

MERCER

Human Resource Consulting



March 31, 2006

Oregon PERS

December 31, 2004 Actuarial Valuation Results
Projected Unit Credit Method with Rate Collaring

Bill Hallmark and Annette Strand



Contents

- Background
- Key Findings
- Normal Cost
- Actuarial Accrued Liability
- Unfunded Accrued Liability
- Funded Status
- Appendix



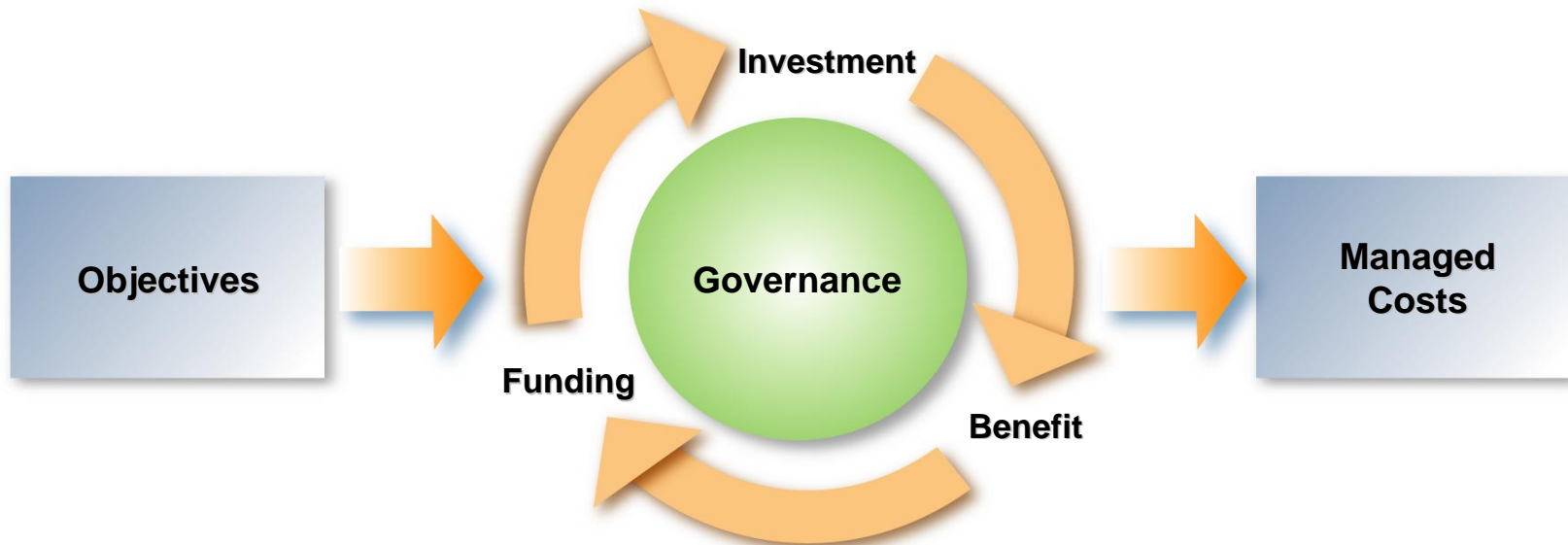
Background Development of Proposed Method

- May 20, 2005 Board Meeting
 - Initially proposed alternative methods for consideration to manage contribution rates
- September 13, 2005 LAC Meeting
 - Feedback from employer and member representatives on proposed alternative methods
- December 16, 2005 Board Meeting
 - Financial modeling results of alternative methods
- March 31, 2006 Board Meeting
 - Compare December 31, 2004 valuation results between current and proposed methods

Background

Retirement Plan Financial Management Framework

Total Contributions = Benefits Paid - Investment Earnings



Actuarial methods primarily affect the timing of contributions



Background Objectives for Actuarial Methods

- Transparent
- Predictable and stable rates
- Protect funded status
- Equitable across generations
- Actuarially sound
- GASB compliant



Background Overview of Proposed Changes

Projected Unit Credit Cost Method:

- The cost of benefits earned is funded each year and the liability represents the value of benefits earned to date. Projected unit credit provides stakeholders and users of the actuarial valuation report a real measure of the cost and liability of the system that is easily understood.

