How to Read an Actuarial Report

GFOAZ 2024 Winter Conference

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How to Read the Actuarial Report – Tips and Tricks

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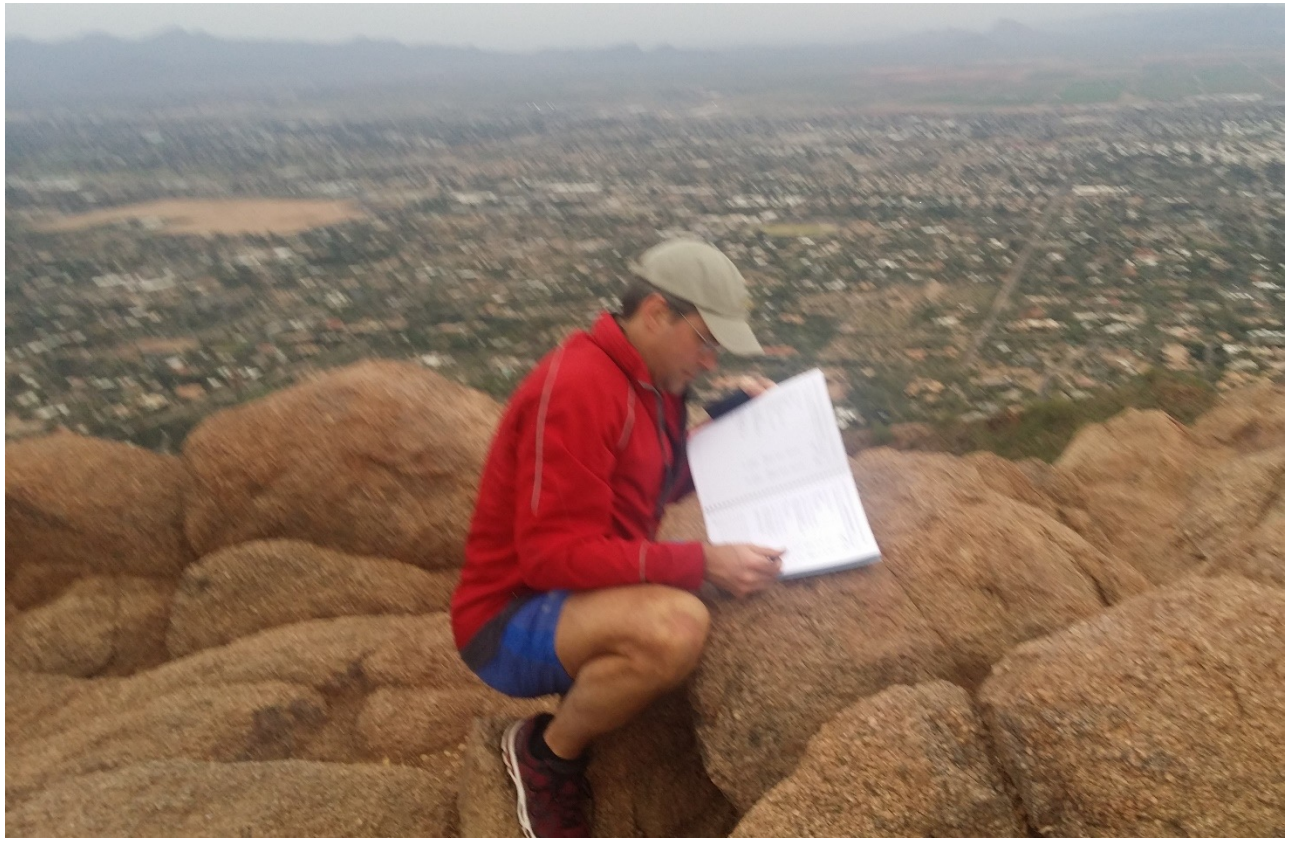


