Setting Actuarial Assumptions & Assumption Trends

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FOSTER & FOSTER
ACTUARIES AND CONSULTANTS

The Actuarial Model

Key Inputs

- Data
- Assumptions
- Methods
- Plan Provisions
- Assets Value/Return

Valuation Outputs

- Liability / Funded Ratio
- Gain/Loss Analysis
- Amortization Payment
- Normal Cost
- Contribution Requirements

What are Actuarial Assumptions?

Actuarial assumptions are utilized in the Actuarial Model to project benefit payments and investment earnings into the future to determine liabilities

What are Goals of Assumptions?

- Goal of actuarial funding method is to fund the benefits while they are being earned

- Goal in actuarial model is to use assumptions that represent the best estimate of future plan experience

What are Goals of Assumptions?

Actuarially Determined Contribution:

	Normal Cost	- *Annual cost of benefit accruals*
+	Expenses	- *Annual administration costs*
+	UAL Payment	- *Results from* ***experience varying from assumptions****, or benefit and assumption changes*
=	**Contribution**	

Why are Assumptions Important?

- **C**ontributions + **I**nvestment Earnings =
  Benefit Payments + **E**xpenses
- Actual costs to the plan are determined by actual experience – not assumptions
- *However:*

  Better Assumptions = Less Volatile Contributions

What Are Some Assumptions?

Economic Assumptions

Demographic Assumptions

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Economic Assumptions

Investment Rate of Return

Salary Increases

Administrative Expenses

Inflation

Payroll Growth Rate

Demographic Assumptions

What Are Some Assumptions?

Economic Assumptions

- Investment Rate of Return
- Salary Increases
- Administrative Expenses
- Inflation
- Payroll Growth Rate

Demographic Assumptions

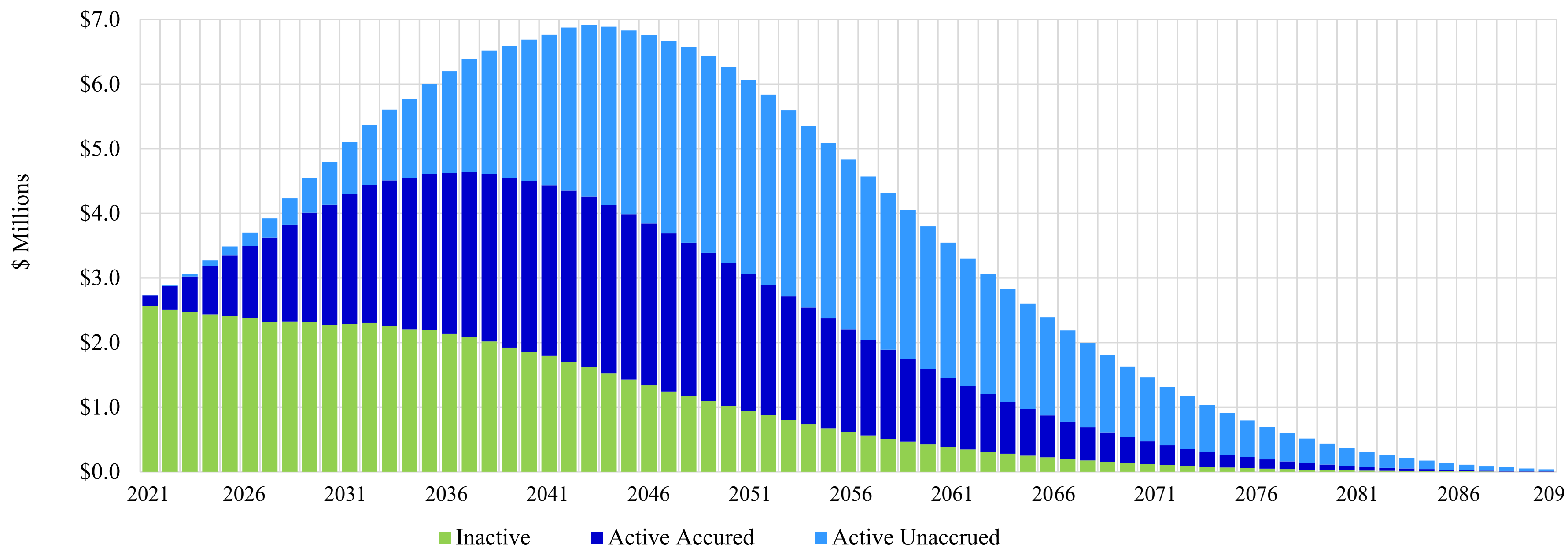
- Mortality Rates
- Retirement Rates
- Disability Rates
- Termination Rates
- Percent Married, Payment Form, etc

Where Are Assumptions Used?

