# Fair Value for Public Pension Plans

Jeremy Gold

Governmental Accounting Standards Board

July 10, 2008

# Credentials/Caveats

- Jeremy Gold, FSA, CERA, FCA, MAAA, PhD
- I speak for myself and do not speak for the Society of Actuaries, the Conference of Consulting Actuaries, or the American Academy of Actuaries

# Outline

- GASB White Paper – Accountability
- Who's Who – Principals, Agents, and Contractual Relationships
- Decision Usefulness
- Valuing Promises
- Interperiod Equity
- Accrual Patterns
- Discount Rates & Accrual Patterns

# GASB White Paper – Accountability

- Private sector accounting
  - Focus: investor perspective, financial valuation of ownership and lender interests
- Public sector accounting
  - Focus: accountability, stewardship of resources by officials
- Decision usefulness
  - Important in both sectors
  - Decisions are judged with respect to differing objectives
- Interperiod equity
  - Do taxpayers pay for services when received?

# Who's Who – Principals, Agents, and Contractual Relationships

- Principals – the people whose money is at stake:
  - Employees
  - Citizens/taxpayers (present and future)
  - Creditors/lenders
- Agents – the decision makers/influencers:
  - Labor representatives
  - Elected officials
  - Plan trustees/administrators
  - Rating agencies
  - Actuaries

# Who's Who – Principals, Agents, and Contractual Relationships

- Contractual relationships:
  - Governments focus on providing services and goods to citizens in an efficient, effective, economical, and sustainable manner.
  - Citizens' taxes provide the resources that support those services and goods
  - Labor is single largest cost – often exceeds all other costs combined
    - Includes salaries and deferred compensation (primarily pensions and post-employment health)
  - High priority: accountability for labor costs

# Who's Who – Principals, Agents, and Contractual Relationships

- Contractual relationships:
  - We want citizens to pay today for all the services they receive today
  - We want to defer some labor compensation to be paid after employees retire
  - Pension plans are the reservoirs that facilitate deferral
  - Putting the right price on future cash flows is essential for good decision making and for interperiod equity – we will return to this shortly

# Who's Who – Principals, Agents, and Contractual Relationships

- Who's who?
  - We know that governmental sponsors are different from corporate sponsors
  - But are pension promises as different as their makers?
  - Is a public pension plan more like:
    - General Motors?
    - The government that sponsors it?
    - New York Life Insurance Company?

# Who's Who – Principals, Agents, and Contractual Relationships

- Pension plan is a *financial institution* that makes very long term promises
- New York Life is a *financial institution* that makes very long term promises
- Both institutions make promises containing many features and options that are difficult to model; need actuaries
- NYL employs actuaries; pension plans do the same
- Insurance actuaries follow the discipline of financial markets and adjust prices/reserves accordingly; some pension actuaries assert that long horizons allow them to ignore current market conditions

# Decision Usefulness

- Key decisions, their makers and influencers:
  - Labor costs: labor representatives and elected officials
  - Benefit component of labor cost: same, but rely on actuaries for pricing
  - Funding (allocating benefit component over employee worklives): primarily actuaries, but labor and management exert influence
- Traditional actuarial methods and assumptions were developed to address funding only
  - At the dawn of modern finance

# Decision Usefulness

- As a matter of accountability and stewardship of resources, benefit decisions are far more important than funding decisions
  - The cost of benefits is determined by what is promised;
  - Financing those promises is a question of pay now or pay later;
- Traditional actuarial approaches do not achieve interperiod equity

# Decision Usefulness

- First decision is benefits
  - Initial levels
  - Benefit increases
  - Root of many recent disasters
- Cost is the value of benefits promised
  - Cost is independent of financing strategy
    - Independent of allocation over time
    - Independent of allocation of assets

# Decision Usefulness

- What information is necessary?
  - What is the value of the promise earned by the employee in the current period?
    - How to value promises that are (almost) sure to be kept
    - How to recognize the value earned in the current period
  - Traditional actuarial approaches:
    - Misprice benefit promises (discount rate)
    - Misallocate cost over time (accrual pattern)

# Valuing Promises

- Suppose no DB plan
  - How do we measure labor cost-of-service?
  - Salary alone
- Now suppose some direct salary is replaced with a security
  - How do we measure labor cost-of-service?
  - Reduced salary plus fair value of the security
- Now suppose that the security is a deferred annuity
  - Same result

# Valuing Promises

- Promises are modeled by actuaries who take into account economic and non-economic factors
  - Principal non-economic factors include decrements for mortality, termination of employment, disability (ASOP 35).
    - Primarily derived from experience studies tempered by judgment especially when benefits are redesigned
  - Principal economic factors include interest (discount rates), inflation, salary increases, expected return on assets (ASOP 27).

