

Public Employee Retirement Systems

Topics

Why Defined Benefit Plans?

H.B. 1882 Actuarial Changes

Actuarial Methods and Funding

Economic and Demographic Considerations



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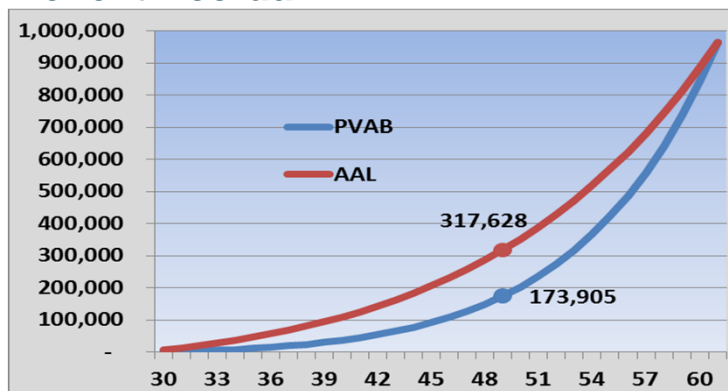
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Why Defined Benefit Plans?

DB Plans are More Cost Effective than DC

• Benefit Accrual



Why Defined Benefit Plans?

DB Plans are More Cost Effective than DC

- **Benefit Accrual**
- **Longevity Risk Pooling**
- **Investment Diversification for Long Time Horizon**
- **DC False Claims – Wrong**

Projections

Defined Benefit Plans are fundamentally more cost effective than Defined Contribution Plans



Why Not Defined Benefit Plans?

DB Plans are Inherently Unstable

- **Fixed Income Liabilities**
- **Funded with Diversified Portfolio**
- **Level Percentage Costs Funded by Tax Base**
- **Retiree Liability Amplifies Instability**

Defined Benefit Plans are inherently unstable due to the mismatch of assets and liabilities!



Good Times are Here Again?

DB Plans Funding Volatility

- The “*Lost Decade*” & *Great Recession* 2012 and 2013 Stock Market Gains
- Bond Gains Enhanced by Declining Interest Rates
- High Unemployment- Wage Pressure
- Do Low Bond Yields and Low GDP Portend Lower Future Earnings?



Why Not Defined Benefit Plans?

Mismatch of Assets and Liabilities

- Sample Funded Ratios

Return Assumption	Funded Ratio
9%	100%
8%	90%
7%	80%
6%	72%
5%	62%
4%	53%

Barclay's U.S. Corporate Index is currently 2.86% and Long-Term 4.94%. (11/4/2015)



Governmental Oversight

- **State Auditor's Survey 2003 & 2012**
- **Joint Committee on Public Employee Retirement Systems**
- **Monitor Plans < 70% Funded on MV basis or not contributing ARC**
- **Monitoring Cannot Reduce Instability, but Can Promote Funding Improvements/Benefit Changes**



H. B. 1882

New Notice Requirement

21.562 2. is modified to require notice only for new and additional benefit payment

...beyond the plan provisions of the prior plan year...

Revised Reporting Requirement

105.660 (10) adds *the closing or freezing of a current defined benefit plan* to the definition of "Substantial proposed change"



H. B. 1882

New Filing Requirement

105.664 2. is added to require ***An actuarial valuation performed in compliance with applicable governmental accounting standards board pronouncements shall be forwarded to the joint committee on public employee retirement no later than sixty calendar days after completion or adoption of such valuation.***



H. B. 1882

New Requirements for Substantial Proposed Change under 105.665

- Include values in ***estimated dollars***
- ***The plan's actuarial value of assets, market value of assets, actuarial accrued liability, and funded ratio***
- ***Projection of at least ten years of the current plan compared to the proposed of the plan's actuarial value, market value of assets, actuarial accrued liability, and funded ratio***



Actuarial Terminology

- Present Value of Benefits (PVB)
- Actuarial Accrued Liability (AAL)
- Market Value of Assets (MVA)
- Actuarial Value of Assets (AVA)
- Unfunded AAL (UAAL) = $AAL - AVA$
- Normal Cost (NC)
- Total Cost = $NC + \text{Amortization of UAAL}$
- Funded Ratio = AVA/AAL