- Actuarial Valuations
- Liability Projections
- Benefit Calculations

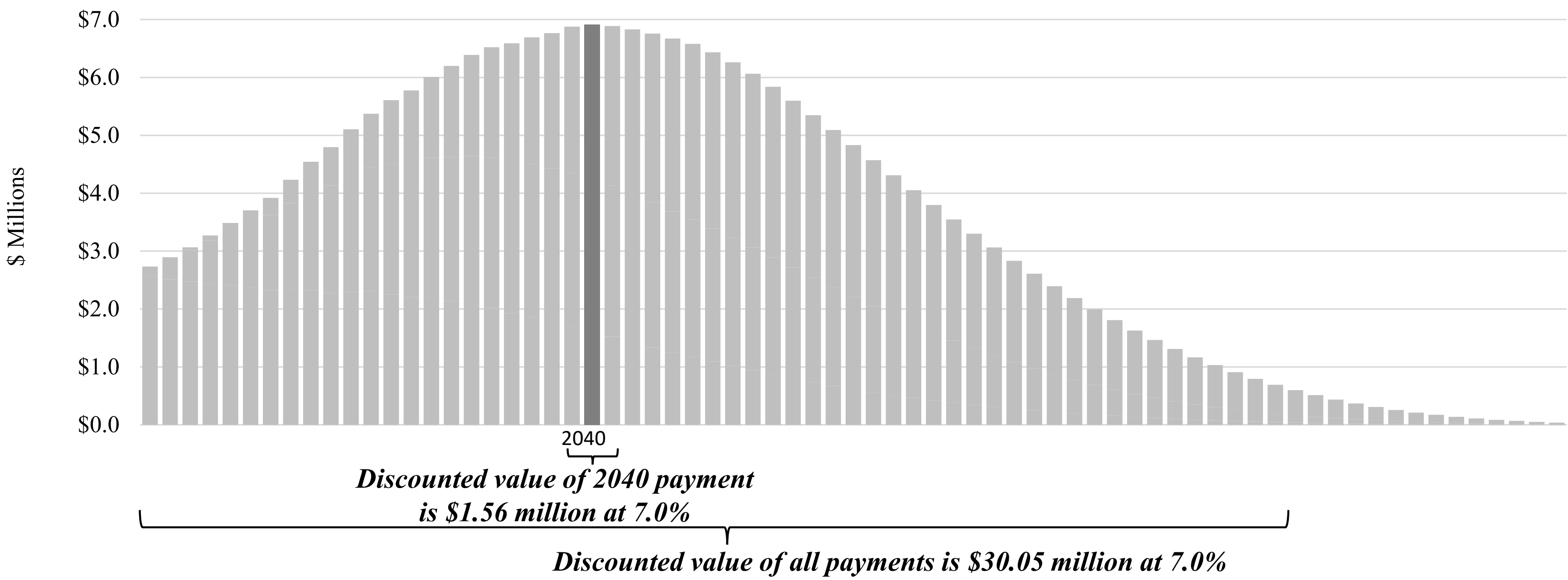
How Are Assumptions Used?

Retirement, Termination, Disability, Death, Salary Scale: used to project future benefit payments



How Are Assumptions Used?

Investment Rate of Return: used to convert future benefit payments to current liabilities



How Are Assumptions Used?

Inflation: used as a building block for the below assumptions

- Salary Scale
- Investment Return Assumption
- Payroll Growth Assumption
- Some COLAs

How Do Assumptions Impact Contributions?

