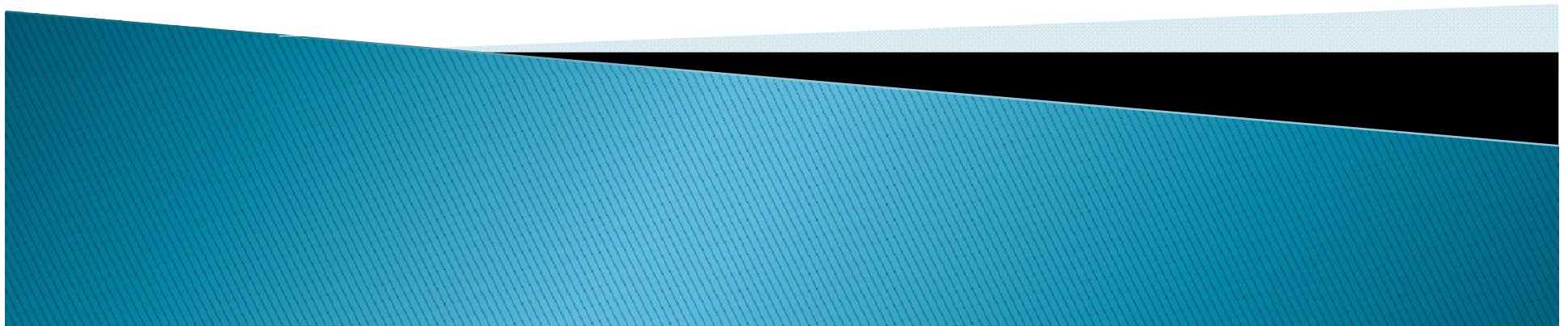




Public Retirement Systems Traditional Actuarial Valuation Model

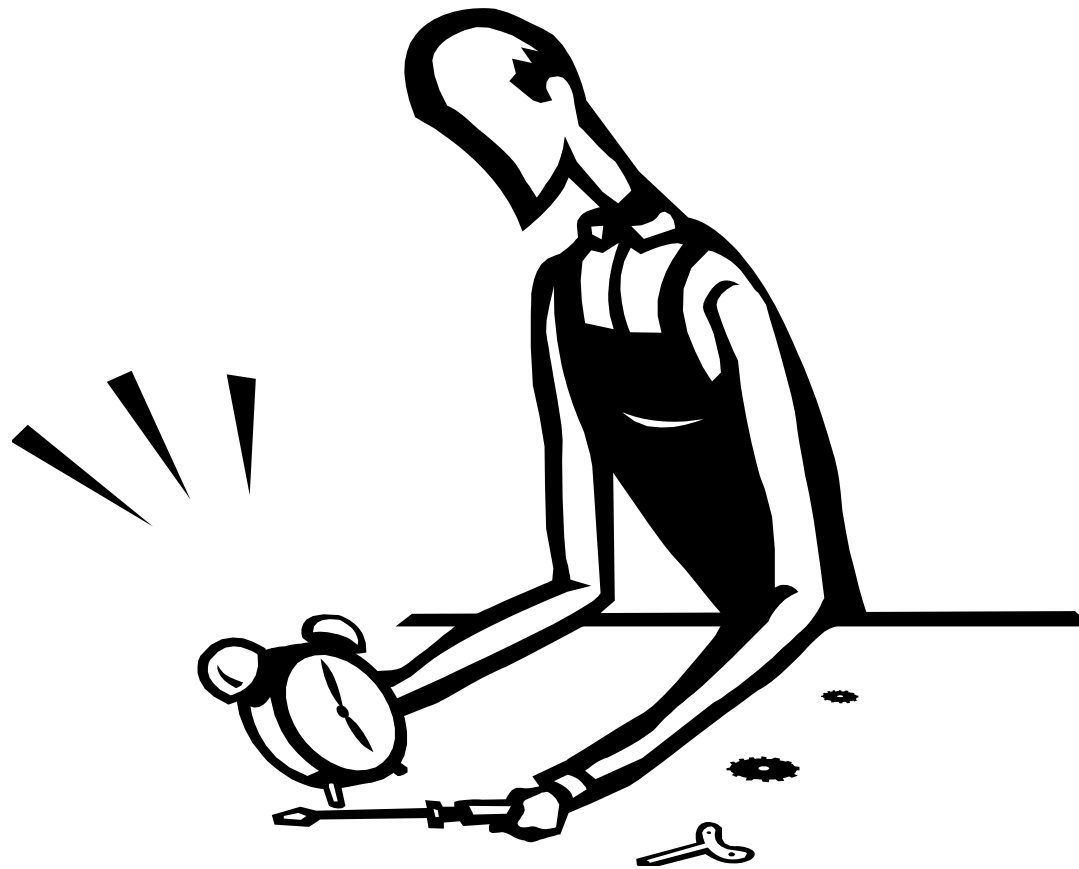
City of Houston
Financial Management Task Force
December 12, 2011



