MERS®
Municipal Employees' Retirement System

Actuarial Basics

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Objectives

- Funding Concepts of Retirement Plans
- Actuarial Valuations
- Actuarial Terminology

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Funding Concepts of Retirement Plans

- Pre-funding
  - Set aside money now to pay for the benefits promised later
  - Investment income helps pay for the benefits promised
  - More level funding method
- Pay-as-you-go
  - Pay the benefits as they come due
  - Forego investment income
  - Increasing funding method

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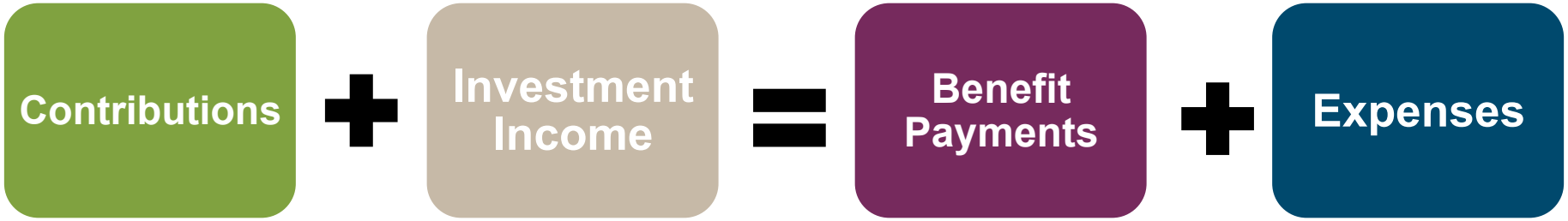
Funding Concepts of Retirement Plans

Basic Funding Equation



This equation must hold for any financing arrangement to be self-sustaining

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Funding Concepts of Retirement Plans

- Defined Benefit Plan
  - An actuarial valuation is necessary to calculate the employer contribution
- Defined Contribution Plan
  - Actuarial valuation is not needed because employer contribution is defined
- Hybrid Plan
  - An actuarial valuation is necessary for the defined benefit portion

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Actuarial Valuations

- A mathematical process that estimates plan liabilities and calculates employer contribution requirements for each division with Defined Benefit (or the Defined Benefit portion of the MERS Hybrid Plan)
- Provides employer and employee contribution rates for future fiscal year
- Provides updates to funding levels, history of plan provisions and tracks employee demographics
- Provides Governmental Accounting Standards Board (GASB) information for annual audits
- DOES NOT determine the ultimate cost of benefits, only the pattern of employer contributions

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Actuarial Valuations

- Input Items
  - Information provided by the Retirement System
    - Demographic data (active, retired, inactive)
    - Financial data
    - Benefit provisions
  - Assumptions about future events, funding methods and amortization policy are recommended by the Actuary and adopted by the Retirement Board

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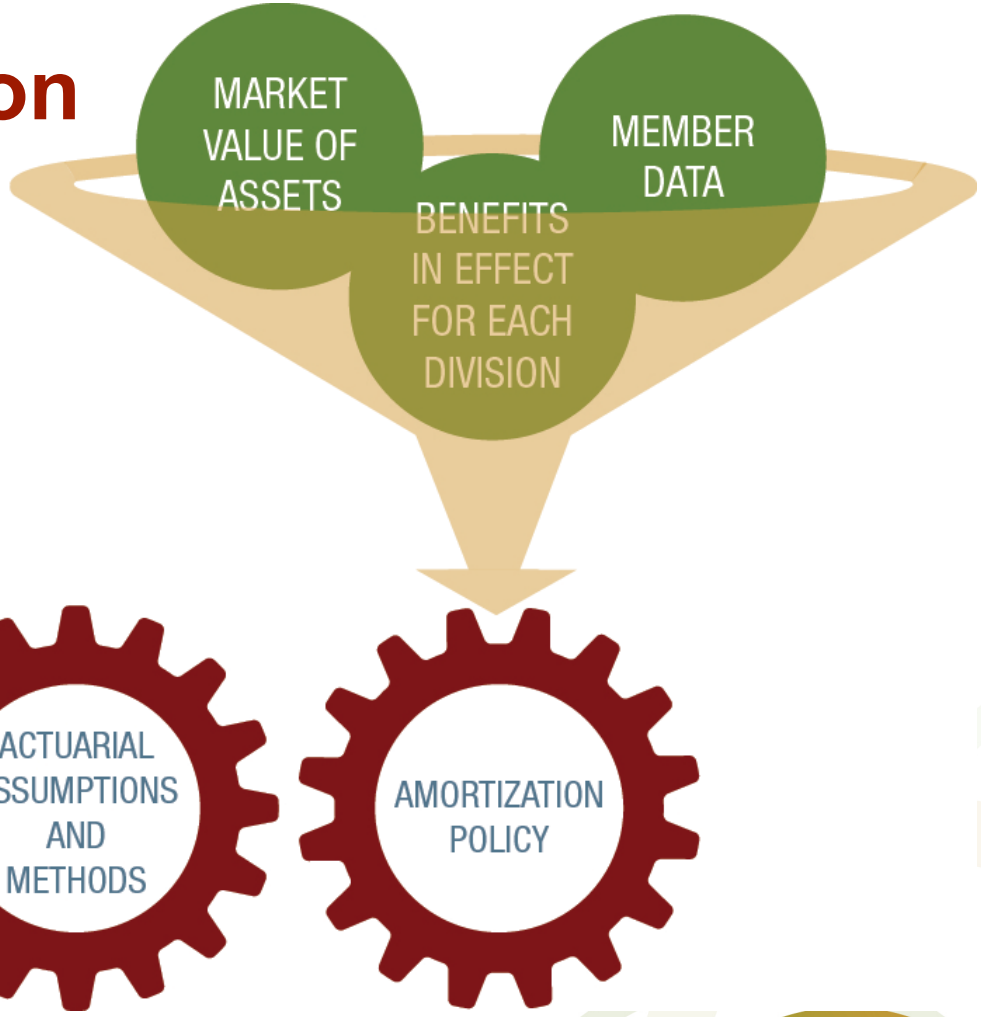
How is the Employer Contribution Calculated?