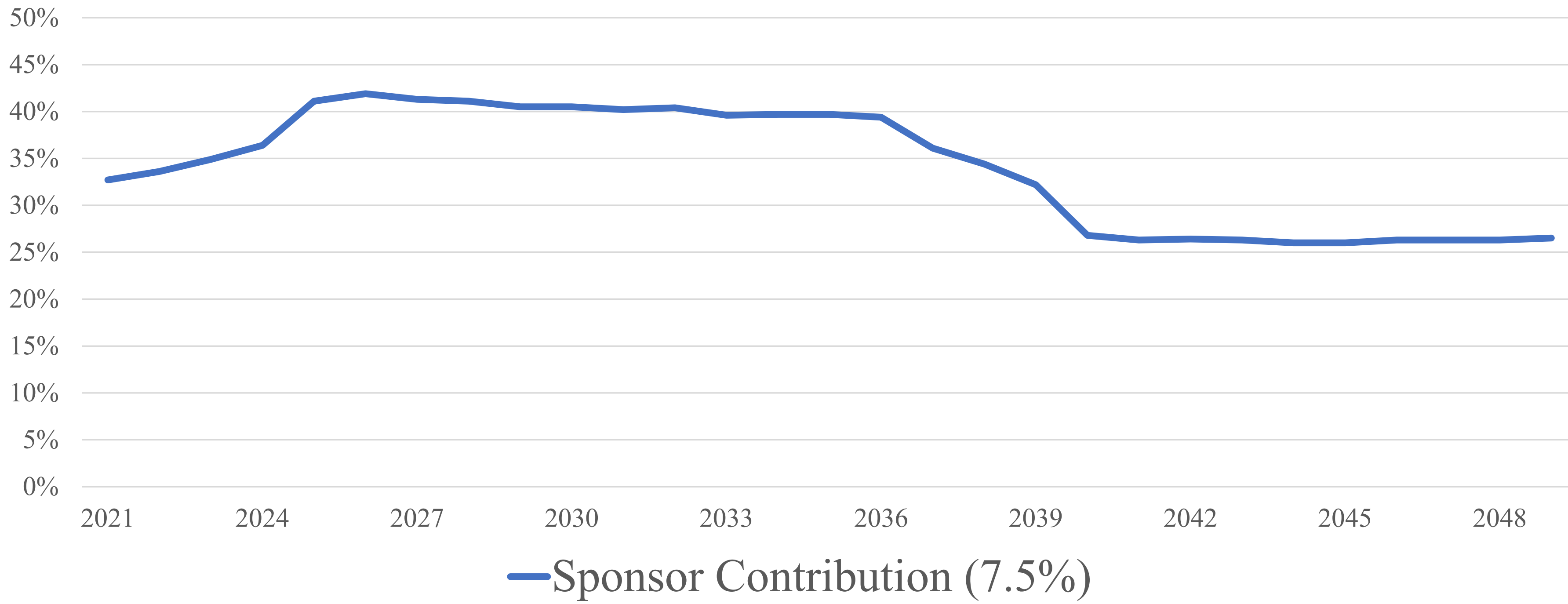
Example:

- If we expected a 5% salary increase, but the actual was 10%, this will create an **Actuarial Loss**

- An Actuarial Loss will increase the contribution requirement

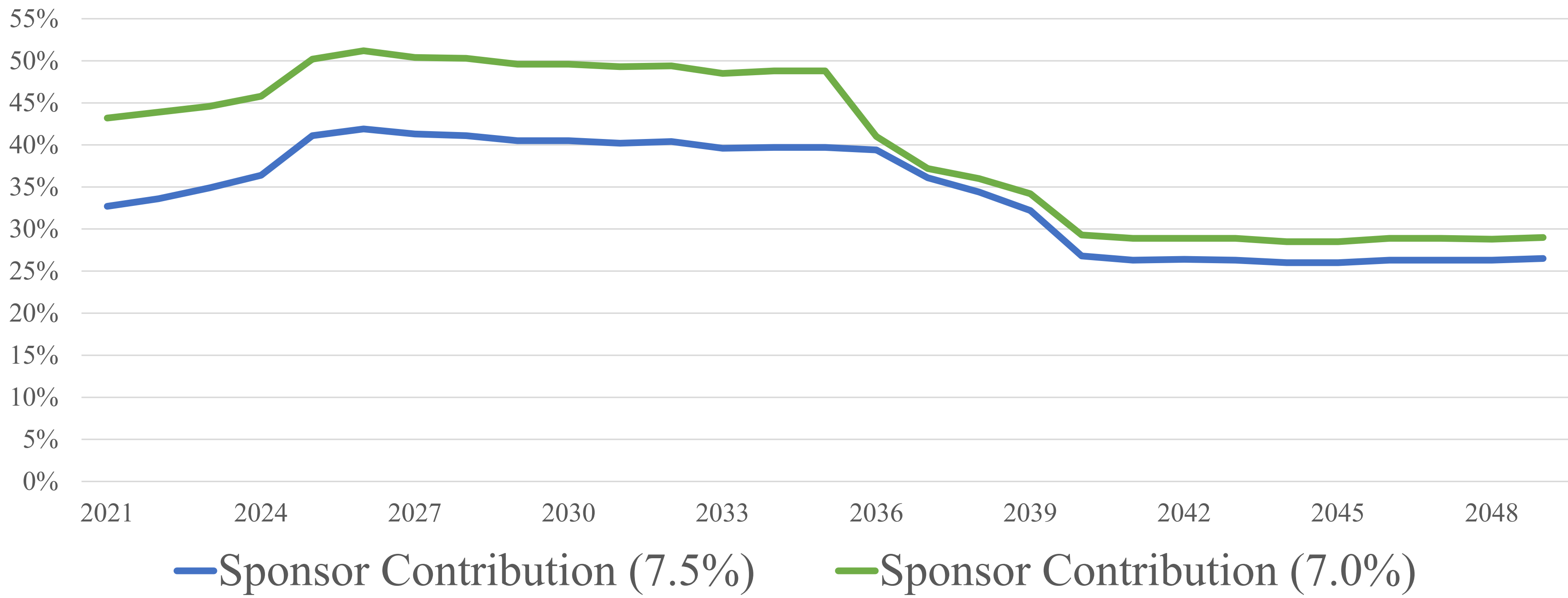
How Do Assumptions Impact Contributions?