Contribution rate collaring:

- Smooths contribution rates instead of assets. The true market value of assets is reflected in the measurement of the funded status of the system and the determination of contribution rates. Stakeholders and users of the actuarial valuation report will better understand the financial position of the system in order to make timely management, benefit, investment and funding decisions.
- The collar provides limits to changes in contribution rates that are useful for budgeting purposes.

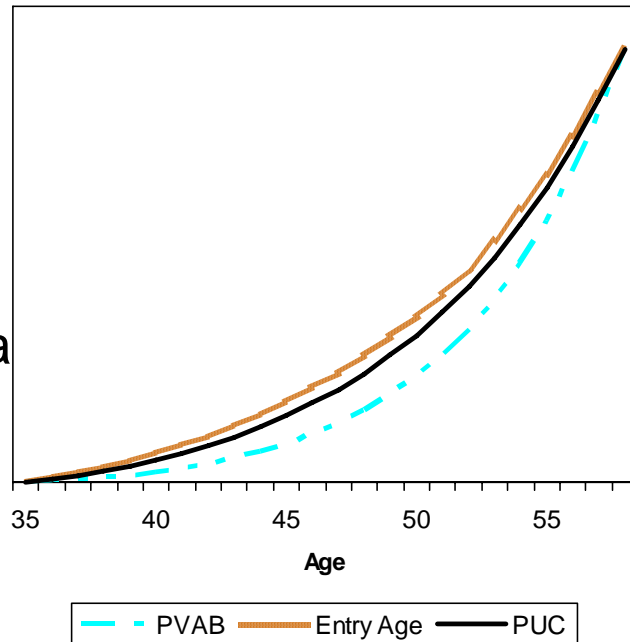
Background

Full Formula and Money Match Benefit Liabilities

Comparison of Accrued Liability

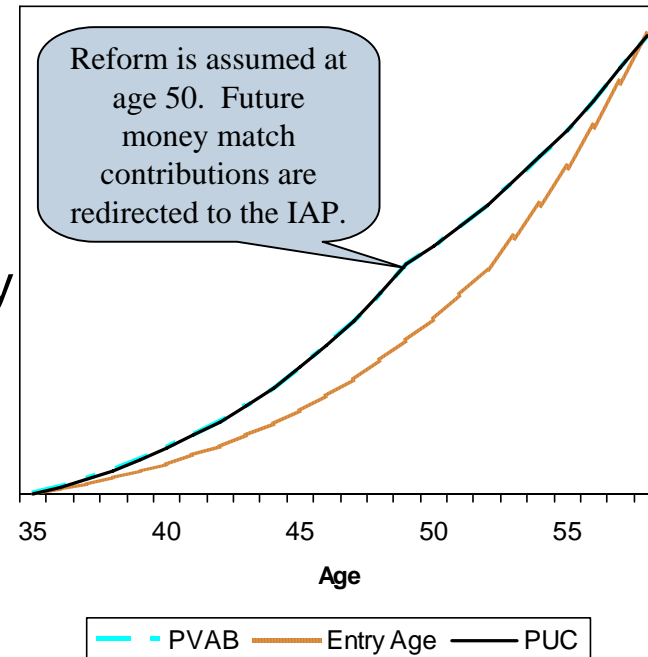
Comparison of Accrued Liability

Full
Formula



- Present value of accrued benefits to date—PVAB—(based on current service and pay) increases rapidly as member approaches retirement
- Actuarial methods allocate these costs evenly across an employee's career