Actuarial Assumptions and Methods established by the Retirement Board

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Actuarial Terminology

- **Present Value of Future Benefits (PVFB)**
  Present value of all future benefits paid to current members (active, retired and inactive)
- **Present Value of Future Normal Costs (PVFNC)**
  Portion of PVFB allocated to future years
- **Actuarial Accrued Liability (AAL)**
  Portion of PVFB allocated to past service
- **Normal Cost (NC)**
  Portion of PVFB allocated to current year

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Actuarial Terminology

- **Actuarial Value of Assets (AVA)**
  - Reflects market value fluctuations over time
  - AVA is used in the calculation of the employer contribution
  - Intent is to generate a smoother pattern of employer contribution
- **Unfunded Actuarial Accrued Liability (UAAL)**
  - Difference between AAL and AVA
  - The UAAL is paid off over a period of years, similar to a mortgage

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Employer Contribution

Employer contribution rate is made of up two parts:

1. **Employer Normal Cost**– Present value of benefits allocated to the current plan year less any employee contribution

2. **Amortization Payment of Unfunded Accrued Liability**– Payment to reduce any shortfall between liability for past service and assets

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Funding Concepts of Defined Benefit Plans

- The employer contribution is the sum of Normal Cost and Amortization of the Unfunded Actuarial Accrued Liability
  - Amortization is paid off over a period of years, similar to a mortgage

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Changes to Employer Contributions

Employer contribution changes from one year to the next as a result of:

- Experience of the plan differing from the assumptions
- Changes in benefits
- Changes in assumptions or methods (typically after an experience study)

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Amortization Policy

- The report projects any unfunded accrued liability for each division (part two of the ARC)
- The amortization period is the number of years over which the unfunded accrued liability is funded

Type	Period
New Divisions	25 years
Open Divisions	26 years, moving to 25 years beginning with 2013 valuations
Closed Divisions	Amortization will decrease per the closed division amortization policy
Divisions Over 100% Funded	10 years

- Shorter amortization periods may be elected by a municipality

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MERS Experience Study

- MERS analyzes data and uses algorithms to track each participant's status throughout a study period, which is 5 years

- Based on the analysis, MERS may change various assumptions
  - Proposed changes are usually halfway between current assumption and 5-year experience
  - Avoids giving undue weight to temporary conditions that may influence a given 5-year period

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Actuarial Assumptions and Methods

Assumption Policy	
Actuarial Method	Entry age normal
Asset Method	10-year smoothing of investment gains/ losses
Interest Rate	8%
Base Payroll Growth	1.0%
Mortality Table	1994 GAM Table (unisex rates)
Withdrawal Rate	Service based table (scaling factor for some)
Retirement Rate	Based on income replacement ratios
Merit/ Longevity Pay Increases	Age based
Disability Rate	Age based table

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Achieving Funding Levels

- As the fiduciary of the system, MERS has an obligation to ensure adequate funding for the benefits promised
  - State law requires minimum funding towards pension plans
  - MERS Retirement Board approves actuarial assumptions, minimum funding requirements, etc.

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Key Points

- Actuarial Valuations are performed on the Defined Benefit Plan and Part I – Defined Benefit of the Hybrid Plan, and not required for a Defined Contribution Plan
- Employer contribution in a Defined Benefit Plan is figured through a combination of market value of assets, member data, benefit provisions, amortization policy and actuarial assumptions and methods
- Employer contributions for the Defined Benefit Plan are made up of two parts: normal cost plus amortization payment of the unfunded accrued liability
- In a Defined Benefit Plan, the employer contribution will fluctuate from one year to the next

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Online Resources Available

To learn more about Actuarial Valuations, you can find helpful information at *www.mersofmich.com*

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Annual Actuarial Valuations

The annual actuarial valuation (AAV) is an important tool to help you budget for your municipality's retirement benefits, with information specific to your municipality's retirement plan. As a multiple-employer plan, MERS establishes a separate trust for each municipality. Each entity is responsible for the employer contributions needed to provide benefits for its employees and former employees. To see a consolidated report of all MERS plans, please click here.

The annual actuarial valuation is a report provided to you as a snapshot of your MERS Defined Benefit Plan as of December 31 each year. The report provides insight to your plan's liabilities, funding levels, contributions for both the employer and employee, and important GASB Information. The information in the report will provide you contribution rates for your following fiscal year.

When To Expect Your Report

You can expect your report to arrive by July 1 for the previous calendar year. For instance, you can expect the 2012 report to arrive by June 30, 2013. In this example, the AAV contains information for 2014 contribution rates.

Understanding Your Annual Actuarial Valuation

This guide outlines each section of your report, as well as answers some frequently asked questions. For more information, please contact your MERS Regional Manager. Click the section title for more information about that part of the report.

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