Example: Lowering Investment Return Assumption



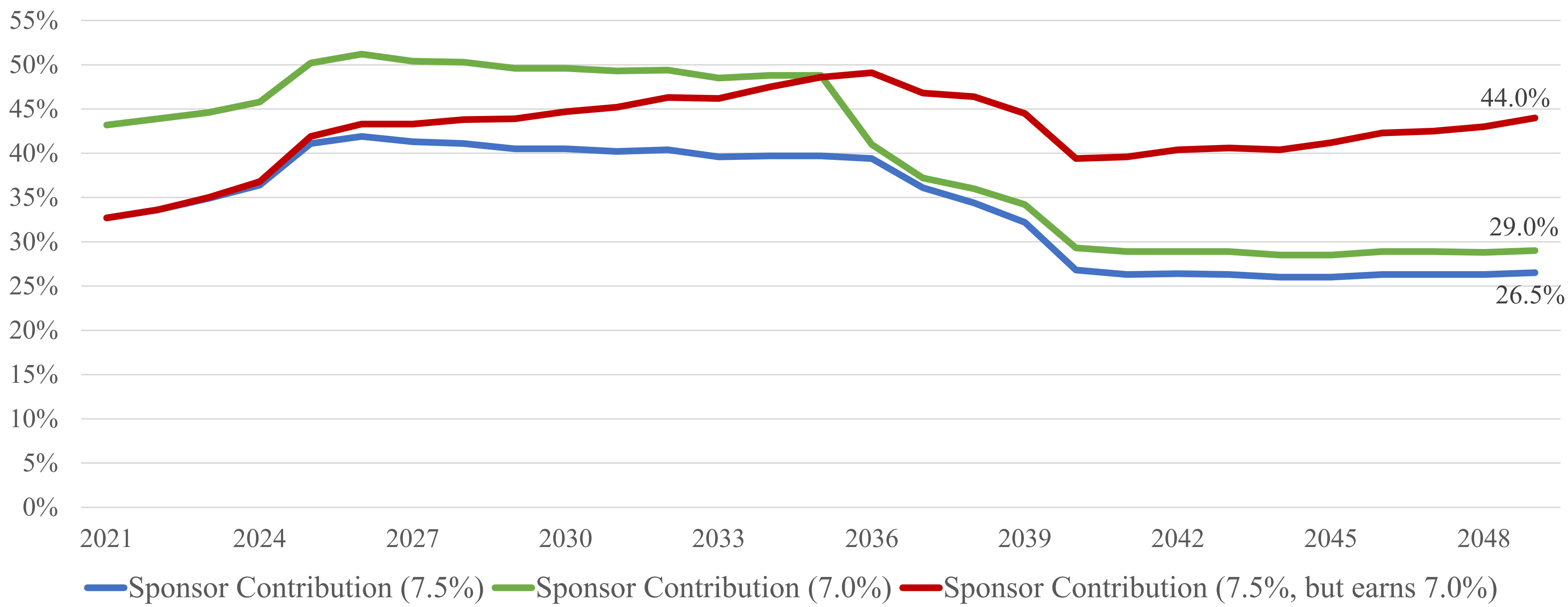
How Do Assumptions Impact Contributions?

Example: Lowering Investment Return Assumption



How Do Assumptions Impact Contributions?

Example: Lowering Investment Return Assumption



Who Sets the Assumptions?

- Mortality tables are state mandated in Florida
- Retirement, termination, disability and salary scale are set by the Board of Trustees with guidance from the actuary
- Investment return assumption is ultimately set by the Board of Trustees, but with a guidance from the investment consultant and actuary

How Are Assumptions Set?