Features of Funding Policy

- Actuarial Cost Method
- Amortization Methods
 - Closed fixed period
 - Open
 - For gains/(losses)
 - For plan and assumption changes
- Asset Smoothing Method
- Actuarial Assumptions

Actuarial Methods and Funding

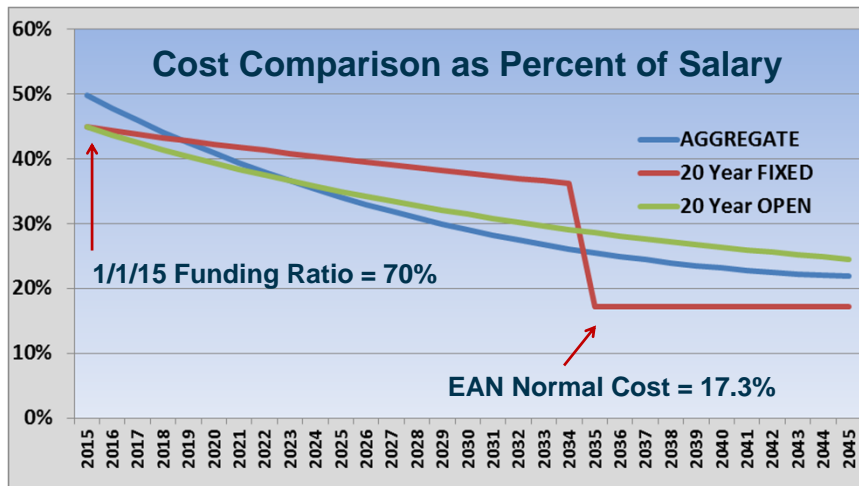
Actuarial Cost Methods

- Projected Unit Credit
- Entry Age Normal
- Entry Age Normal – Frozen Initial Liability
- Aggregate Cost

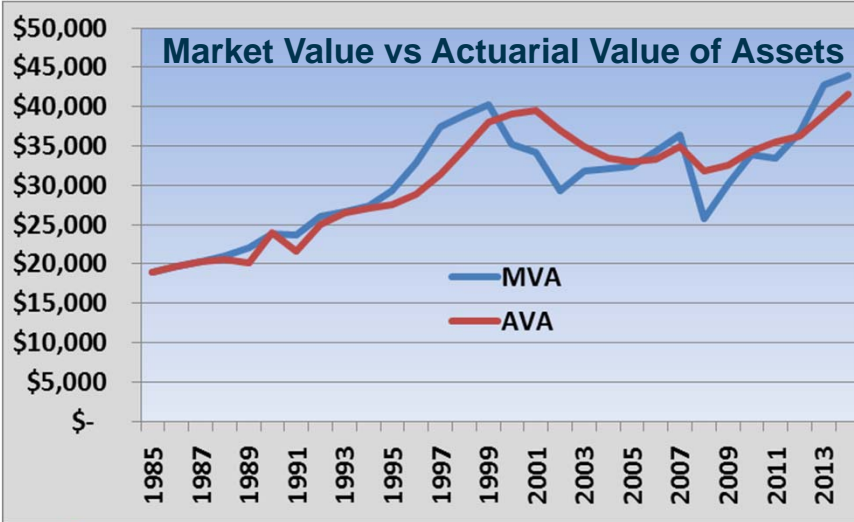
Difference between spread gain methods and immediate gain is if the gains and losses are spread over the future salaries or become part of the UAAL.



Actuarial Methods and Funding



Actuarial Methods and Funding



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RECAP

Actuarial Assumptions

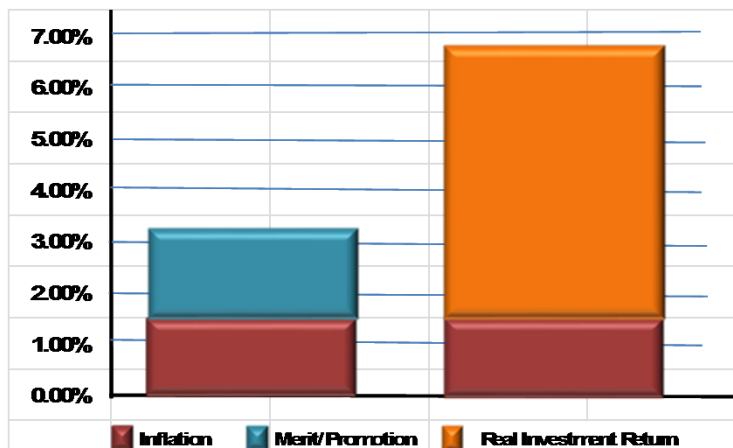
- **Economic Assumptions**
 - Investment Earnings/Discount Rate
 - Salary Appreciation
 - Inflation
 - For plan and assumption changes
- **Demographic Assumptions**
 - Mortality
 - Retirement
 - Turnover
 - Disability