James Anderson - Camelback Mountain – Circa 2017

Types of Actuarial Reports

Actuarial Funding Valuation

Government Accounting Standards Board (GASB) Report

Actuarial Impact Statement/Cost Study

Actuarial Section of the ACFR

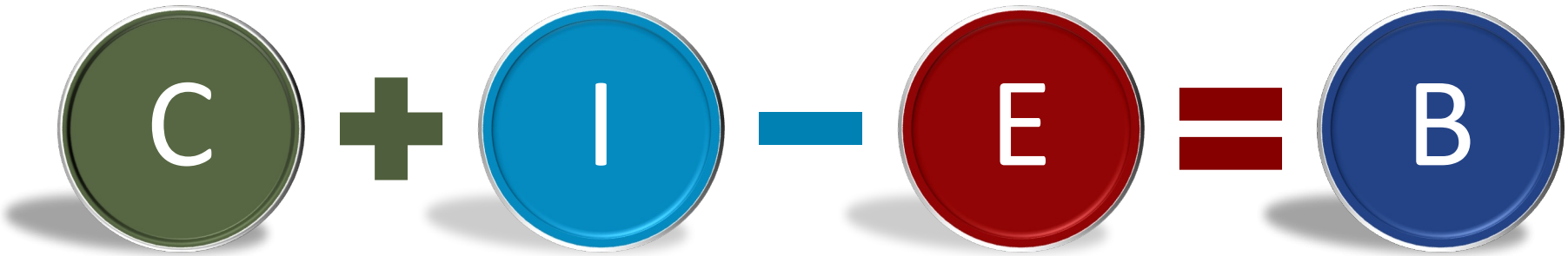
Primary Components of the Actuarial Valuation

1. Recommended Employer Contribution
2. Actuarial Liabilities
3. Funding Value of Assets
4. Funded Status

Secondary Components of the Actuarial Valuation

- Executive Summary (2 pages or less!)
- Summary of Member Data
- Plan Provision Summary
- Actuarial Assumptions
- Gain/Loss Summary
- Risk Metrics
- Actuarial Disclosures – Lots of Them!
- Low Default Risk Obligation Measure - New this Year!

Basic Retirement Funding Equation



Depends on:

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

Depends on:

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

Actuarial Basics

Present Value of Future Benefits

Present Value (PV) of all future benefits payable to current participants
(active, retired, terminated vested)

Actuarial Accrued Liability

Portion of PV of Future Benefits allocated to prior years

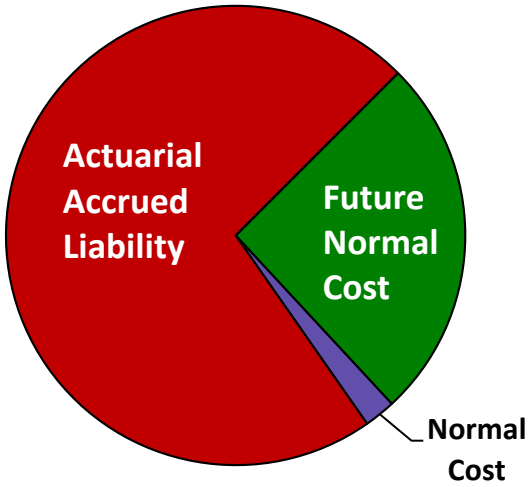
Normal Cost

Portion of PV of Future Benefits allocated to current year, also represents cost of accruing next year's benefit

