Benefits of an Actuarial Experience Study

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Background

C + I = B + E

- Over the lifetime of the pension plan, the contributions made into the plan along with the investment returns will equal the benefit payments and expense paid out of the trust.
- Actuaries role is to help allocate the contributions over time, but the total cost of the plan is driven by the plan provisions.

Background

Actuarial Valuation

Liabilities

- Actuarial Methods
- Member Data
- Plan Provisions
- Actuarial Assumptions

Assets

- Smoothing Methods
- Trust Statements

Purpose of Experience Study

- An experience study reviews the actual experience of the plan compared to expectations based on actuarial assumptions.
- Goal of the study is to examine trends and determine if changes to the actuarial assumptions are needed.
- The Government Finance Officers Association (GFOA) recommends completing an experience study every 5 years.

Purpose of Experience Study

According to the GFOA:

The reliability of an actuarial valuation also depends on the use of reasonable methods and assumptions. Experience studies, performed no less frequently than every five years, can help to ensure the assumptions are in line with the plan's demographic and economic experience, or can be used as a guide to make necessary changes.

Actuarial Standards of Practice

- Actuaries are governed by Actuarial Standards of Practice (“ASOPs”), which describe the procedures an actuary should follow when performing actuarial services.
- ASOP 35 governs selection of demographic assumptions while ASOP 27 governs selection of economic assumptions for pension plans.

Actuarial Standards of Practice

- Ensure demographic assumptions are best estimate of future experience (Actuarial Standard of Practice #35):
  - Compare actual experience to assumed experience (most recent 5 years)
  - Adapt to changes in participant behavior over time
- Ensure economic assumptions are best estimate of future experience (Actuarial Standard of Practice #27):
  - Investment rate of return based on actual investment strategy and forward-looking capital market assumptions
  - Adjusts to current expectations for market environments

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Assumption Review

Demographic assumptions used to determine future benefit payments:

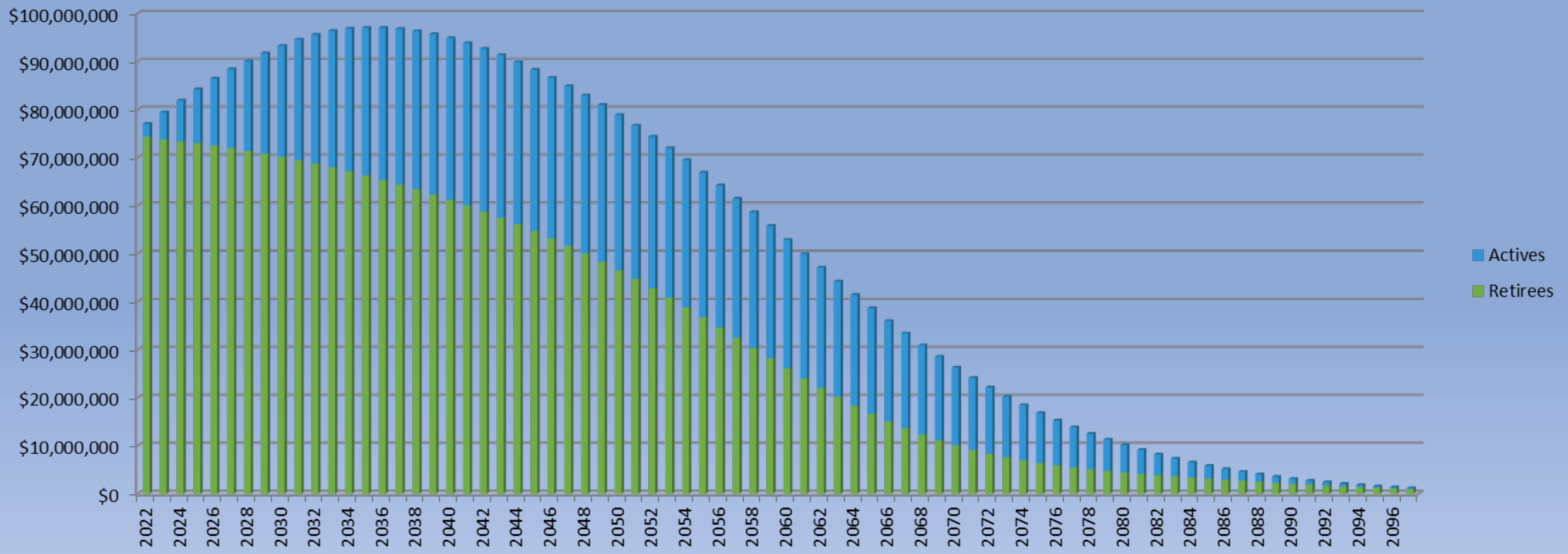
- Rates of withdrawal
- Rates of retirement
- Rates of death (note: mortality assumption set by law)
- Rates of disability