# Valuing Promises

- Pension actuaries agree on how to treat non-economic factors
- Pension actuaries do not agree on economic factors:
  - Traditional view: discount rates, inflation, future salaries and asset return expectations are *assumptions* made by the actuary based on long term trends – treated very much like non-economic factors
  - Modern view: discount rates and inflation are *observations* of capital market values; salary scale and asset returns are not part of the model
    - Modern view is the insurance company actuary's model
    - Modern view does not recognize risky returns before they are earned, does not recognize salary increases until determined

# Valuing Promises

- Donald L. Kohn, Vice Chairman, Board of Governors, U.S. Federal Reserve System, Speech at National Conference on Public Employee Retirement Systems, Annual Conference, New Orleans, May 20, 2008
  - "I mentioned earlier that current measures of pension liabilities might be less than fully revealing. Why might that be so? The chief reason is that public pension benefits are essentially bullet-proof promises to pay."
  - "There is no professional disagreement [among economists]. The only appropriate way to calculate the present value of a very-low-risk liability is to use a very-low-risk discount rate."

# Interperiod Equity

- Suppose DB plan invested in bonds that match accrued liabilities
  - Expected burden on future taxpayers = risk-adjusted burden
- Now suppose plan sells bonds and buys stock
  - Expected burden on future taxpayers is lowered but
  - Risk-adjusted burden is unchanged
- Future taxpayers argue "If we take a market risk (a stock bond exchange in this example), we want a market return. We bear the whole risk. We earn the whole return. Current taxpayer does not bear the risk, cannot share return."

# Interperiod Equity

- GASB White Paper
  - As applied by government employers and pension plans, these parameters make it possible to allocate expenses to periods in a way that charges each period a level percentage of payroll for normal cost. This method equitably spreads the burden of an ongoing benefit program among different generations of taxpayers.
- Is level percentage of payroll a fair measure of interperiod equity? *Risk Transfer in Public Pension Plans* argues that:
  - While actuarial processes may appear intergenerationally fair on an expected basis, they systematically transfer risk away from early generations and toward later generations. The result is that *equal expected costs* imply *unequal risk-adjusted costs,* whenever risky asset are included in DB plans.

# Interperiod Equity

- Expected costs
  - Consider $1000 due next year.
    - With a risk free rate of about 5.26%, the present value is $950
    - If the plan invests in risky assets with an expected return of 9.89%, the actuarial present value is $910
    - The market price for the risk is $40 today or $42 next year

# Interperiod Equity

- Future taxpayers are told that they will be held responsible for $1000 next year
  - If they inherit a plan with $950 invested in the risk-free asset, they are sure to come out even
  - If they inherit a plan with $910 invested riskily, they *expect* to come out even, but they as likely to face a $100 shortfall as a they are to have a $100 surplus
    - They are being asked to take a market risk without compensation – but the risk premium for risky assets exists precisely because free actors won't take risks without compensation

# Interperiod Equity

- Future taxpayers are told that they will be held responsible for $1000 in 30 years
  - If they inherit a plan with $215 invested in the risk free asset, they are sure to come out even
  - If they inherit a plan with $59 invested riskily, they *expect* to come out even, but they are as likely to face a shortfall as a they are to have a surplus
  - In this case, the cost of risk is $156 today and $726 in 30 years

# Interperiod Equity

- Future taxpayers are told that they will be held responsible for $1000 in 30 years
  - The risk-adjusted cost is $215 today regardless of how it is invested
    - If the plan invests $215 in the risk free asset, they will come out even
    - If the plan invests $215 riskily, they *expect* to have a large surplus
    - But the surplus they expect is no more than they could expect to have on their own if they invested $215 riskily – it is the market reward for risk