Discussion Outline

- ▶ Nature of the Pension Promise
- ▶ Traditional Valuation Methodology
- ▶ Key Economic Assumptions
- ▶ Relevant Professional Standards
- ▶ Proposed GASB Changes

Ask an Actuary what time it is?



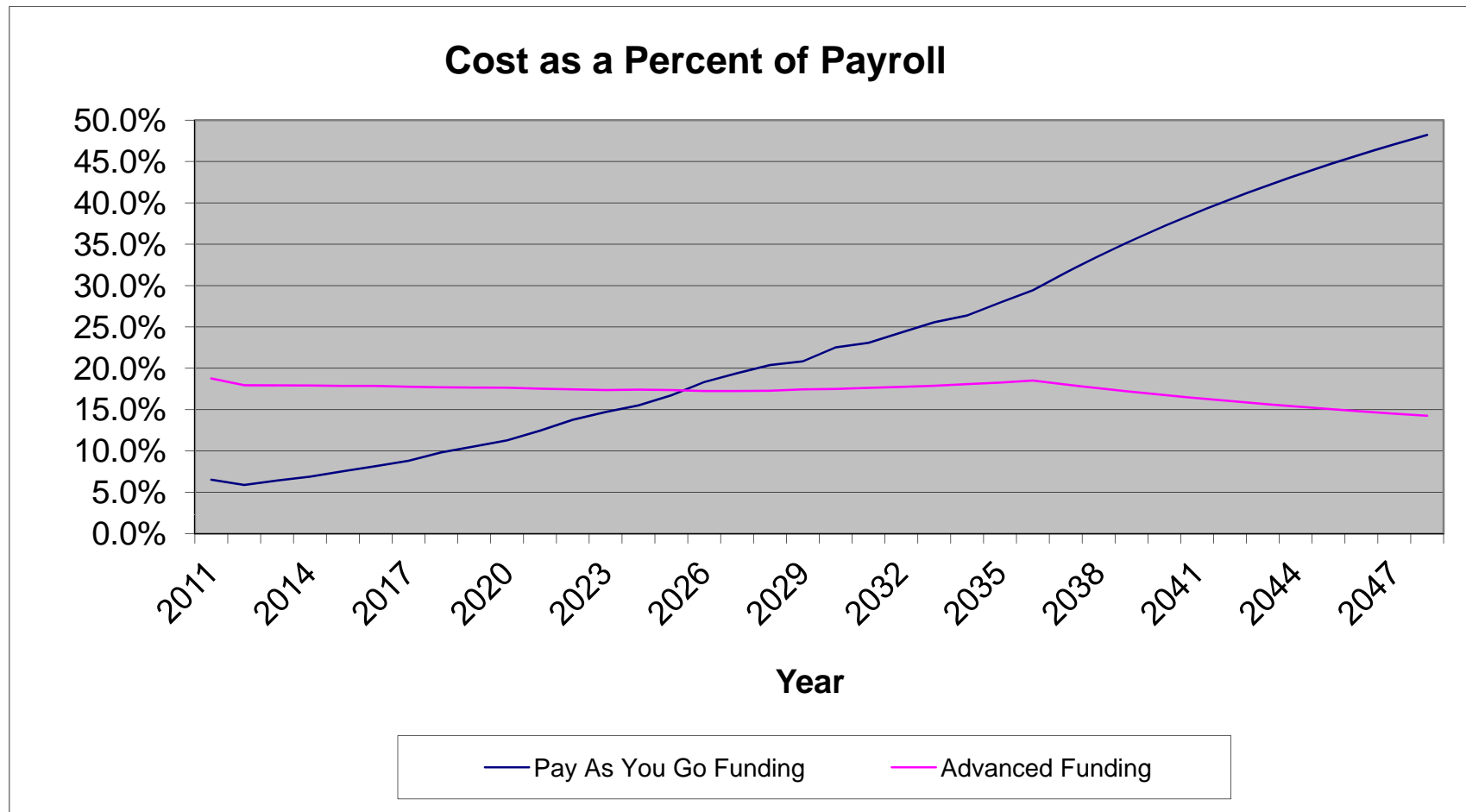
Nature of Pension Promise

- ▶ Pensions viewed as deferred compensation
- ▶ Promise to make future payments is long-term and difficult to predict with certainty:
 - Date/type of benefit commencement
 - Amount of benefit payment
 - Duration of payments

Recognition of Pension Cost

- ▶ True cost is the sum of benefits and expenses paid, accumulated over lifetime of the plan
- ▶ Pay-as-you-go cost recognition is affordable in short-term, but unsustainable over long-term
- ▶ GAAP accounting requires cost recognition over period of employee working lifetime
- ▶ Charged to generation of taxpayers benefiting from period of employee services rendered
- ▶ Accrued as balance sheet liability and worked off as benefit payments and expenses are funded

Cost Recognition Pattern



Advance Funding Characteristics

- ▶ Recognizing balance sheet liability alone does not guarantee necessary cash will be available
- ▶ Advance funding is sound business practice:
 - More stable and predictable cash flow budgeting
 - Investment income offsets pay-as-you go cost
 - Participant benefit security enhanced