Economic assumptions used to determine future benefit payments and to discount future benefits payments:

- Salary increases
- Investment rate of return (discount rate)

Assumption Review

Discounted Value of Future Benefit Payments

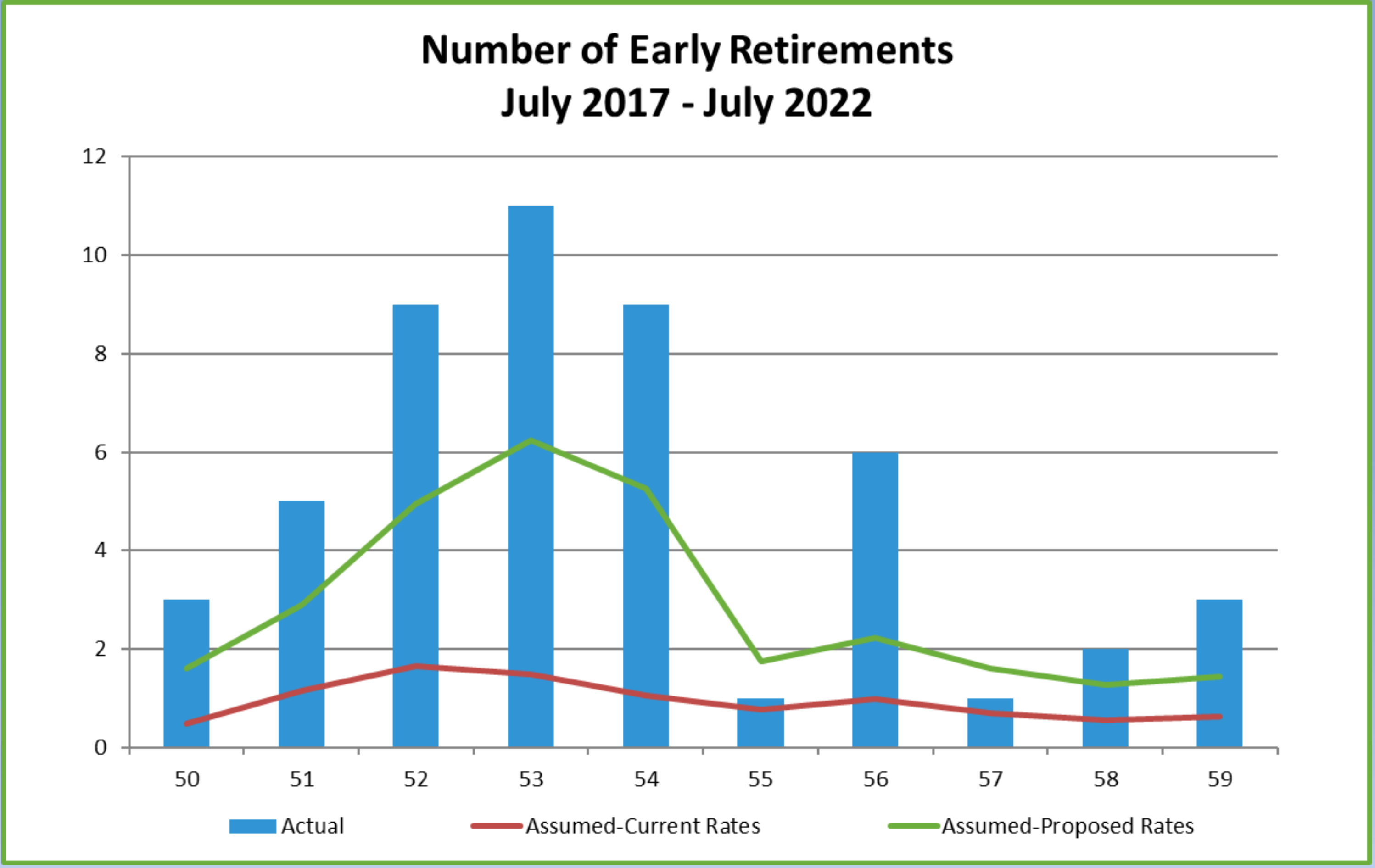


The actuarial liability is the above payments discounted using the expected rate of return on investments.