Future Normal Costs

Portion of PV of Future Benefits allocated to future years

Present Value of Future Benefits



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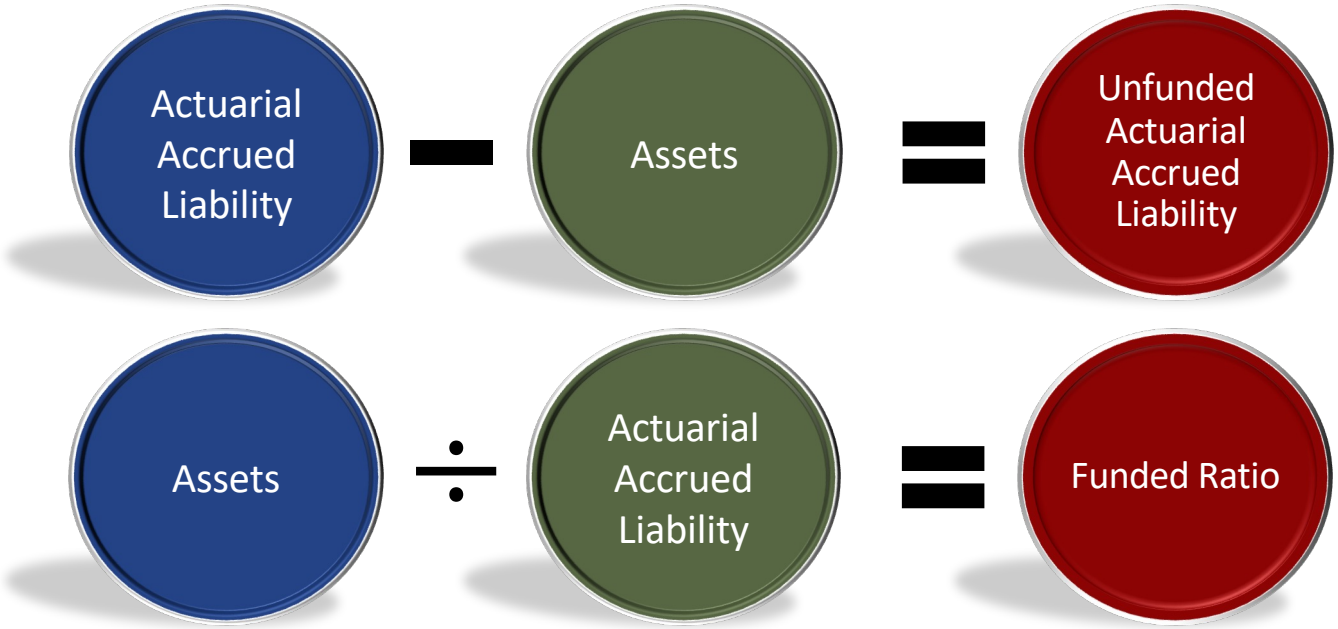
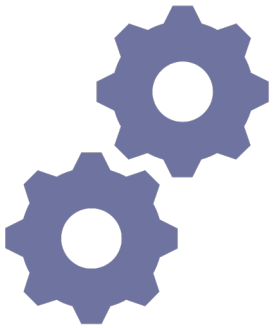


Definition through Example

All terms are defined in the context of one simplified example

- Assumes no investments are available, earnings = $0
- Assumes member works until retirement, then receives benefit for pre-determined length of time
- Actual pension model incorporates probabilities for retirement, termination, disability and death as well as time value of money
  - Example ignores these for simplicity

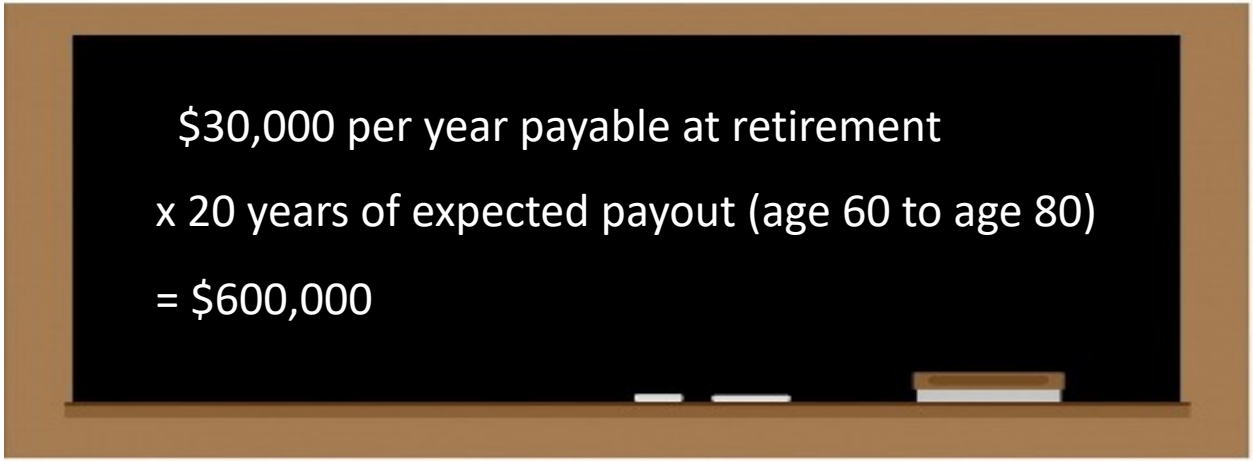
Example Parameters



1. Member hired at age 30
2. Member is currently age 40
   - 10 years into career
3. Member works until age 60
   - 30 year career overall
4. Member promised $30,000 per year at age 60
5. Member assumed to live until age 80
   - 20 year payout period

Present Value of Benefits (PVB)