Retirement, disability, termination and salary scale

- Typically set by looking at past experience in consideration with anticipated future experience.
- When reviewing assumptions, compare actual experience (past) with the assumptions (expected) to determine which assumptions, if any, need to be adjusted.

How Are Assumptions Set?

Investment return assumption analysis can be done by building block approach based on long-term capital market expectations by asset class provided by the investment consultant

Asset Class	Hypothetical Expected Long-Term Real Rate of Return	Portfolio Weighting	Weighted Average Real Return
US Equities	7.5%	55%	4.125%
International Equities	8.5%	10%	0.85%
Broad Market Fixed Income	2.5%	25%	0.625%
Real Estate	4.5%	10%	0.45%
Total Real			6.05%
Assumed Inflation			2.70%
Total Nominal		100%	8.75%

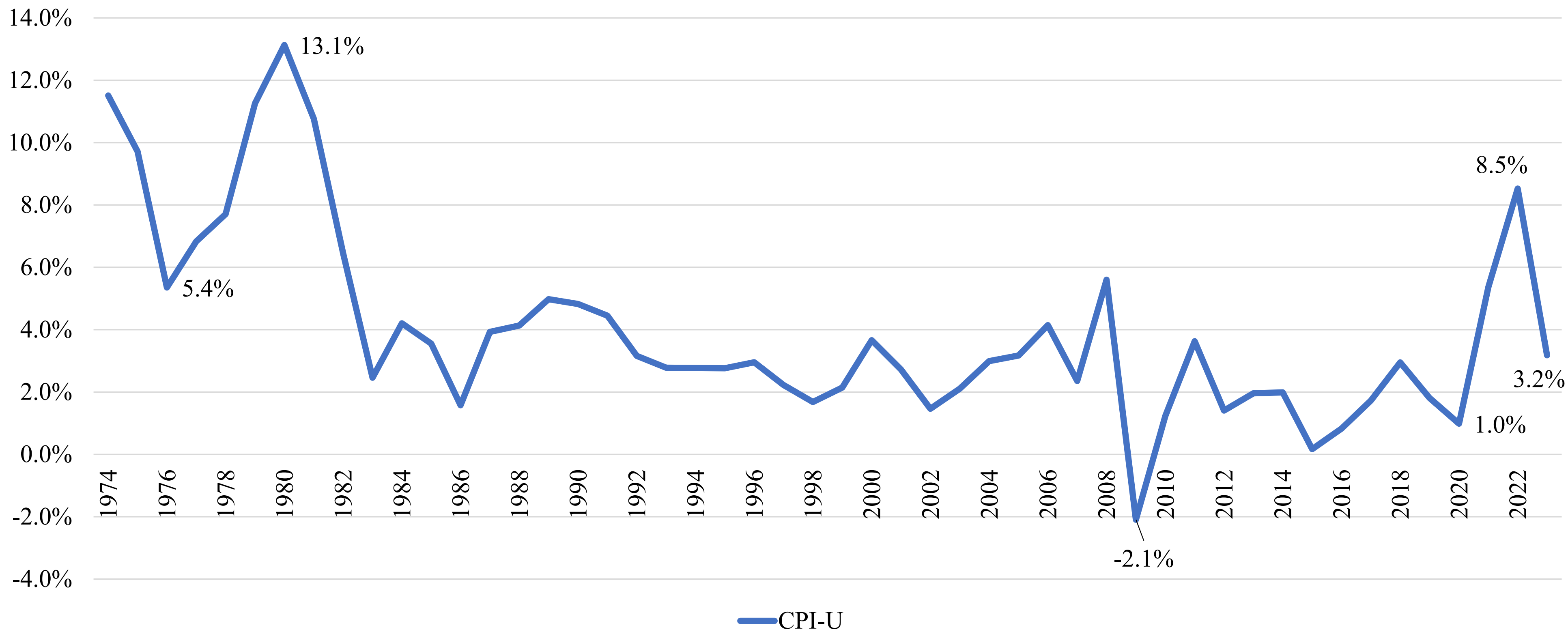
How Are Assumptions Set?

Inflation assumption provided by investment consultant, with guidance from professional inflation forecasters, such as:

- Congressional Budget Office
- Federal Reserve Banks
- US Department of Treasury

How Are Assumptions Set?

CPI-U from 1974-2023 (July to July)



When Are Assumptions Reviewed?

- Actuarial Assumptions used should be reasonable individually, and in the aggregate, in every report.

- It's a good practice to review assumptions through an Experience Study every 5 years.

Questions?

Thank you for your service!