Liabilities

Established	Initial Balance	Initial Recognition Period	Remaining Recognition Period as of 9/30/2024	Recognition Amount for 2023 / 2024	Balance as of 9/30/2024
2023 / 2024	$ 25,000,000	10.0	9.0	$ 2,500,000	$ 22,500,000
			TOTAL	$ 2,500,000	$ 22,500,000

Deferred Inflows / Outflows

Sample One-Year

Recognition of Deferred Outflows and (Inflows) due to Liabilities - Measurement Date (GASB No. 68) (cont'd)

Recognition of Deferred (Inflows) due to Changes of Assumptions or Other Inputs

Established	Initial Balance	Initial Recognition Period	Remaining Recognition Period as of 9/30/2024	Recognition Amount for 2023 / 2024	Balance as of 9/30/2024
2023 / 2024	$ 0	10.0	9.0	$ 0	$ 0
			TOTAL	$ 0	$ 0

Recognition of Deferred Outflows and (Inflows) due to Assets - Measurement Date (GASB No. 68)

Recognition of Deferred Outflows / (Inflows) due to Difference Between Projected and Actual Earnings on Pension Plan Investments

Established	Initial Balance	Initial Recognition Period	Remaining Recognition Period as of 9/30/2024	Recognition Amount for 2023 / 2024	Balance as of 9/30/2024
2019 / 2020	$ 1,000,000	5	0	$ 200,000	$ 0
2020 / 2021	(110,000,000)	5	1	(22,000,000)	(22,000,000)
2021 / 2022	195,000,000	5	2	39,000,000	78,000,000
2022 / 2023	(30,000,000)	5	3	(6,000,000)	(18,000,000)
2023 / 2024	(130,000,000)	5	4	(26,000,000)	(104,000,000)
			TOTAL	$ (14,800,000)	$ (66,000,000)

Deferred Inflows / Outflows

Sample Summary to be Reported

Summary of Outstanding Deferred Inflows and Outflows of Resources as of September 30, 2025

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between actual and expected experience on liabilities	$ 5,400,000	$ 0
Changes of assumptions or other inputs	22,500,000	0
Net difference between projected and actual earnings on pension plan investments	0	66,000,000
Total	$ 27,900,000	$ 66,000,000

Summary of Deferred Outflows and Inflows of Resources that will be Recognized in Pension Expense in Future Years.

Year Ending 30-Sep	Amount
2026	$ (11,900,000)
2027	$ 10,100,000
2028	$ (28,900,000)
2029	$ (22,900,000)
2030	$ 3,100,000
Thereafter	12,400,000

Discount Rate Determination

Sample Disclosure

A discount rate of 7.00% was used to measure the September 30, 2024 TPL. The discount rate was based on the expected rate of return on Fund investments of 7.00%. The projection of cash flows used to determine the discount rate assumed member contributions will be made at the current contribution rate and employer contributions will be made at rates equal to the difference between actuarially determined current contribution rates and the member contribution rate. Based on these assumptions, the pension Fund's fiduciary net position was projected to be available to make all projected future expected benefit payments of current Fund members. Therefore, the long-term expected rate of return on Fund investments was applied to all periods of projected benefit payments to determine the TPL.

Sensitivity Schedule

Sample Disclosure

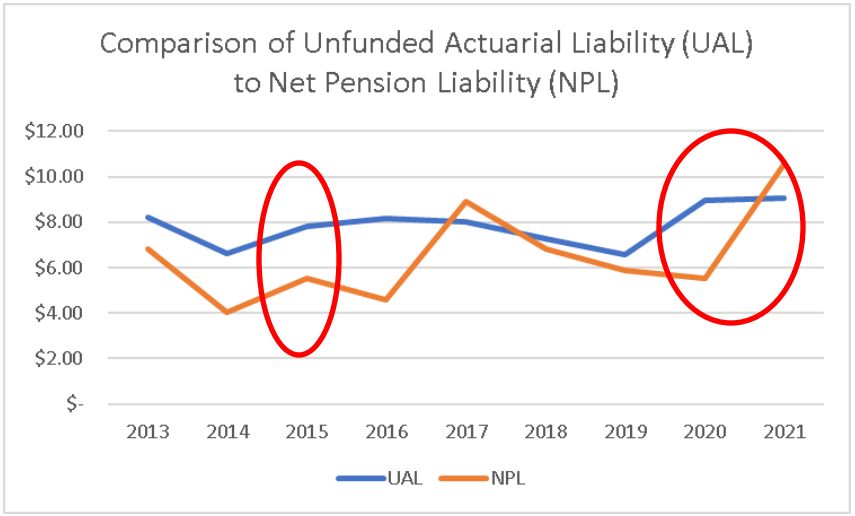
Sensitivity of the NPL to the Discount Rate Assumption (GASB No. 67 & No. 68)