The Present Value of Benefits represents the value today of the total benefit promise, both for service currently accrued as well as for future service that is expected to be worked



In general, makes sense to fund $600,000 over the career of the member, rather than waiting until retirement

GRS

Normal Cost (NC)

Therefore, the Employer will need to save $20,000 per year to accumulate the $600,000

- $600,000 / 30 years => $20,000 per year
- The $20,000 can be defined as the Normal Cost

The Normal Cost can be defined as:

- The cost of accruing that year's benefit associated with a year of service
- The anticipated cost of providing benefits to a new employee

Actuarial Accrued Liability (AAL)

10 years into the arrangement the Employer should have saved $200,000

- $20,000 each year for 10 years
- The $200,000 can be defined as the **Actuarial Accrued Liability (AAL)**

The Actuarial Accrued Liability represents the *target value of assets* at a specific point in time based on the funding objectives

- AAL at Year 5 = $100,000
- AAL at Year 10 = $200,000
- AAL at Year 20 = $400,000
- AAL at Year 30 = $600,000

Actuarial Value of Assets (AVA)

1. Investment returns are volatile
2. Do not want all that volatility to flow through to contribution requirements
3. Smooth assets
4. Smoothed value is the actuarial value of assets

Unfunded Actuarial Accrued Liability (UAAL)

Accrued liability represents the desired amount in the bank, but…

That does not necessarily reflect what is in the bank

Example:

• Accrued Liability:	$200,000
• Assets:	$150,000
• **Unfunded Actuarial Accrued Liability**:	$ 50,000

Reverse situation: “surplus” instead of “unfunded”

Funded ratio = Assets/Liability = 150,000/200,000 = 75%

Amortization Payment

Difference between assets and liabilities must be made up over time

Similar to (but different from) a mortgage

Length of time is generally set in the funding policy

Assume 10 years in our example:

- $50,000 UAAL / 10 years = $5,000 payment per year

Actuarially Determined Contribution (ADeC)

Traditionally made up of three components

Normal Cost

- Payment for accruing this year's benefit associated with a year of service for current active members

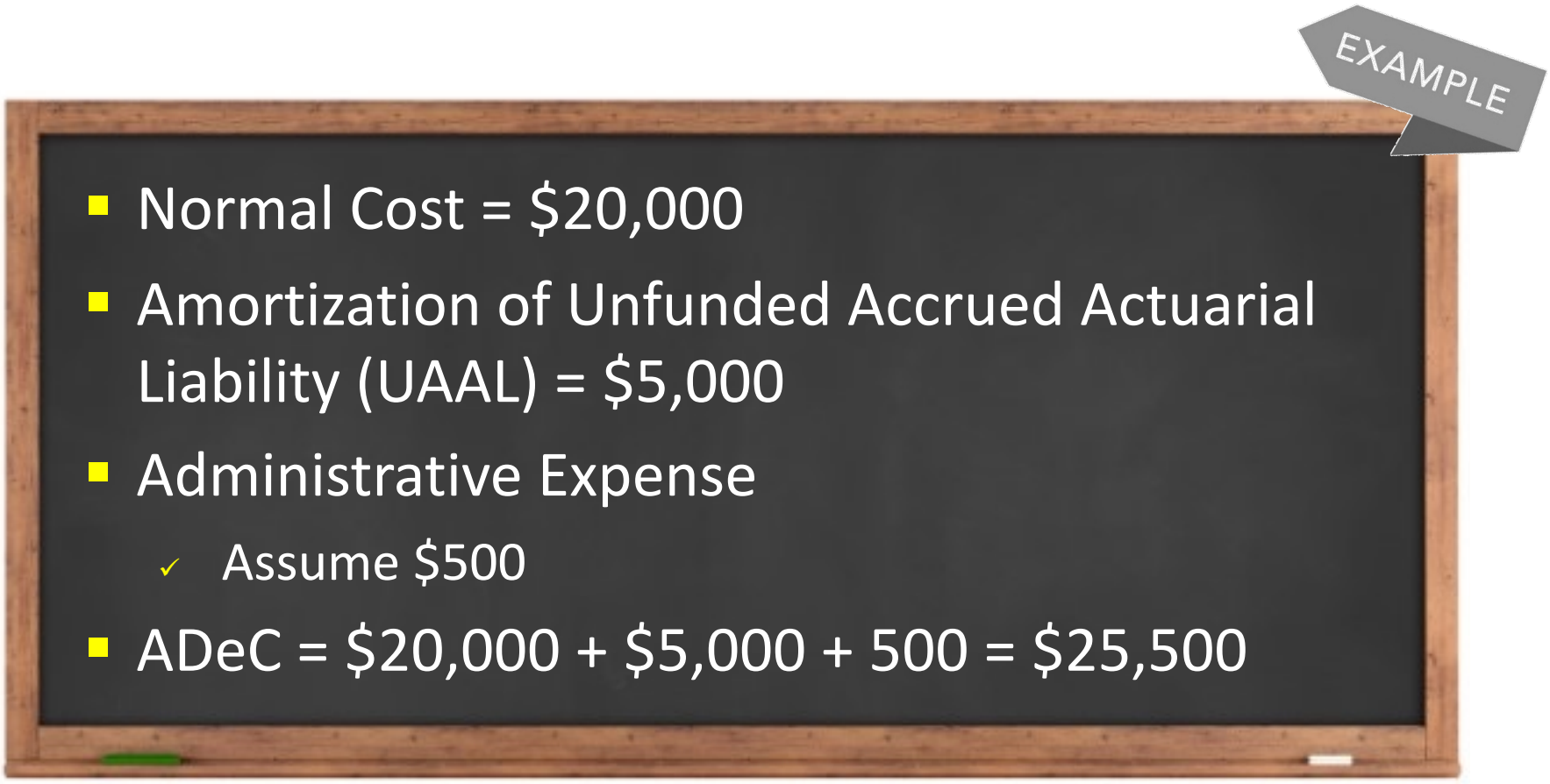
Amortization of Unfunded Accrued Actuarial Liability (UAAL)

