

Presentation on the Actuarial Audit of the  
Ohio Police & Fire Pension Fund  
for Ohio Retirement Study Council

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To OP&F TBD, 2017

# Agenda

- Major Findings of Actuarial Review
- Actuarial Assumptions
  - Demographic
  - Economic
  - Healthcare
- Actuarial Methods
- Actuarial Liability
- Healthcare Review
- Audit Conclusions

# Major Findings

- We believe the numbers are correct
  - Our calculations match Conduent calculations
  - Although the OP&F benefit structure is very complex, the Buck/Conduent calculations captured key provisions accurately
- Improved transparency in the Buck reporting is desirable
  - Development of assumptions
  - Disclosure of calculations
- Actuarial Assumptions are reasonable, but anticipate that they will be revised based on results of recent experience study
  - Costs and liabilities will likely increase
  - 8.25% return may be reduced
  - Mortality improvement change results in lesser mortality improvement

# Findings of Actuarial Review - Summary

## Actuarial Assumptions

- ↳ Reasonable and consistent
- ↳ Some minor concerns

## Actuarial Methods

- ↳ Reasonable and consistent
- ↳ Some concerns with disclosure

## Actuarial Valuation Replication

- ↳ Close match (2.9% on total liability)
- ↳ Reasonable, consistent and accurate

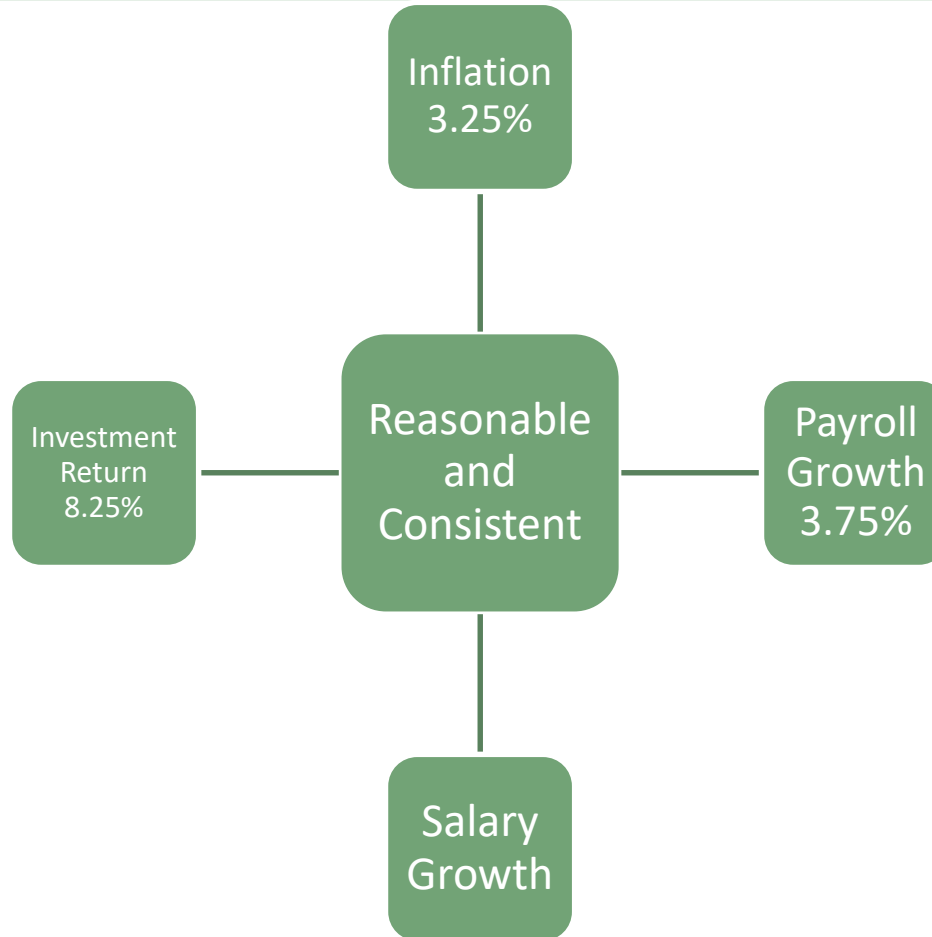
## Actuarial Process

- ↳ Unable to precisely verify detailed calculations
- ↳ But overall close replication match suggests confidence in numbers