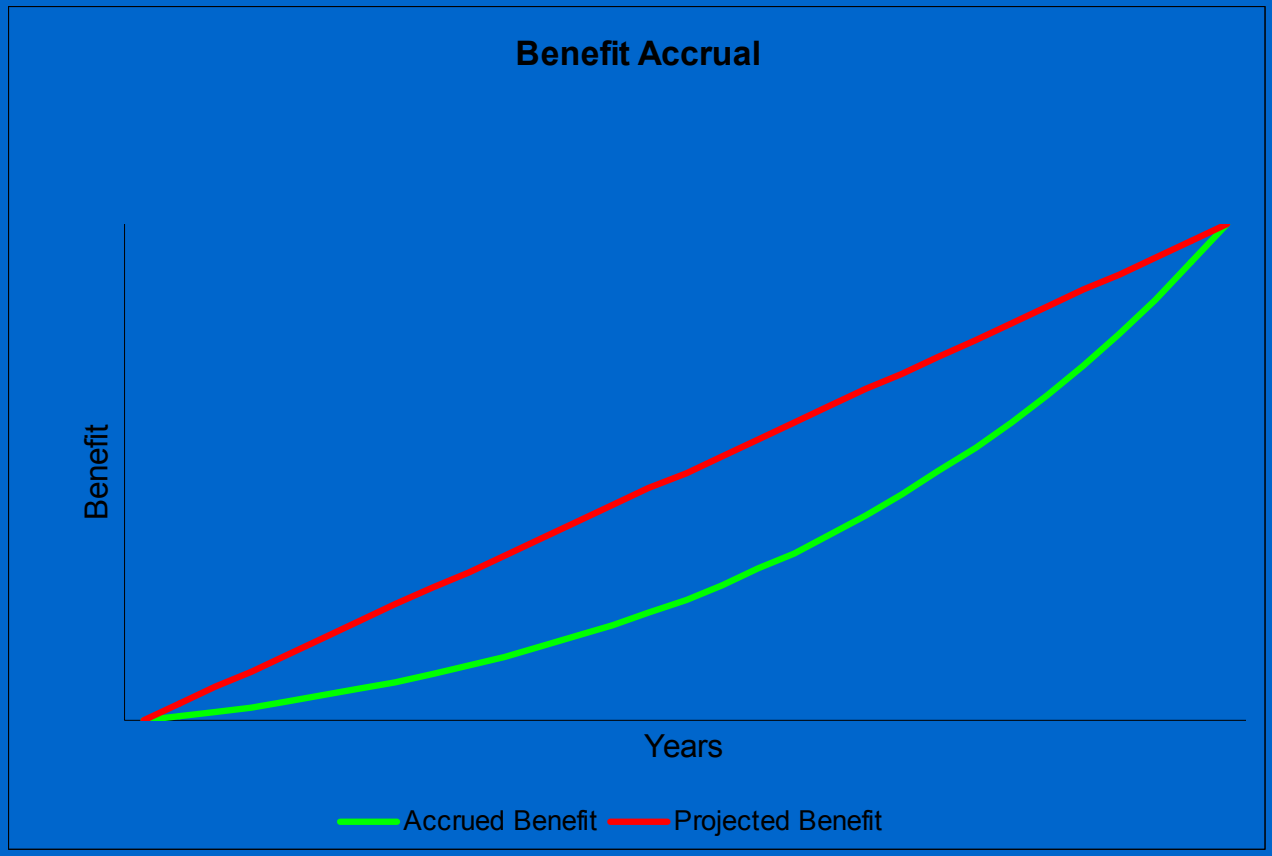
# Interperiod Equity

- Interperiod equity may be achieved two ways both of which require $215 in the plan today to meet $1000 in 30 years:
  - Invest the plan's $215 in the risk free asset and let taxpayers take their own risks when and where they will and in amounts they like
  - Invest the plan's $215 riskily on behalf of future taxpayers who, in good times, will pay lower pension costs but who, in bad times, will be in dire straits
  - What is not equitable is for the plan to put in less than $215 today, taking a reward today that will be borne in full by tomorrow's taxpayers.