- The mortgage-type payment on any unfunded past service

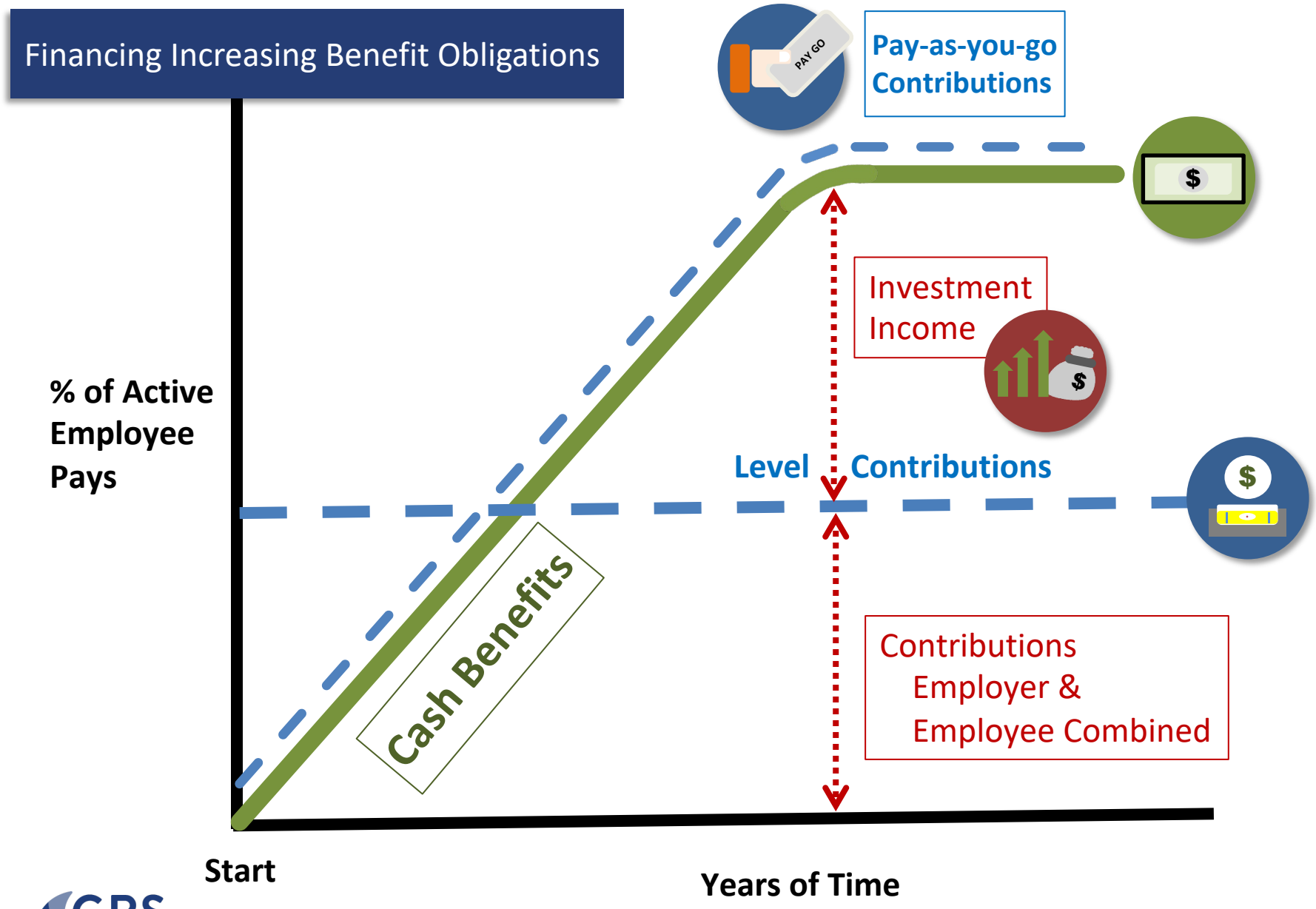
Administrative Expense

- Cover ongoing administrative expenses of the plan
- Some plans assume investment returns will cover this component

Actuarially Determined Contribution (ADeC)



Financing Increasing Benefit Obligations



Selection of Assumptions

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
- Turnover
- Mortality

Who Selects Them?

Economic

- Board
- Actuary
- Other Advisors

Demographic

- Mostly Actuary
- Board Approves

How Assumptions Factor In…

Over time, the true cost of benefits will be borne out in actual experience

- Cost of benefits NOT affected by actuarial assumptions
- Determined by actual participant behavior (termination, retirement), plan provisions, and actual investment returns

Assumptions help us anticipate and manage what each component of the equation will be

- Assumptions dictate the **timing** of the contributions
- Develop expectations for future contributions, investment returns and benefit payments
- Important for decision making

How Assumptions Factor In…

Assumptions do not affect true cost

But if wrong can lead to poor decisions, poor outcomes

- If objective is to fund levelly over active career, and assumptions suggest cost is 10% per year, but true cost is 14%
- Losses and unfunded liabilities will develop
- Cannot outrun or "out-assume" the true cost
- Important to update regularly and re-chart your course

Same can be true to the positive side, as overly conservative assumptions would pull resources to the System and away from other alternatives or force unnecessary reductions in benefits

Warning Signs in Actuarial Report

Declining Funded Status

- <60%

Aggressive Assumptions

- High interest rate
- Outdated mortality tables

Employer not making ADEC

Lengthy amortization

- >20-25 years for open plan
- >10-15 years for closed plan

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%

What about GASB?