# Demographic Assumptions



# Economic Assumptions



# Economic Assumptions

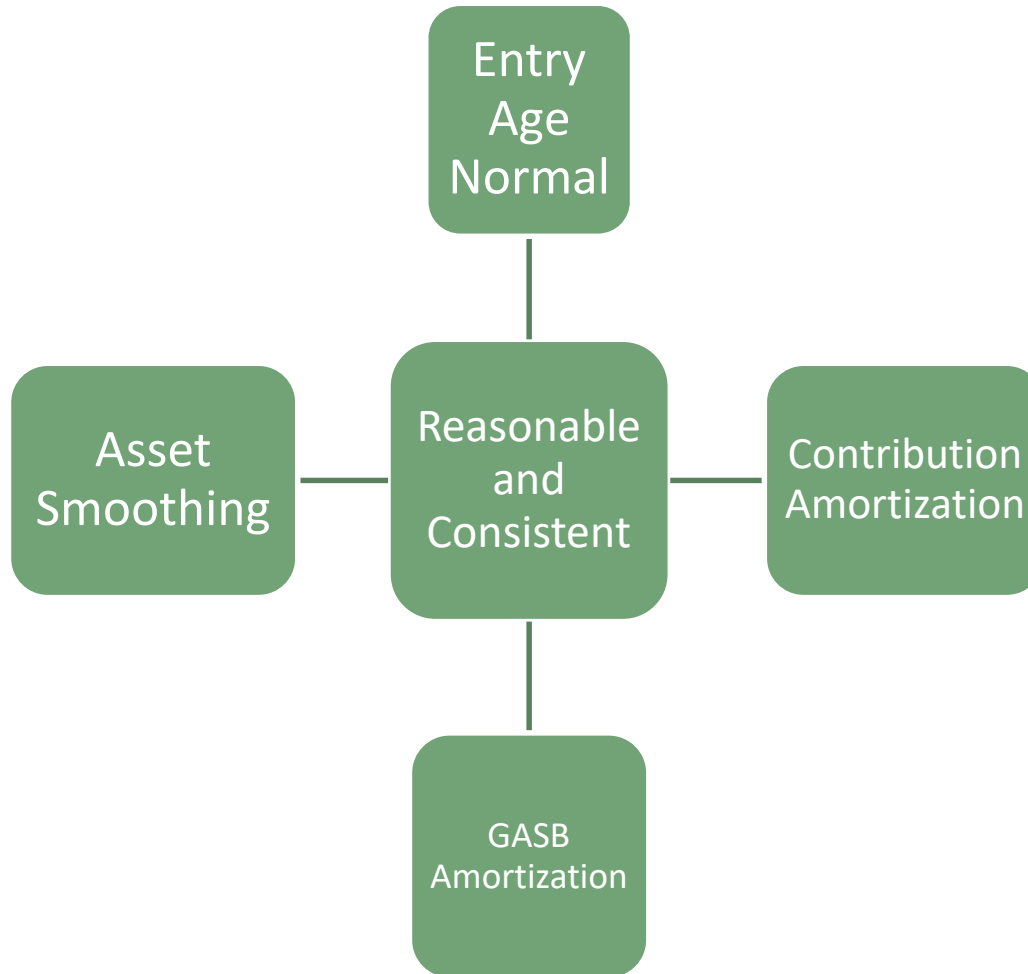
- Investment Return Rate of 8.25%
  - Among the highest of other systems (median is 7.50%)
  - Reduction to 8.00% consistent with low inflation environment and peers
- Inflation Rate of 3.25%
  - Consistent with peers (median is 3.00%)
  - Current market rate is much lower
  - Reduction next cycle to 2.75%
- Payroll Growth of 3.75%
  - Reduction next cycle to 3.25%
- Salary Growth Rate
  - Reasonable, but some concerns with recognition of inflation