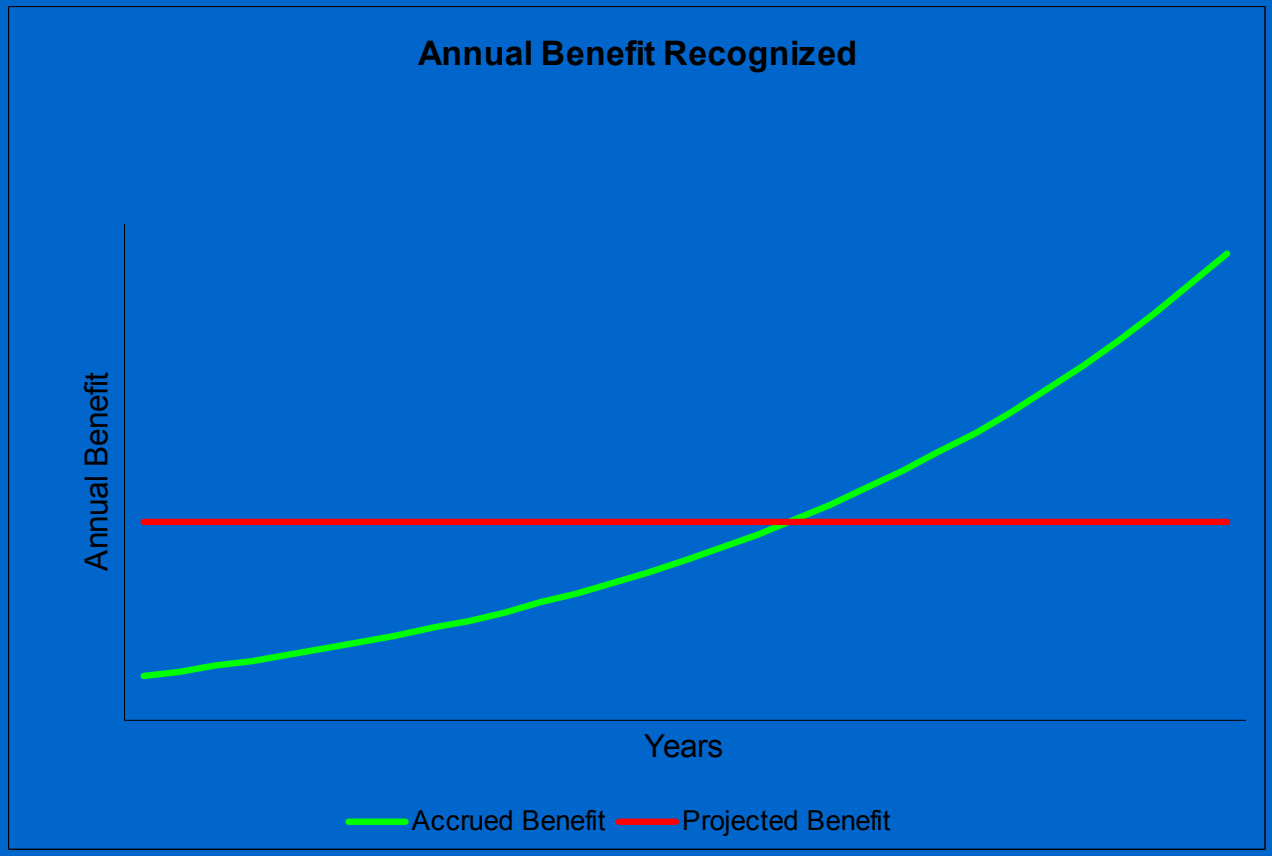
# Accrual Patterns

- How shall we allocate benefit promises to periods of employment?
- In order to earn a benefit based on a year of service, the employee must work that year
- Two compensation theories:
  - Each year the employee earns a benefit based on future salary (actuarial estimate)
  - Each year the employee earns a benefit based on current salary plus an increase in accrued benefit based on updated salary

# Accrual Patterns



# Accrual Patterns



# Accrual Patterns

- Recognizing benefit improvement costs. Do current methods support good decisions? What does economics suggest?
  - Retiree increase
    - Immediate recognition
  - Future service increase
    - Recognition as accrued
  - Past service increase
    - If it is granted as of a moment, immediate recognition
    - Could phase in benefit increase as experienced workers continue to work and recognize as earned

# Discount Rate & Accrual Pattern

- Use of risky discount rates understates today's liabilities
- Accrual patterns using traditional actuarial approaches overstate today's liabilities
- *The Case for Marking Public Pension Plan Liabilities to Market* examines the combination.
  - Adjusting the discount rate increases liabilities by about 50% on average
  - Adjusting the accrual pattern decreases liabilities by about 15% on average

# Discount Rate & Accrual Pattern

- It looks like the two adjustments offset each other to some degree, but:
  - In the 1980's the interest rate and the accrual pattern led to overstated liabilities
  - The cost of past service benefit improvements looks cheap due to both the discount rate and the use of amortizations
  - Although adjusting the accrual pattern lowers liabilities, it does not always lower cost
    - For younger employees, cost goes down
    - For older employees, cost goes up

# Restricted Usage

- Copyright Jeremy Gold 2008
- Please note that this document is not publicly available; it is available to GASB Board Members and Staff. It may not be used for commercial purposes or shared outside of the GASB without permission.
- If you wish to use it for another purpose, please contact Jeremy Gold jeremy.gold.wp00@wharton.upenn.edu.

# Fair Value for Public Pension Plans

Jeremy Gold

Governmental Accounting Standards Board

July 10, 2008