# Triennial Experience Study

**PRESENTED BY:**

**Alan D. Conroy, Executive Director**

**Phone: 785-296-6880**

**Email: aconroy@kpers.org**

Joint Committee on Pensions, Investments, and Benefits

November 4, 2019

KPERS

# Covering Today

Actuarial Assumptions

Experience Studies

Preliminary Recommendations

# Actuarial Assumptions

- Assumptions have a significant impact on the calculation of liabilities and actuarial contribution rates
  - Benefit payments are dependent on number of contingent events that are unknown
  - Actuaries use assumptions to determine information about future benefit payments including when, how much, and how long
  - Assumptions will impact the allocation of costs so usually set neither overly conservative or aggressive

- Assumptions are just that assumptions. If actual experience differs from the assumption over time, the costs will differ also. This variance is captured each year in the valuation process.

- Having accurate assumption is important to ensure generational equity.

# Types of Assumptions

- Economic
  - Inflation
  - Investment return
  - Payroll growth

- Demographic
  - Retirement rates
  - Promotional/step pay increases
  - Disability rates
  - Turnover
  - Mortality

- Actuarial Methods
  - Cost method
  - Amortization

# General Impact of Assumption Changes

| Assumption change | Usual Impact on liabilities and actuarial contribution rate |
|---|---|
| Economic Assumptions | |
| Lower inflation | Indirect impact |
| Decrease investment return | Increase |
| Lower salary increases | Decrease |
| Lower payroll growth | Increase |
| | |
| Demographic Assumptions | |
| Longer lifetimes | Increase |
| Earlier retirements | Increase |
| More disabilities | Increase |
| More terminations | Decrease |

# Major Drivers of Liabilities/Cost

- Assumptions with Largest Cost Impact
  - Investment return assumption
  - Salary increase assumption
  - Mortality assumption
  - Retirement assumption

| | **Liability Impact** | **Used to Estimate** |
|---|---|---|
| Investment return | All groups | Value of all benefits |
| Salary increase | Actives only | Amount of benefit |
| Mortality | All groups | Duration of benefit |
| Retirement | Actives only | Commencement of benefit |

- Impact of investment return assumption dwarfs all other assumptions

# What is an Experience Study

- Comparison of actual experience during study period with expected results based on current assumptions.

- Past experience provides strong guidance for some assumptions (like mortality) and weak guidance for others (like investment return).

- Both science and art
  - Objective (science): number crunching of actual and expected numbers of members and rates of occurrence.
  - Subjective (art): interpreting the information and deciding on appropriate changes.

# KPERS Triennial Experience Study

- By statute, performed triennially for KPERS (K.S.A. 74-4908).
- Monitor all actuarial assumptions and methods used in the valuation process.
- Last KPERS study covered calendar years 2013 through 2015.
- This study covers calendar years 2016 through 2018.

# Purpose of the Triennial Experience Study

- Review all actuarial assumptions and methods.
  - How well do the current assumptions fit today?
  - Should any assumptions be changed? How much?

- Provide the best <u>estimate</u> of future experience.

- Each assumption should be individually reasonable.
  - For example, would not use 3% inflation for investments and 2% inflation for salary growth.

- Assumptions are intended to be long-term estimates, but experience unfolds and is measured over the short term.

- As fiduciaries, the Board is responsible for the selection of actuarial assumptions,
  - Board can adopt all, none, or some of actuary's recommendations.

# 2019 Triennial Experience Study

- The Board of Trustees is in the middle of the Triennial Experience Study process.
  - Economic assumptions were presented in September.
  - Actuarial methods were presented in October.
  - Demographic assumptions are scheduled for November.

- The Board will receive the recommendations from the actuary this fall and winter.