Money
Match

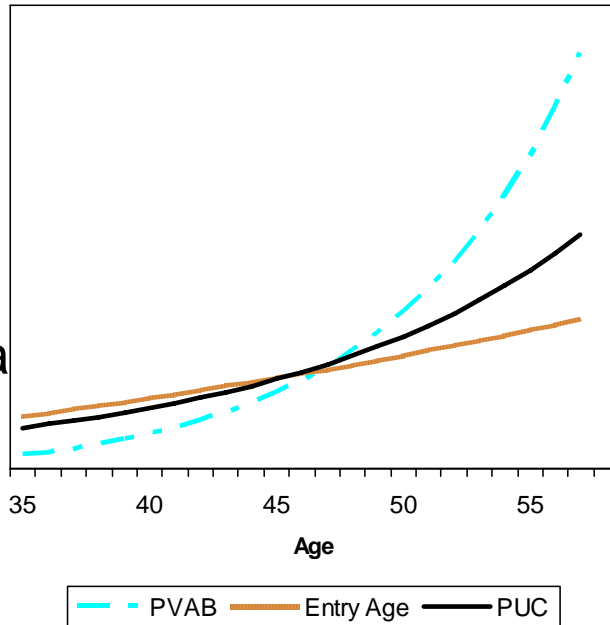


- For Money Match benefit, entry age accrued liability is less than the PVAB
- In this case, projected unit credit (PUC) follows the pattern of benefit accruals exactly, so the PUC accrued liability always equals the value of the accrued benefit

Background

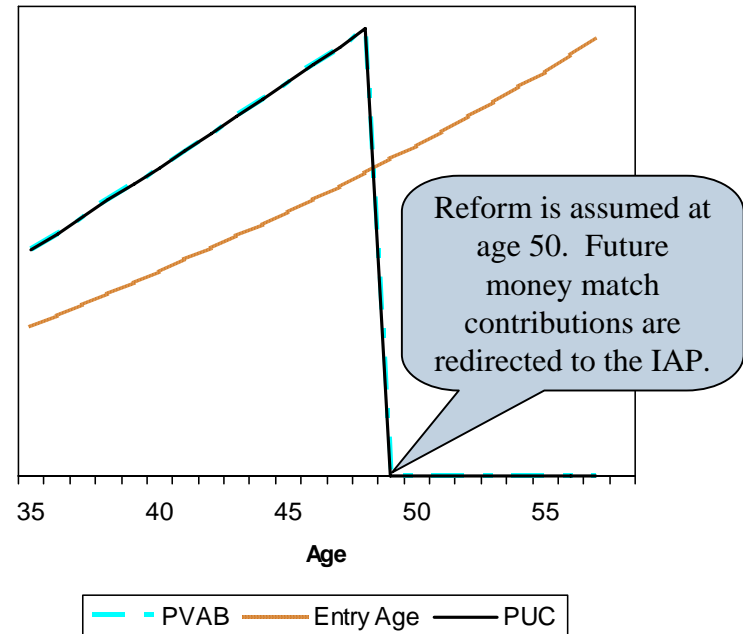
Full Formula and Money Match Benefit Normal Cost