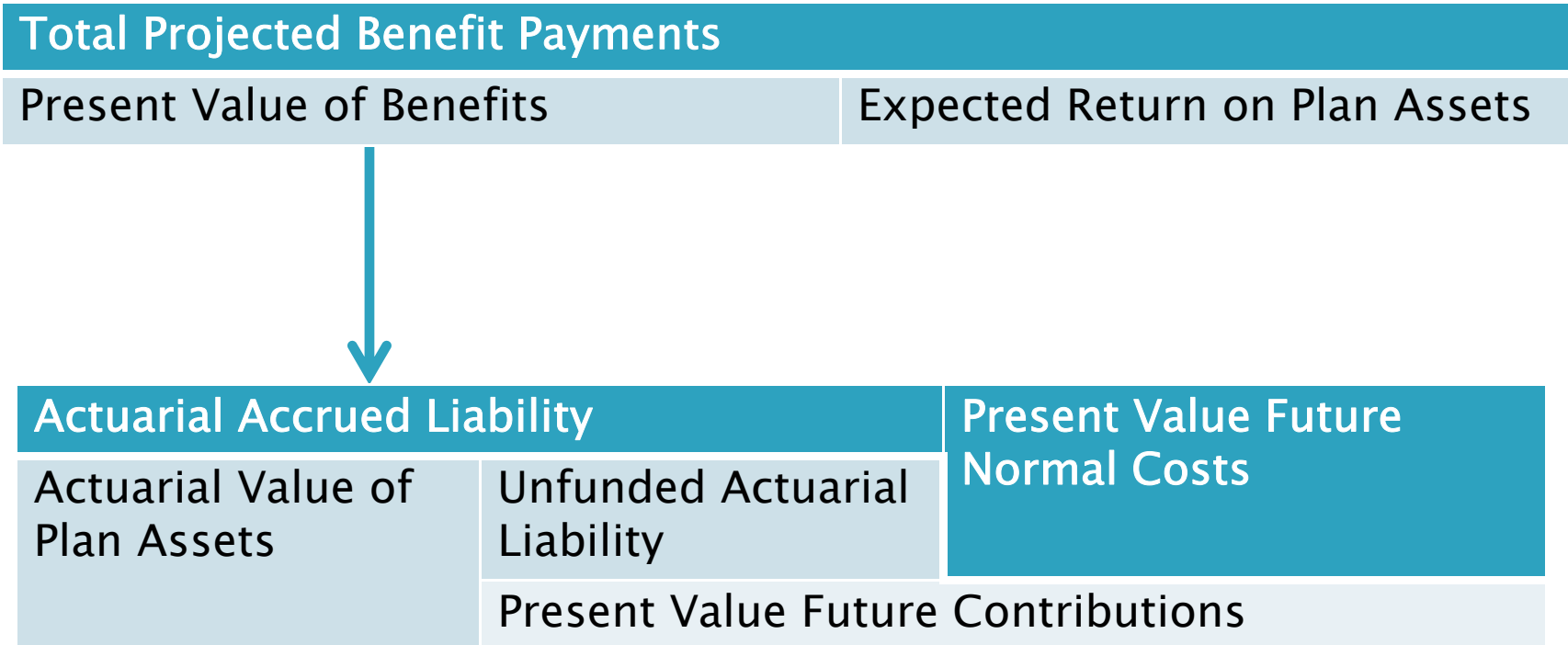
Actuarial Cost Method

- ▶ Mathematical formula that allocates expected plan costs over periods of employee service
- ▶ Based on current plan provisions and census
- ▶ Actuarial assumptions applied to estimate date, amount and duration of plan payouts
- ▶ Based on projected service and pay increases
- ▶ Discounted for time value of money based on the expected long-term ROR on plan assets

Actuarial Cost Method

- ▶ Actuarial present value of benefits (PVB) is the hypothetical amount of assets needed to fully fund all future expected payouts
- ▶ Actuarial accrued liability (AAL) represents the portion of total PVB attributable to past years of service, or amount of plan assets that would be accumulated if all assumptions realized
- ▶ Unfunded actuarial liability (UAL) is difference between the AAL and value of plan assets:
 - Plan establishment/benefit improvements
 - Plan experience different from model assumptions

Actuarial Cost Method



Actuarial Cost Method

- ▶ Normal cost (NC) equals portion of total PVB attributable to the current year of service
- ▶ Entry age actuarial cost method allocates PVB over employee service as level % of pay, more stable NC for employer budgeting purposes
- ▶ Large majority (over 70%) of public retirement systems use the entry age cost method for long-term funding policy measurement

Asset Valuation Method

- ▶ Fair market value (FMV) readily available
- ▶ Emphasizes current sale price for assets even if there is no immediate intent to liquidate
- ▶ FMV inherently volatile, more so recent years
- ▶ Appropriate for plan termination valuations
- ▶ Large majority (over 80%) of public retirement systems use actuarial value of assets with 3–5 year smoothing of investment gains and losses for long-term funding policy measurement