GASB actuarial reports are for the City's/States' Financial Statements

Does not impact employer contributions

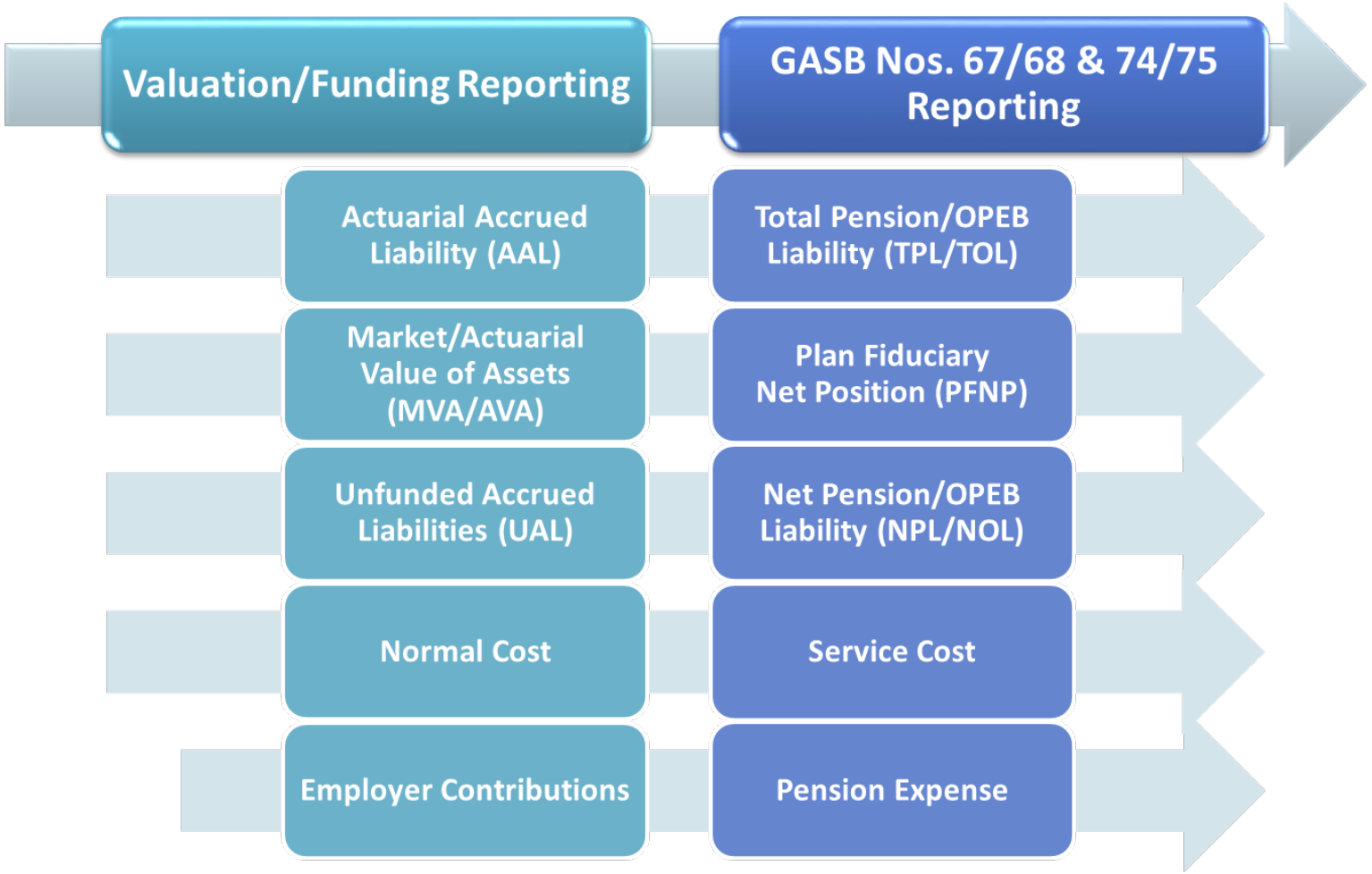
Assets are marked to market

Discount rate may or may not be different

- May vary between Bond rate and LTEROR

All terminology is different

GASB Terminology



LDROM – What? Why? Where? When?

What is the Low-Default-Risk Obligation Measure (LDROM) meant to represent?

It is meant to approximately represent the lump sum cost to a plan to purchase low-default-risk fixed income securities whose resulting cash flows essentially replicate in timing and amount the benefits earned (or the costs accrued) as of the measurement date

Understanding LDROM

Provides a more complete picture of the funded status and information regarding the security of benefits

- Recent guidance from Actuarial Standards of Practice (ASOP 4)
- Result of decades long debate within the actuarial community on calculation of liabilities
  - ✓ Should we use a long term expected return on assets as the discount rate?
  - ✓ Should we use a ‘low risk’ or ‘risk-free’ rate of return as the discount rate (like treasuries)

Understanding LDROM

Provides a more complete picture of the funded status and information regarding the security of benefits

- Will NOT impact contributions, UAAL, funded ratio, or funding period
- Difference between LDROM and the valuation AAL can be seen as a measure of the expected savings generated by taking investment risk.
  - ✓ Do the expected savings justify the risk?
  - ✓ If not consider what action should be taken

LDROM Summary

- What? - Additional Liability measure based on a Low default risk investment program
- Why? Intended to help stakeholders better understand the funded status of the plan and the risks involved.
- Where? Required for pension funding valuations
- When? Valuations with measurement date after February 15, 2023


THANK YOU

Disclaimers and Acknowledgement

- *This presentation is not meant to provide tax, legal, or investment advice.*
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- *Thank you to James Anderson and Francois Pieterse who checked and peer reviewed this presentation.*