Comparison of Normal Cost



Full
Formula

Comparison of Normal Cost



Money
Match

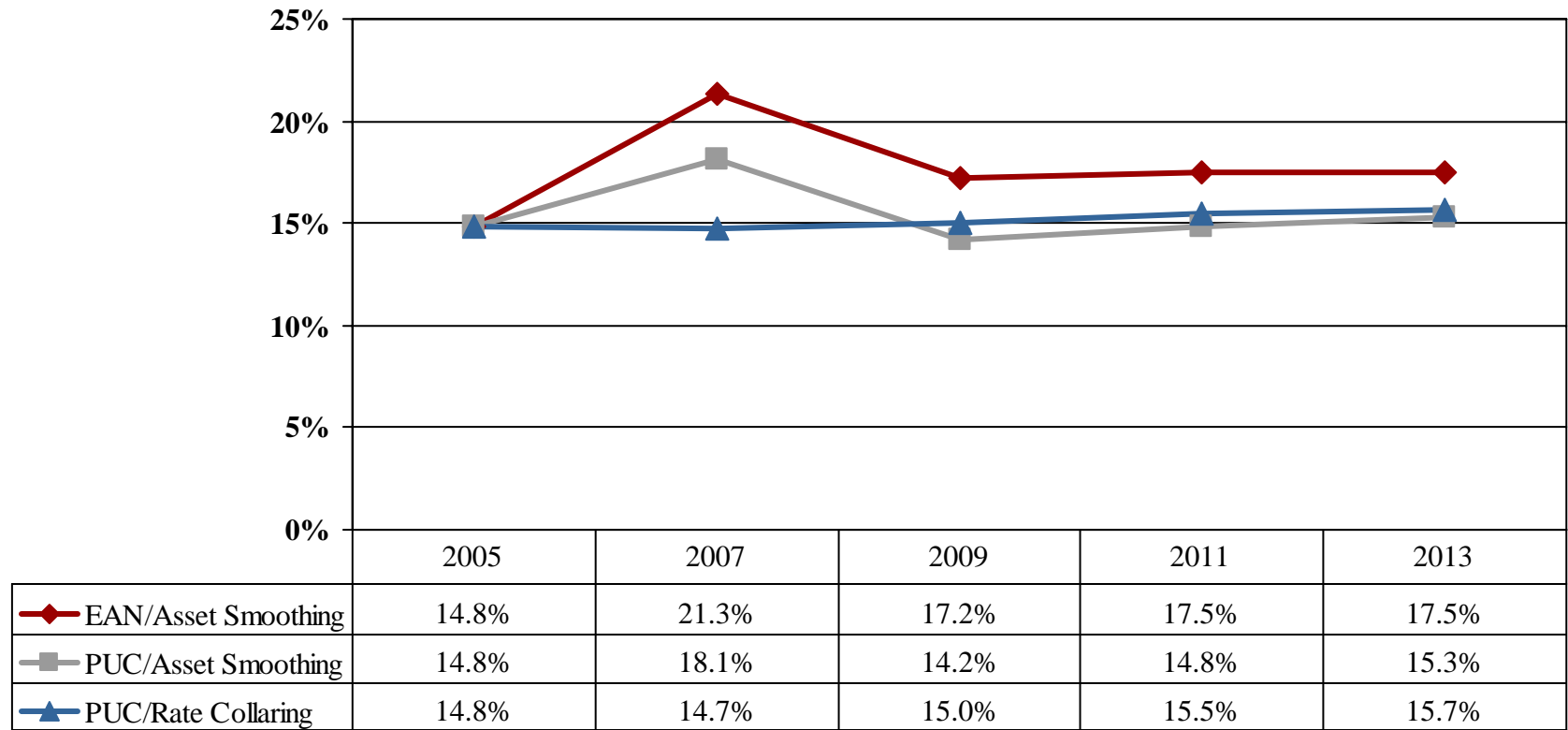
- PVAB normal cost shows the pattern in which benefits are actually earned
- Both Entry Age and PUC allocate normal cost more evenly through career than the PVAB cost by reflecting future pay; Entry Age more so than PUC

- Entry Age normal cost is below the rate at which actual benefits accrue until contributions are re-directed to the IAP; after: significantly higher than the benefit accrual rate
- In this case, projected unit credit follows the pattern of benefit accruals exactly

Background Financial Modeling Results

The financial modeling projections showed that the current asset smoothing method creates an expected spike in contribution rates as of 7/1/2007.