# Healthcare Assumptions





# Actuarial Methods



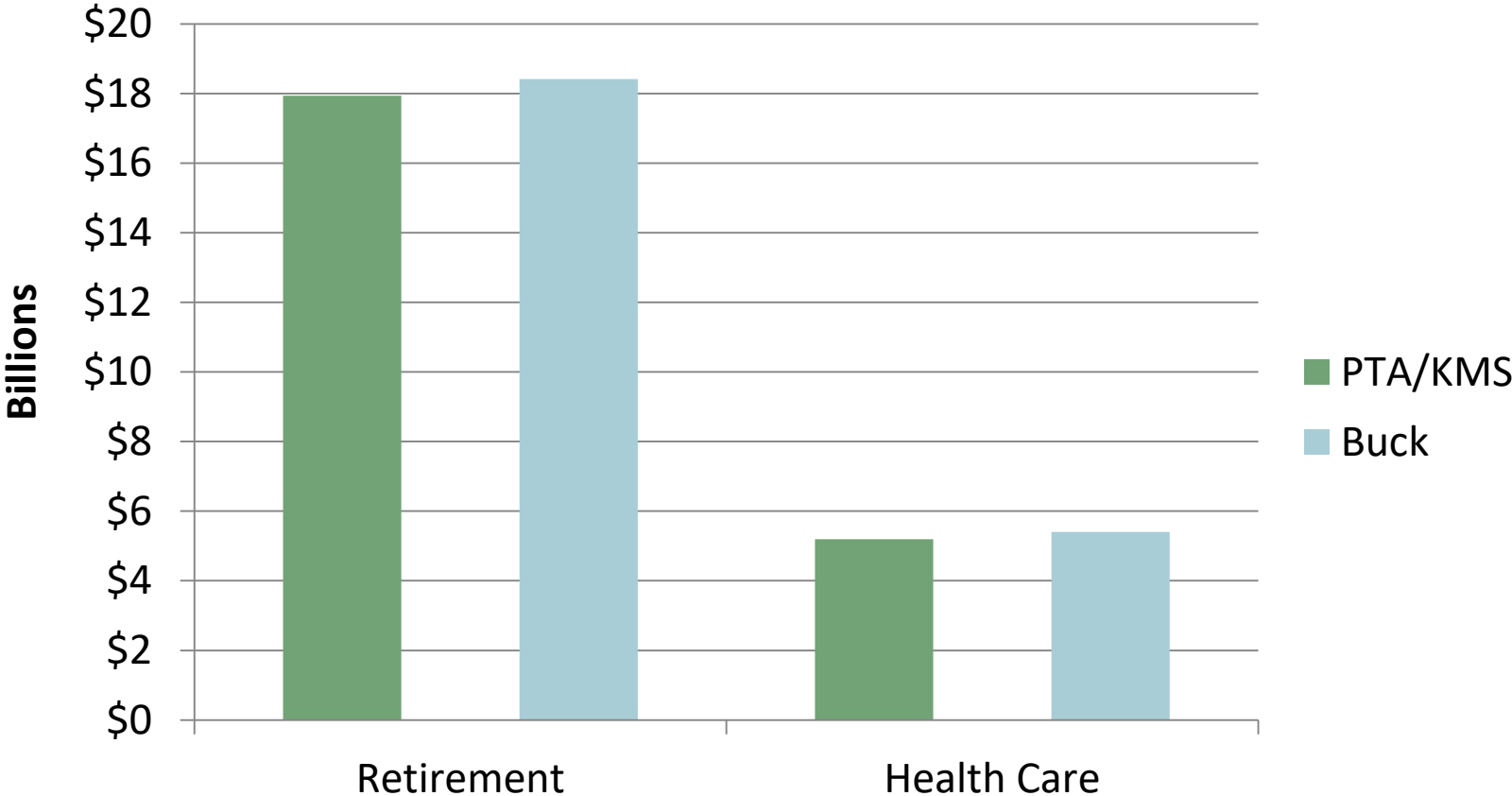
# Amortization Methods

- For determination of contribution requirements
  - Based on increasing payroll (3.75% of total payroll)
  - Amortization period is 30 years as of January 1, 2015
    - Down from 33 years as of January 1 2014
  - Adoption of proposed assumptions will make attainment of 30-year funding period more challenging
- Adequacy of Contribution under Ohio Revised Code
  - Performed every two years
  - This analysis is separate from Actuarial Audit, which is generally performed every ten years
  - OP&F attained 30 year target at last review
    - as of January, 2015
    - report issued October, 2015

# Actuarial Valuation Replication

- Data used by Buck matches data provided by OP&F
- Reasonable match
- Actuarial liabilities match within 2.9% in total
- Thorough, complete work by Buck (Conduent)

# Actuarial Liability



# Health Care Review

- Assumed 2015 monthly rates are reasonable
- Age-adjusted rates reflect reasonable morbidity by age, are consistent with monthly rates and are reasonable

# Audit Conclusions

- Reasonable match in valuation replication
- Assumptions, Methods and Factors
  - Reasonable
  - Consistent
  - Accurate
- Health care rates are reasonable
- Buck reports are complete
- Recommendations
  - Provide next auditor with transparent calculations
  - Correct minor issues mentioned in audit report

# Minor Concerns and Areas for Improvement

- Clarify disabled life mortality
- Technical actuarial concerns with historical salary growth analysis
- ORSC and System may wish to consider timing of changes in actuarial assumptions with timing of actuarial audit

# Actuarial Audit Replication – In a Perfect World

- Auditing actuary receives:
  - From pension system:
    - Plan provisions,
    - Member data, and
    - Asset information
  - From system actuary:
    - Actuarial valuation reports, and
    - Experience study reports
- Auditing actuary is able to:
  - Match calculations of system actuary, and
  - Opine that system actuary's assumptions and methods are reasonable and appropriate



# Actuarial Audit Replication – In the Real World

- Actuarial valuation report is not 100% complete in its description of plan benefits, actuarial assumptions, and actuarial methods
- Actuaries and retirement system have ongoing conversations clarifying ambiguities
- System actuary provides test cases illustrating precise calculations

# Actuarial Audit Replication – In OP&F World

- Buck was helpful and responsive in clarifying plan provisions and assumptions
- Buck would not provide detailed calculations
  - PTA/KMS could only try to replicate individual calculations through trial and error
  - After detailed questions and clarifications, we were able to match to totals reasonably
- We recommend that Buck provide fully transparent sample calculations
  - And enhance minor reporting issues in the next experience study report and/or actuarial valuation report

# Findings of Actuarial Review - Recap

## Actuarial Assumptions

- ↳ Reasonable and consistent
- ↳ Some minor concerns

## Actuarial Methods

- ↳ Reasonable and consistent
- ↳ Some minor concerns with disclosure

## Actuarial Valuation Replication

- ↳ Very close match (2.9% on total liability)
- ↳ Reasonable, consistent and accurate

## Actuarial Process

- ↳ Unable to precisely verify detailed calculations
- ↳ But overall close replication match suggests confidence in numbers