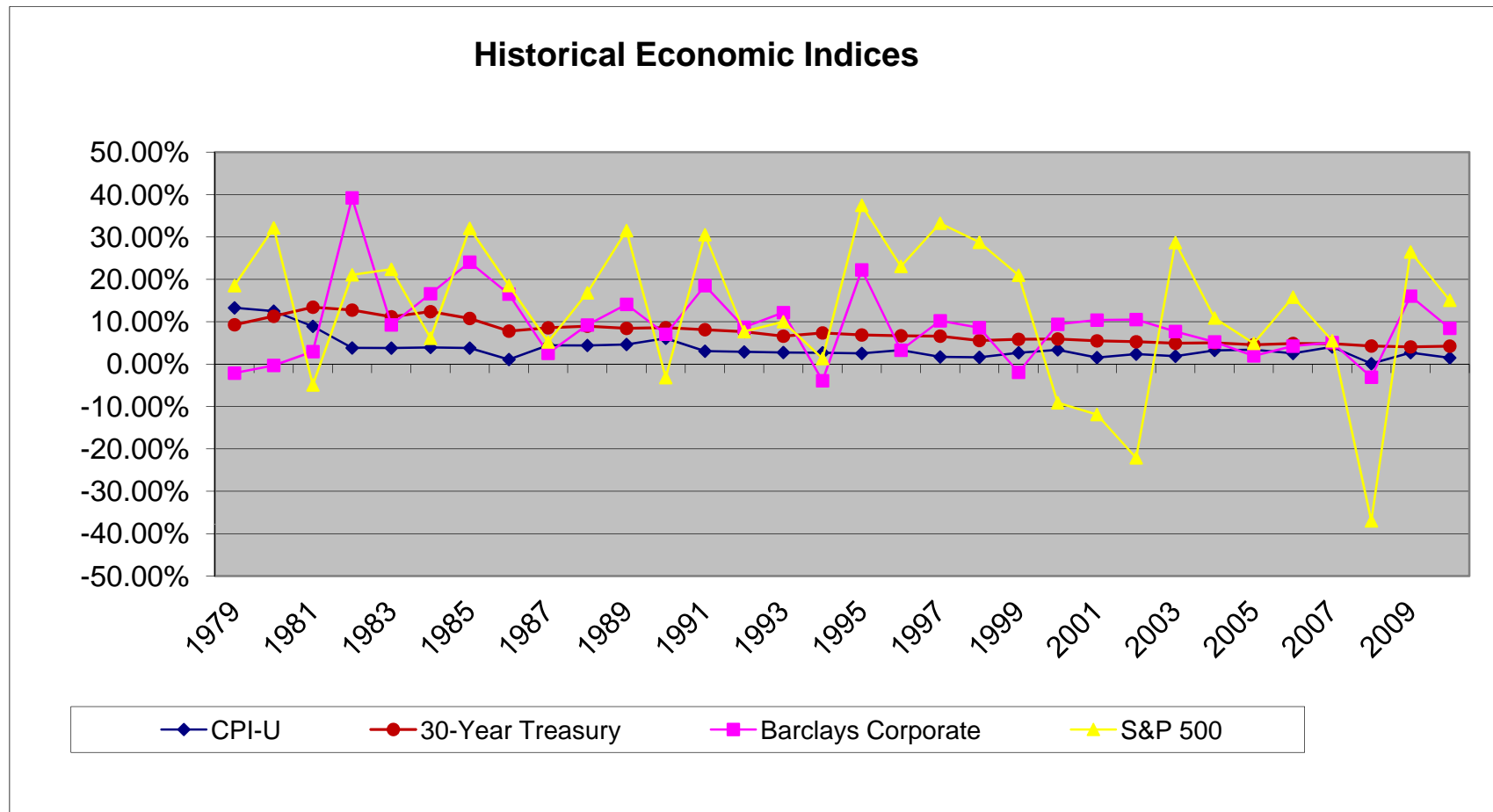
Amortization Method

- ▶ Annual required contribution (ARC) equals the sum of NC plus amortization payment on UAL
- ▶ Level percent of pay method with open period most common in public retirement systems for equity across generations of tax payers
- ▶ Level dollar method with fixed period (similar to traditional home mortgage) produces more rapid payoff of UAL

