



# Actuarial Processes

## Tennessee Consolidated Retirement System





- Discuss actuarial valuation process
- Two actuarial valuations performed
  - Actuarial Valuation for Funding Purposes
  - Actuarial Valuation for Accounting Purposes



# GASB 68 Pronouncement Separates

- Pension Accounting
- Pension Funding



# GASB Actuarial Valuation

- For Accounting Purposes
  - Based on Market Value of Assets
  - Provides Increased Financial Reporting Relative to Pensions
  - Requires a long-term liability to be recorded in employer's financial statements
  - Results in greater volatility in pension expense and pension liability from year to year
  - Does not impact how the pension plan is funded



# Actuarial Valuation

## Equation of Balance

$$\begin{array}{rcl} \text{Future Benefits} & & \text{Assets on Hand} \\ + & = & + \\ \text{Future Expenses} & & \text{Future Contributions} \\ & & + \\ & & \text{Future Earnings} \end{array}$$



# Objective of Actuarial Valuation

- To calculate the Actuarially Determined Contribution Rate Which Will
  - Keep the Equation in Balance
  - Be Reasonably Level in Future Years
- Determine Financial Status of the Plan



# Actuarial Valuation

- All Calculations are Based on “Actuarial Assumptions”
- Economic Assumptions
  - Investment Earnings
  - Salary Scale
- Demographic Assumptions
  - Mortality
  - Disability
  - Turnover
  - Retirement



# Actuarial Valuation

- Frequency
  - TCA Section 8-34-506 requires an actuarial valuation to be performed at least once every two years
  - Performed annually pursuant to the TCRS Funding Policy





# Actuarial Valuation

- Actuarial Assumptions are determined by the Quadrennial Experience Study
- Economic Assumptions
  - Investment Earnings
  - Salary Scale
- Demographic Assumptions
  - Mortality
  - Disability
  - Turnover
  - Retirement



# Experience Study

- The Experience Study compares Actual TCRS Experience to “Expected” Results
- If there is a significant difference, the assumptions are modified to reflect the actual experience
- TCA Section 8-34-503 requires an experience study at least once every six (6) years
- Performed every four (4) years pursuant to the TCRS Funding Policy



# Actuarial Valuation

- TCRS Board of Trustees Funding Policy Provides Instructions to the Actuary
  - Actuarial method
    - Entry age normal
  - Actuarial value of assets
    - 10 year smoothing within a 20% corridor to market value
  - Amortization of unfunded liability
    - Closed period
    - Level dollar method
    - Maximum period of 20 years
    - Amortized in tiers
  - Frequency
    - Each June 30
    - Establishes the ADC for the 12 month period starting 12 months from the valuation date



# Actuarial Valuation

Over life of a pension plan, the revenues must equal the expenses

## ■ Outflows

- Refunds
  - Contributions plus interest
- Benefits ( including base benefits and COLAs)
  - Death
  - Disability
  - Retirement
- Administrative expenses

## ■ Inflows

- Employee contributions
- Investment earnings, net of investment expenses
- Employer contributions (the item that balances inflows and outflows)



# Actuarial Valuation

- Two concepts of funding
  - Pay as you go, not considered an acceptable method
    - Example, social security
    - Pushes cost on future generation of taxpayers
    - Increases likelihood that promised benefits may not be paid
    - Equate to a pyramid scheme
  - Actuarially accrued, or prefunding
    - Charges the taxpayers for cost of service being accrued
    - Each generation of taxpayers pay their fair share
    - Does not push cost unto future generation of taxpayers
    - Increases likelihood that promised benefits can be paid
    - Must decide how to treat unfunded liabilities



# Actuarial Valuation

- Provide demographic data to the actuary
  - Retired Lives File
  - Active Lives File
  - Employer File



# Actuarial Valuation

## ■ Retired Lives File

- DOB
- Gender
- Benefit plan selected
- Current benefit
- Beneficiary DOB
- Beneficiary gender
- Employer
- COLAs or no COLAs



# Actuarial Valuation

## ■ Active Lives File

- DOB
- Gender
- Salary
- Service
- Active or inactive
- Account balance
- Employer





# Actuarial Valuation

## ■ Employer File

- Benefit Structure
  - Benefit formula
  - COLAs
  - Contributory or noncontributory
  - Vesting period
  - Public safety
  - Other
- Assets
  - Employer assets
  - Employee assets
- Asset smoothing rate



# Actuarial Valuation

- Report Issued by Actuary
- ADC
  - Components of ADC
    - Normal cost
    - Unfunded liability cost
    - Administrative cost
  - Amortization period
    - Within the maximum set by TCRS Board
- GASB 68 data
  - Pension expense
  - Net Pension Liability
  - Deferred Outflows
  - Deferred Inflows



# Actuarial Valuation

- Separate legal plans
  - State legacy-agent plan (one plan legally)
    - General employees
    - Public safety employees
    - Judicial
  - State hybrid-agent plan (one plan legally)
    - General employees
    - Public safety employees
    - Judicial
  - Teacher legacy-cost sharing plan
  - Teacher hybrid-cost sharing plan
  - Political subdivisions-agent
    - Each participating employers



# Actuarial Valuation

- Effective Date of Actuarial Valuation

Date of Actuarial Valuation	Effective Dates of ADC	Effective Date of GASB 68 Data
6-30-16	7-1-17 to 6-30-18	6-30-17
6-30-17	7-1-18 to 6-30-19	6-30-18
6-30-18	7-1-19 to 6-30-20	6-30-19
6-30-19	7-1-20 to 6-30-21	6-30-20