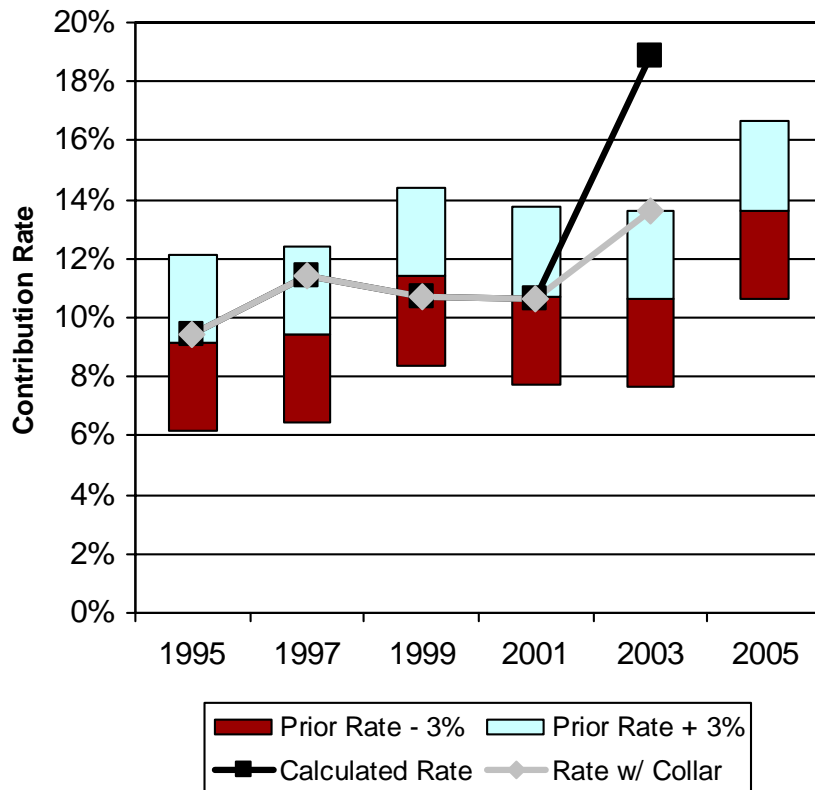
Median Pension Contribution Rate



Background

Collar on Contributions Method

Illustration of Collar Method
(Assumes Collar Always Used)



- Contribution rates are confined to a collar based on the current contribution rate.
- The next contribution rate will not increase or decrease from the prior contribution rate by more than the greater of 3 percentage points or 20 percent of the current rate.
 - If current rate is 15%, the new rate cannot be more than 18% nor less than 12%.
 - If current rate is 20%, the new rate cannot be more than 24% nor less than 16%.
- If funded percentage drops below 80% or increases above 120%, the size of the collar doubles.
 - If current rate is 15% and funded status is below 80%, the new rate can be as high as 21%.
 - If current rate is 20% and funded percentage is below 80%, the new rate can be as high as 28%.
- All calculations use the market value of assets

Key Findings Overview

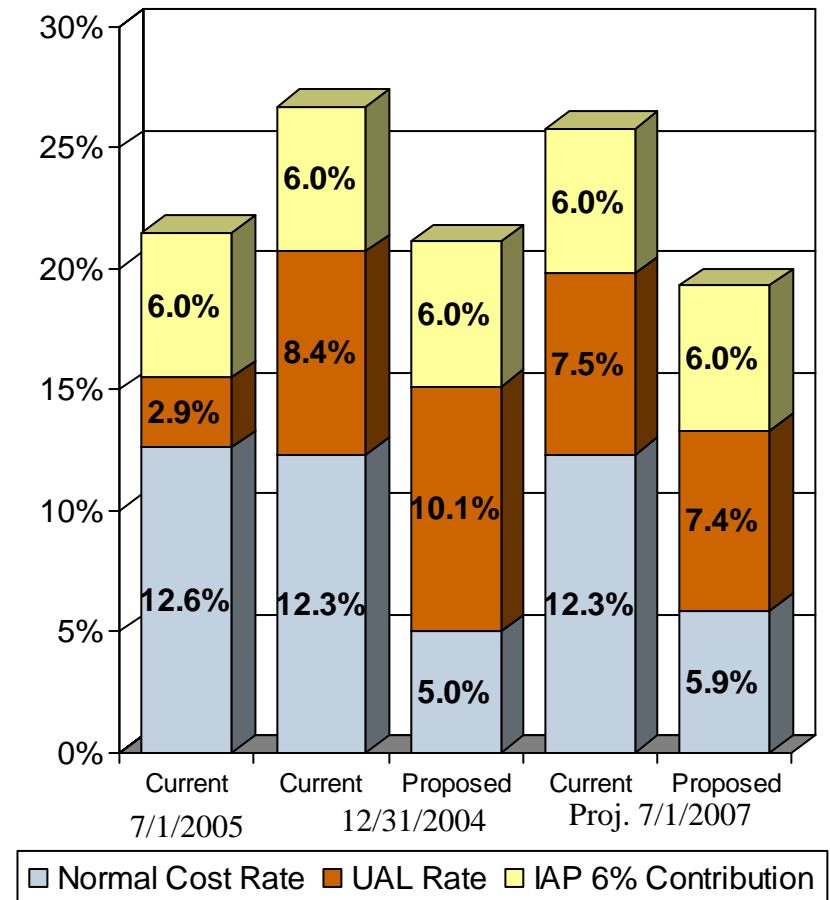
As of 12/31/2004			
	Current	Proposed	Change
Normal Cost	\$775	\$316	(\$459)
Accrued Liability	\$46,769	\$47,984	\$1,215
Assets	\$38,003	\$40,306	\$2,303
UAL	\$8,766	\$7,678	(\$1,088)
UAL Payment	\$569	\$686	\$117
NC Rate	12.3%	5.0%	-7.3%
UAL Rate	8.4%	10.1%	1.7%
Total	20.7%	15.1%	-5.6%