Measurement date: September 30, 2024

	1% Decrease	Current Discount Rate	1% Increase
Discount Rate	6.00%	7.00%	8.00%
NPL	$ 193,000,000	$ 131,000,000	$ 49,000,000

- Typically shows how the net liability is impacted by a change in the discount rate – measured by changing the liability (assets stay the same)
- For OPEB, sensitivity to trend rates must also be disclosed

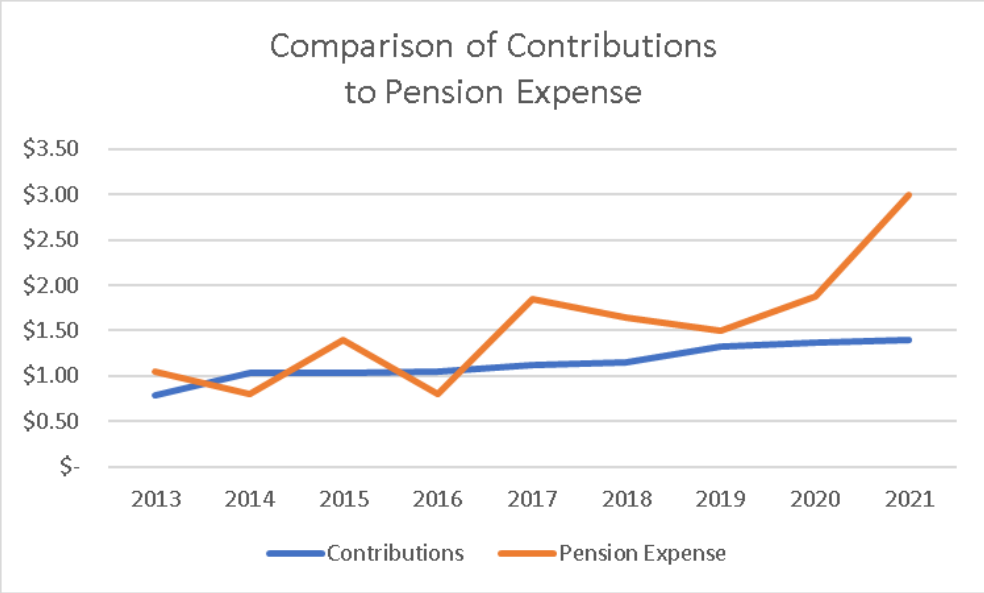
Public Ret. Plan Funding vs. GASB Reporting – Measurement Comparisons



GASB requires a 10-year history of NPL (but not UAL) starting in 2013

- Hypothetical comparison over time
  - NPL varies more with asset experience
  - Changes may or may not be in sync
    - 2015 assumption changes for both Funding and GASB increased cost
    - 2020 assumption changes for Funding were not reflected until 2021 for GASB due to timing

Public Ret. Plan Funding vs. GASB Reporting – Measurement Comparisons (Concluded)



GASB requires a 10-year history of Contributions (but not Pension Expense) starting in 2013

- Hypothetical comparison over time
  - Pension Expense varies more with shorter recognition period
  - Recent assumption changes have increased cost for both Funding and GASB
  - Absent future changes
    - Pension Expense should stay higher than Contributions over Avg. Future Working Lifetime
    - After AFWL, contributions expected to exceed Pension Expense for remainder of amortization period
- It is possible to have pension income (a negative expense)

Discussion of Funded Ratios

Difficult to Compare from One System to Another

- Actuarial assumptions not uniform
- Valuation dates and reporting schedules are different
- Different past history (funding and experience)

Trend in Funded Ratio is More Important Than the Absolute Level

Which Plan Would You Want to Retire From?

Funding Ratio		
Year	Plan A	Plan B
2010	30%	90%
2011	33%	87%
2012	36%	84%
2013	39%	81%
2014	42%	78%
2015	45%	75%
2016	48%	72%
2017	51%	69%
2018	54%	66%
2019	57%	63%
2020	60%	60%

Defined Benefit Plan

Risk Characteristics

1. Investment Risk (Poor performance)
2. Mortality Risk (Long lives)
3. Inflation Risk (Pay increases, CPI COLA)
4. Employer bears the risks
5. Benefits are predictable (Defined)