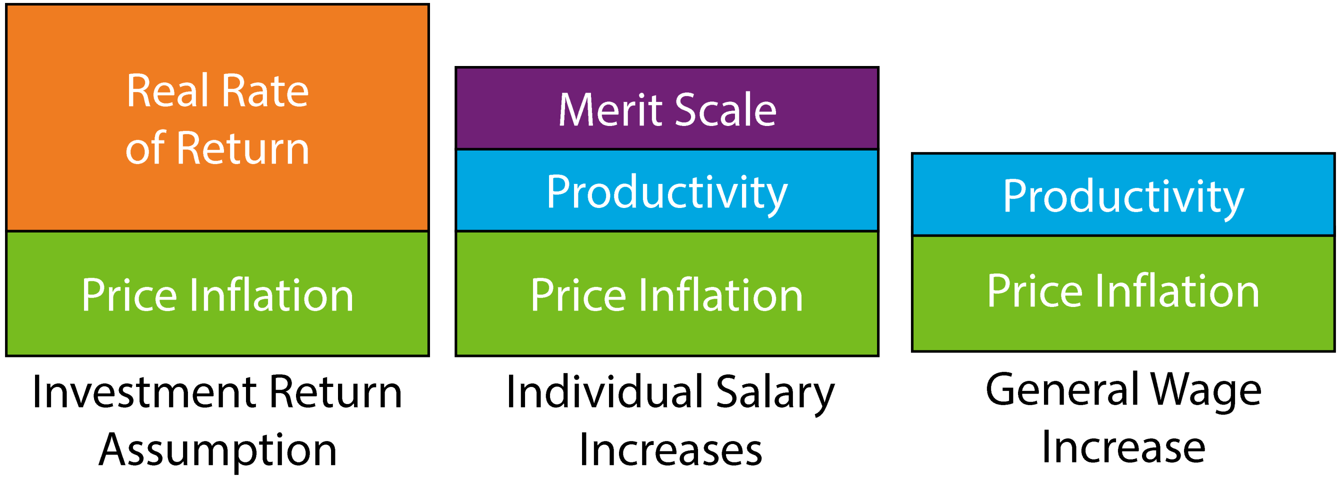
- The Board will make final decisions on assumptions next year.

- The new assumptions will be used in the 12/31/2019 actuarial valuation, which will be reflected in FY 2023 for State/School contributions.

# Setting Assumptions

Economic Assumptions

- Building blocks approach
- Inflation is a component in several economic assumptions
- Inflation and productivity assumption must be consistent in all assumptions



# Current Assumptions

| Economic Assumption | | Current Assumption |
|---|---|---|
| Price inflation | General increase in prices (CPI) | 2.75% |
| Productivity | Wage growth in excess of inflation (standard of living increases) | 0.75% |
| General wage increase | Price inflation plus Productivity | 3.50% |

| | | |
|---|---|---|
| Price inflation | General increase in prices (CPI) | 2.75% |
| Real rate of return | Returns in excess of inflation | 5.00% |
| Nominal investment return | Price inflation plus Real return | 7.75% |

| | | |
|---|---|---|
| Payroll growth | Payment scheduled for amortizing the unfunded actuarial liability | 3.00% |

# Setting Assumptions

Demographic Assumptions

- Data driven
- Study what happened to individual members
- Compare what actually happened to what was expected to happen
- Assess credibility of the changes
  - Did something unusual happen (i.e. large increase in school funding)
- Key evaluation tool is Actual/Expected ratio
  - A ratio close to 1 mean experience match expectation. A ratio above or below 1 may indicate a change in the assumption is warranted.

# Current Assumptions

| Demographic Assumption | | Current Assumption |
|---|---|---|
| Turnover | Will a member work long enough to receive a benefit? | Generally higher turnover earlier in career |
| Retirement | When will members retire and start collecting a benefit? | Percent of early and normal retirements<br>Percent of rule of 85 retirements |
| Mortality | How long with members receive benefits? | RP-2014 mortality table with adjustments |
| Partial Lump Sum Option | How many members will elect to take a lump sum? | 12% of benefits will be paid as lump sum. 50% lump sum most common election |
| Disability Rates | How many members will need disability benefits? | Varies by group, higher for KP&F |

# Preliminary Recommendations

- Recommendations for actuarial methods and demographic assumptions will be made at the November and January Board meetings.

- Amortization is not likely to be changed in this experience study, but is being reviewed by the Board.

- The Board is continuing to evaluate the investment return assumption using:
  - Long-term historical information
  - Recent economic data
  - Peer system comparisons
  - Inflation forecasts
  - Asset allocation
  - Risk tolerance

# Questions?