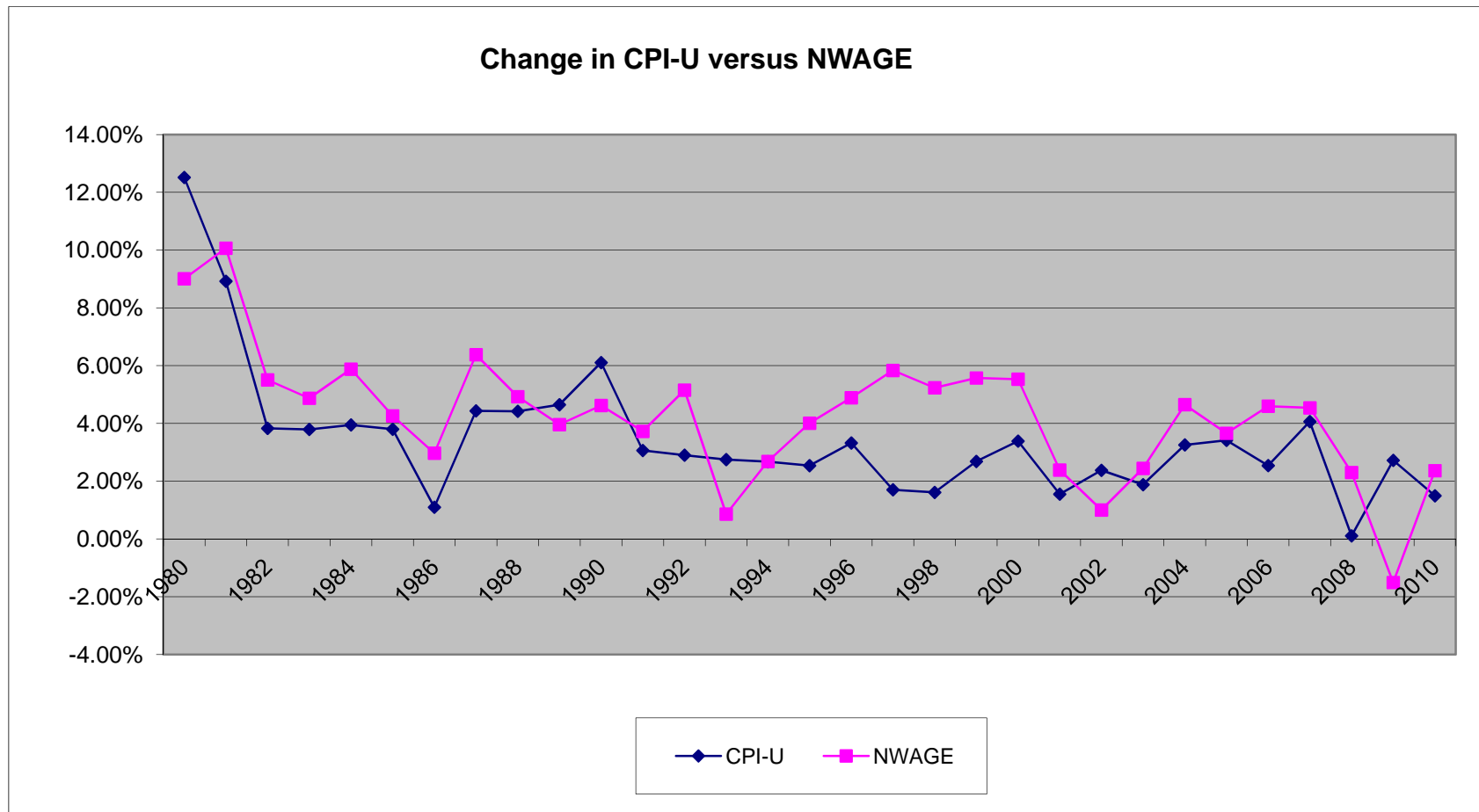
Key Economic Assumptions

- ▶ Expected rate of return on plan assets made up of three basic building blocks:
 - Underlying rate of inflation
 - Net risk-free rate of return
 - Risk premium based on plan asset allocation
- ▶ Projected salary increase building blocks:
 - Underlying inflation
 - Net productivity growth
 - Merit/promotion increases vary by age/service

Selected Market Rates



Selected Economic Data



Selected Market Rates

	CPI-U	30-Year Treasury	Barclays Corporate	S&P 500
10 Year Avg.	2.34%	4.76%	6.66%	3.63%
20 Year Avg.	2.50%	5.75%	7.69%	11.02%
30 Year Avg.	3.17%	7.26%	9.85%	12.20%

Relevant Professional Standards

Standard	Description
ASOP No. 4	Measuring Pension Obligations and Determining Pension Plan Costs
ASOP No. 27	Selection of Economic Assumptions for Measuring Pension Obligations
ASOP No. 35	Selection of Demographic and Other Non-Economic Assumptions
ASOP No. 41	Actuarial Communications
ASOP No. 44	Selection and Use of Asset Valuation Methods for Pension Valuations
GASB No. 25	Financial Reporting for Defined Benefit Pension Plans
GASB No. 27	Accounting for Pensions by State and Local Governments

Proposed GASB Changes

- ▶ Movement toward private sector mark-to-market concepts and separation from funding process
- ▶ Continued use of entry age actuarial cost method with a weighted discount rate assumption:
 - Expected rate of return on plan assets used to discount benefit payments covered by current assets and expected future plan contributions (closed group)
 - High-quality municipal bond index rate used for benefit payments that are expected to be made after plan assets are projected to be fully depleted

Proposed GASB Changes

- ▶ Immediate recognition of UAL changes due to:
 - Plan improvements
 - Assumption changes for inactive lives
 - Plan experience gain/loss for inactive lives
- ▶ Other UAL changes amortized over average future working lifetime (closed group):
 - Assumption changes for active lives
 - Plan experience gain/loss for active lives
- ▶ Cumulative asset gains and losses on FMV amortized over a 5-year period