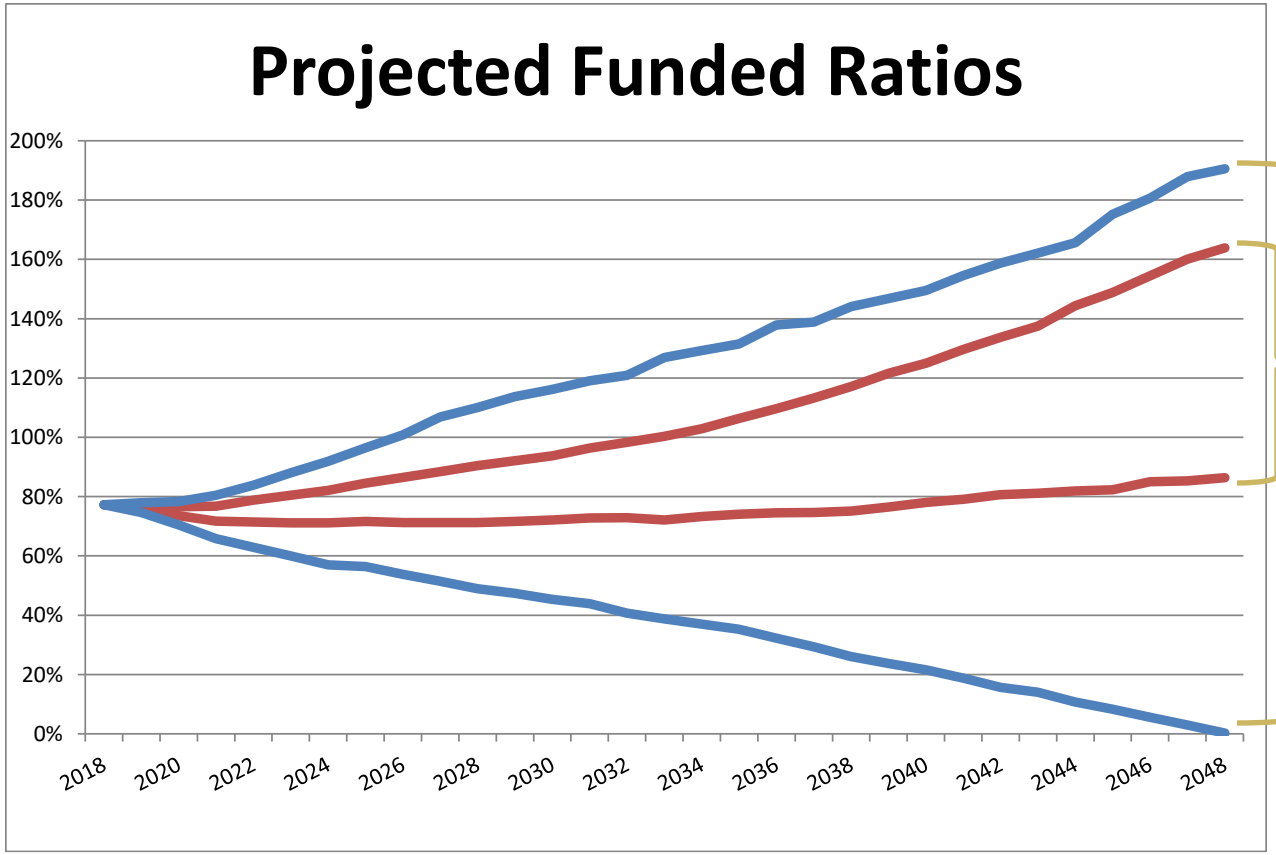
OPEB Plan

Risk Characteristics

1. Investment Risk / Discount Rate
2. Trend Risk
3. Mortality Risk (Long lives)
4. Employer bears the risks
5. Benefits are less predictable

Investment Return Assumption

- What does it mean to take on more risk?



Likely range of outcomes with **lower** risk

Likely range of outcomes with **higher** risk

Reducing Risk – From the Actuarial Perspective

- Reviewing Data for errors:
  - Bad in: Bad out
- Assumptions/Methods:
  - Utilizing assumptions that are reasonably expected to happen.
  - Monitoring assumptions versus actual results.
  - Smoothing results for Funding
- Understanding the Benefit Levels:
  - Making sure benefits provided are close to expected (difficult for OPEB)

Who invited the Actuary?

- SUCCESS is always having money on hand to pay every benefit promised
  - No assumptions, no projections…just the facts

- The CHALLENGE is that we will not know if we were successful until the last benefit is paid, which actually may never happen
  - There may be new members being added, members aging through the career and retiring, etc.
  - So, you always find yourself in the middle of the race
  - How do we know we are on the right track?

- ACTUARIES help stakeholders monitor the fund's progress towards success and provide advice on how to improve sustainability