- Projected unit credit results in a significantly lower normal cost rate that more accurately reflects the expected accrual of benefits.
- The accrued liability under projected unit credit is higher than under entry age, more accurately reflecting the value of benefits that have already been earned.
- The market value of assets more accurately reflects the current funded status of the System
- The normal cost rate is applied to PERS T1/T2 payroll, but the UAL rate is applied to PERS and OPSRP payroll
- Note that employers are currently paying an average rate of 15.5%

Key Findings

Employer and Member Contribution Rates

- The reduction in projected contribution rates is even more significant as of 7/1/2007
 - Reflects full market performance during 2005 instead of only recognizing 25% of gains
 - Reflects projected increase in PUC normal cost rate
- Projected 7/1/2007 rates also reflect the deployment of reserves
- Actual rates effective 7/1/2007 will be based on the December 31, 2005 valuation reflecting all assumption changes from the 2005 experience study

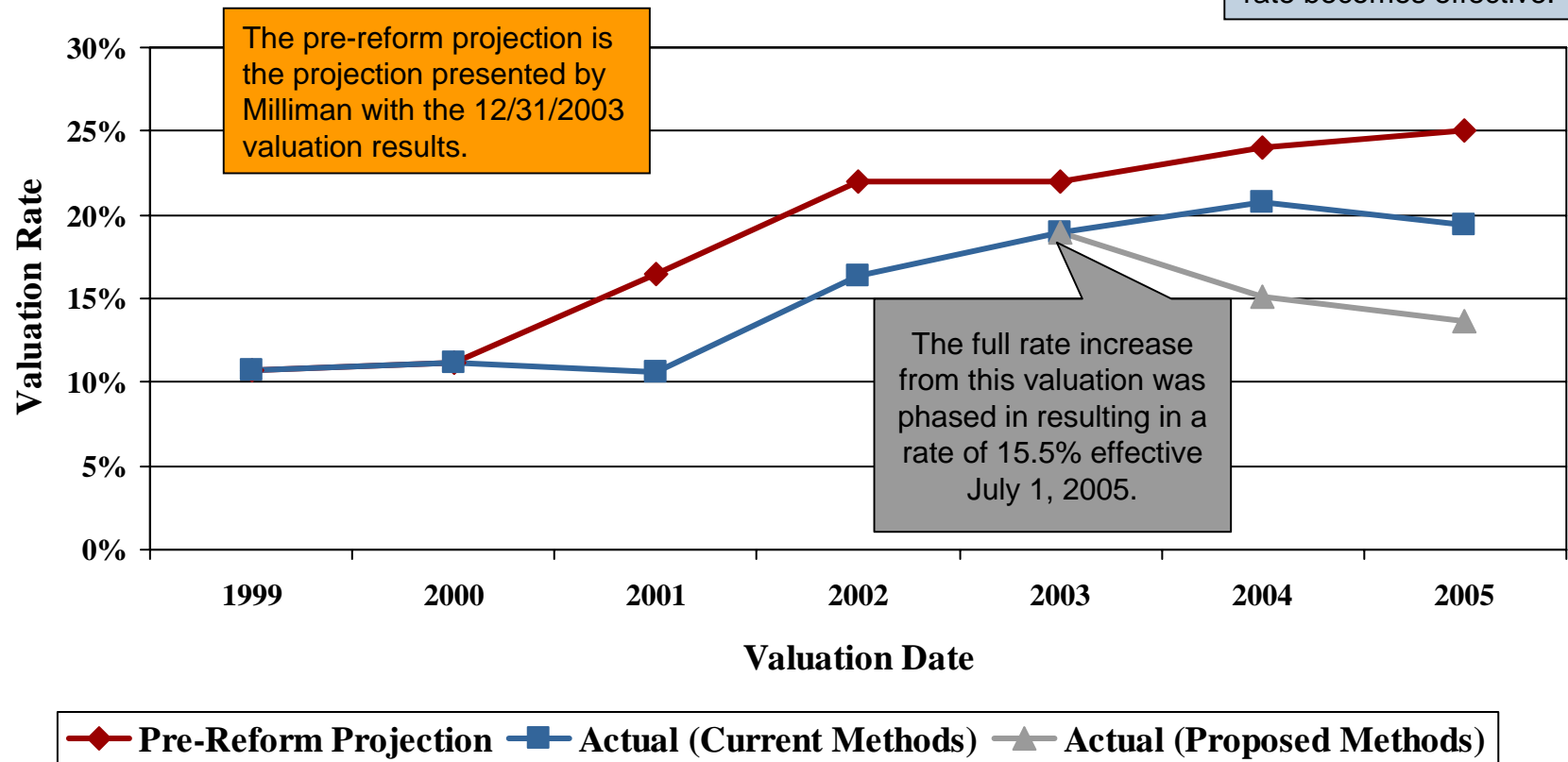


Key Findings

Comparison to Pre-Reform Projections

Rates shown in this graph are as of the valuation date and do not represent the rate actually paid. Actual rates are based on odd year valuation results with an adjustment for the 18-month delay before the rate becomes effective.

Projected and Actual Valuation Rates





Key Findings

Breakdown of Reduction in Rates

- The deployment of reserves reduces projected rates by approximately 1.2%
- Adopting projected unit credit reduces the normal cost by 6.4%, but increases the amortization payment by 3.2%