Assumption Review

Example of Experience Study Result where actual results are compared to assumed rates

Actuary will propose new assumptions if needed to reflect recent trends



Role of the Plan Trustee

- Pension board trustees are fiduciaries of the plan responsible for acting in the interest of plan participants.
- In this role, pension board trustees have many responsibilities including appointment or approval of consultants, approval of a budget, oversight or approval of pension benefits, etc.
- Additionally, pension board trustees are responsible for oversight of pension fund investments and the **setting of actuarial assumptions**.

Benefit of Experience Study

- Pension board trustees rely on their actuarial consultants to provide recommendations of the actuarial assumptions to use.
  - **Experience studies are an important tool** to help review recent trend that may deviate from current assumptions
  - During the experience study review process, Actuaries will also look to the pension board trustees to provide insights into the fund that may cause future expectations to be different than recent experience.

Assumptions vs. Actual Experience

Question:

Why is it important to do an assumption review?

Assumptions vs. Actual Experience

Answer:

Actuarial assumptions will impact contributions in a given year and the way the total cost of the pension plan is funded overtime

- Higher contributions will be needed if funding is accelerated
- Lower contributions will be needed if funding is deferred
- The primary goals of funding are:
  - Fund the benefits as they are earned so that benefits are fully funded when participants retire
  - Allocate costs to appropriate time periods

Assumptions vs. Actual Experience

- One (1) employee aged 50 is promised $1,000 at age 60
- Assumed rate of investment return (ROR) = 8%
- Actual rate of investment return = 8%

Age	Level Contribution assuming 8% Investment Return	Contribution Due to Actuarial (Gains)/Losses	8% Actual Investment Return	Total Additions
50	$63.92	$0.00	$5.11	$69.03
51	$63.92	$0.00	$10.64	$74.56
52	$63.92	$0.00	$16.60	$80.52
53	$63.92	$0.00	$23.04	$86.96
54	$63.92	$0.00	$30.00	$93.92
55	$63.92	$0.00	$37.52	$101.44
56	$63.92	$0.00	$45.62	$109.54
57	$63.92	$0.00	$54.39	$118.31
58	$63.92	$0.00	$63.86	$127.78
59	$63.92	$0.00	$74.02	$137.94
Age 60 Balance	**$639.20**	**$0.00**	**$360.80**	**$1,000.00**

Assumptions vs. Actual Experience

Total contributions = $662.74 vs $639.20 on prior page due to deferral of funding to later periods

- One (1) employee aged 50 is promised $1,000 at age 60
- Assumed rate of investment return (ROR) = **10%**
- Actual rate of investment return = 8%

Age	Level Contribution assuming 10% Investment Return	Contribution Due to Actuarial (Gains)/Losses	8% Actual Investment Return	Total Additions
50	$57.04	$0.00	$4.56	$61.60
51	$57.04	$0.18	$9.51	$66.73
52	$57.04	$0.59	$14.88	$72.51
53	$57.04	$1.28	$20.73	$79.05
54	$57.04	$2.36	$27.14	$86.54
55	$57.04	$3.99	$34.20	$95.23
56	$57.04	$6.44	$42.01	$105.49
57	$57.04	$10.28	$50.76	$118.08
58	$57.04	$16.93	$60.74	$134.71
59	$57.04	$50.29	$72.73	$180.06
Age 60 Balance	**$570.40**	**$92.34**	**$337.26**	**$1,000.00**

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Conclusion

- Pension board trustees play an important role in the actuarial assumption review process, including setting assumptions as the plan fiduciary.
- **Experience studies are a useful tool** to review recent trends and determine if assumptions need to be updated.
- Actuarial assumptions do not determine the total cost of the pension fund, just how contributions are allocated over time.

Appendix

Kevin Spanier, ASA, EA, FCA, MAAA

Principal, Atlanta Wealth Practice Leader

Kevin serves as Principal and is the Atlanta Wealth Practice Leader at Buck, A Gallagher Company. Kevin has 18+ years of actuarial consulting experience helping both corporate and public plan clients in the areas of plan design, administration, plan document interpretation, processing complex benefit calculations, contribution strategy, financial reporting and disclosure requirements.

Kevin is a frequent guest speaker at various conferences leading educational sessions on many different actuarial topics. He also finds himself as a highly sought-after internal resource expert on analyzing retirement plans for clients that are assessing the impact of ERISA funding requirements, FASB/GASB accounting standards, and benefit design alternatives.

Kevin is currently pursuing his Fellowship in the Society of Actuaries. Kevin graduated with a BA in Economics from the University of Georgia prior to obtaining his BBA in Actuarial Science from Georgia State University where he was the recipient of the prestigious Eli Zubay award given to the top student of the actuarial class.

In his free time Kevin, an Eagle Scout, can be found leading his son's Boy Scout troop on many exciting camping and fishing adventures around the Southeast.

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