Difference between Investment Earnings Assumption and the Salary Appreciation Assumption is critical . However the Salary Appreciation Assumption has substantially less weight.



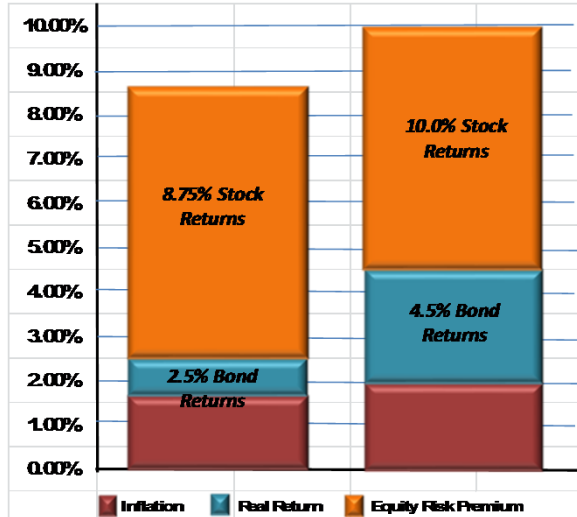
Salary Appreciation & Investment Earnings

Salary Appreciation & Investment Earnings



Investment Earnings

Current Market vs Future Estimates



Investment Earnings

Asset Class	Expected Return	Standard Deviation	Asset Allocation	Expected Return
Cash	1.00%	3.51%	5.00%	0.05%
Short Term Bonds	2.50%	4.59%	5.00%	0.13%
Intermediate Term Bonds	3.10%	4.53%	10.00%	0.31%
Inflation Protected Bonds	3.50%	6.54%	5.00%	0.18%
Non-US Developed Bonds	3.10%	7.10%	5.00%	0.16%
US High Yield Bonds	5.60%	9.56%	5.00%	0.28%
US Large Cap Stocks	7.90%	15.33%	20.00%	1.58%
US Mid Cap Stocks	9.27%	18.33%	10.00%	0.93%
US Small Cap Stocks	9.16%	19.11%	10.00%	0.92%
Non-US Developed Stk	8.20%	17.19%	5.00%	0.41%
Non-US Emerging Mkts Stk	11.47%	23.42%	5.00%	0.57%
Real Estate	6.75%	13.79%	10.00%	0.68%
Commodities	5.00%	10.07%	5.00%	0.25%
			100.00%	6.43%
55%Stocks / 30%Bonds / 10%Real Estate / 5%Commodities				



Actuarial Assumptions

Lower Future Investment Earnings?

- GDP of Developed Economies < 2%
- Slowing Emerging Economies
- Lower Global Inflation Rates
- Artificially Low Fixed Income Rates
- End of the 35 Year Bond Super Cycle
- Stable / Increasing Interest Rates
- Above Average P/E Ratios
- Record Corporate Profits as % of GDP
and as % of Income



Actuarial Methods and Funding

FASB vs GASB requirements

	<u>FASB</u>	<u>GASB</u>
Liability on Transition	Active FWL	<i>Immediate on Balance Sheet</i>
Funding Method	PUC	EAN
Settlement/Discount Rate	Quality Bonds	Investments*
Long Term Return	Investments	Investments
Plan Amendments	Active FWL	Immediate
Investments G/(L)	Active FWL	5 Years
Other G/(L)	Active FWL	FWL of All

** For cash flows that do not meet benefit obligations, AA 20-year general obligation municipal bond rate*



Rating Agencies are asking for Funded Ratio at quality bond rates

Questions?

Thank you, attendees!



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