- Fully recognizing the better than expected investment performance of the last three years reduces projected rates by approximately 3.3%

Change from 12/31/2004 Valuation Results

Prior Projected 7/1/07 Contribution Rate	21.0%
Deploy Reserves	-1.2%
Adopt Projected Unit Credit Method	-3.2%
Adopt Market Value with Collar	-3.3%
New Projected 7/1/07 Contribution Rate	13.3%



Key Findings

Breakdown of Reduction in Rates

- The deployment of reserves reduces projected rates by approximately 1.2%
- Financial modeling assumed earnings for 2005 were approximately 9%. However, when the alternative investments were valued as of 12/31/2005 earnings were close to 14%. These additional earnings reduced rates by approximately 0.8%
- The financial modeling results did not include retiree medical benefits.

Change from Financial Modeling Results

Median 7/1/07 Pension Contribution Rate	14.7%
Deploy Reserves	-1.2%
Additional 2005 Earnings	-0.8%
Retiree Medical	0.6%
New Projected 7/1/07 Contribution Rate	13.3%

Key Findings

Employer Contribution Rates

Both sets of projected rates below reflect the deployment of reserves.

	SLGRP	Independents	School Districts	Judiciary (Includes Member Contribution)	System-Wide
Current Projected 7/1/2007 Rate	19.7%	12.9%	22.7%	26.0%	19.8%
Proposed Projected 7/1/2007 Rate	13.3%	7.2%	15.9%	20.1%	13.3%

- Projected contribution rates are significantly lower for all employer groups under the proposed methods.
- Side accounts may further reduce the rates paid by employers.

* Assumes election of phase-in rate

Normal Cost

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. Under the projected unit credit method, the normal cost reflects the benefits earned in the next year.

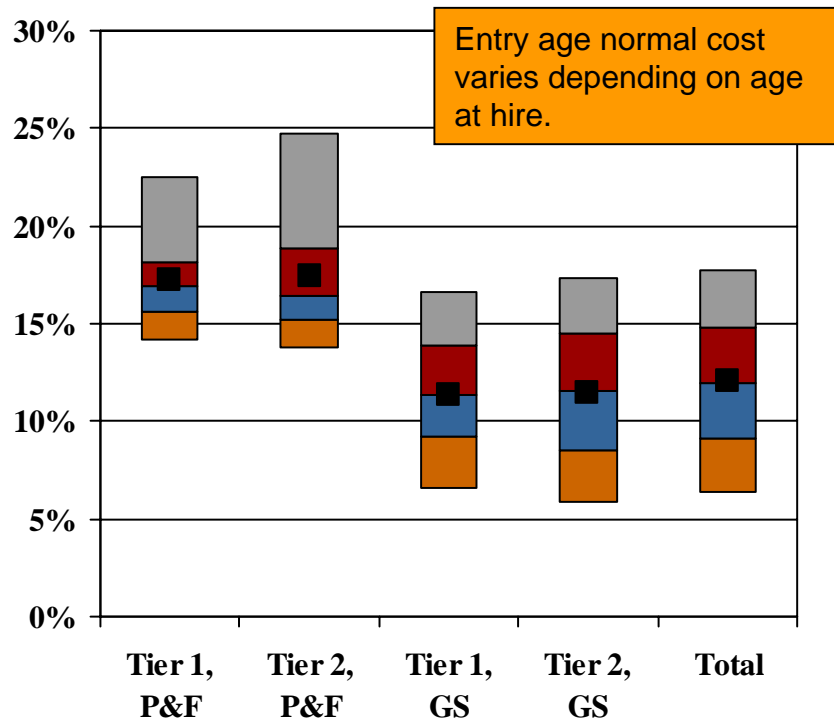
	SLGRP	Independents	School Districts	Judiciary (includes Member Contributions)	System-Wide
T-1, General	2.43%	2.41%	2.99%	30.76%	2.80%
T-1, P&F	8.25%	9.20%			8.52%
T-1, Average	3.39%	4.02%	2.99%	30.76%	3.45%
T-2, General	6.16%	5.69%	6.75%		6.29%
T-2, P&F	11.40%	10.78%			11.24%
T-2, Average	7.08%	6.65%	6.75%		6.91%
Retiree Healthcare	0.22%	0.18%	0.18%	0.26%	0.20%
System Average	5.12%	5.34%	4.49%	31.02%	5.00%

- The normal cost rate for Judiciary is higher under projected unit credit than under entry age normal
- The lower normal cost rate reflects the impact of the frozen Money Match formula. Almost 25 percent of Tier 1, general service members have no normal cost under projected unit credit.

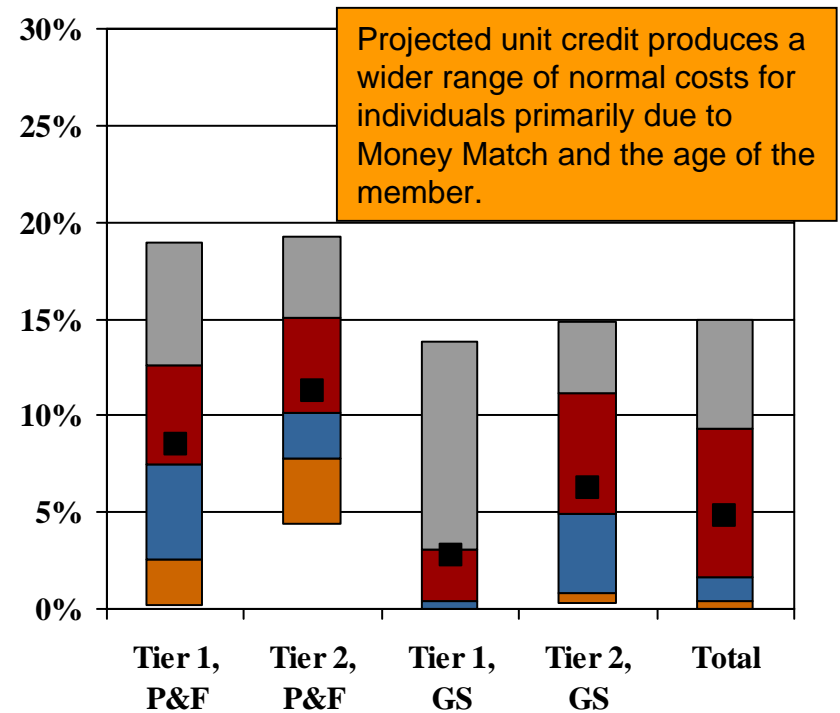


Normal Cost Distribution of Individual Normal Cost Rates

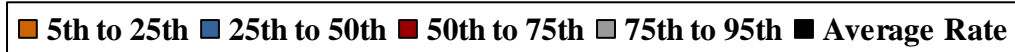
Entry Age Normal Cost



Projected Unit Credit Normal Cost



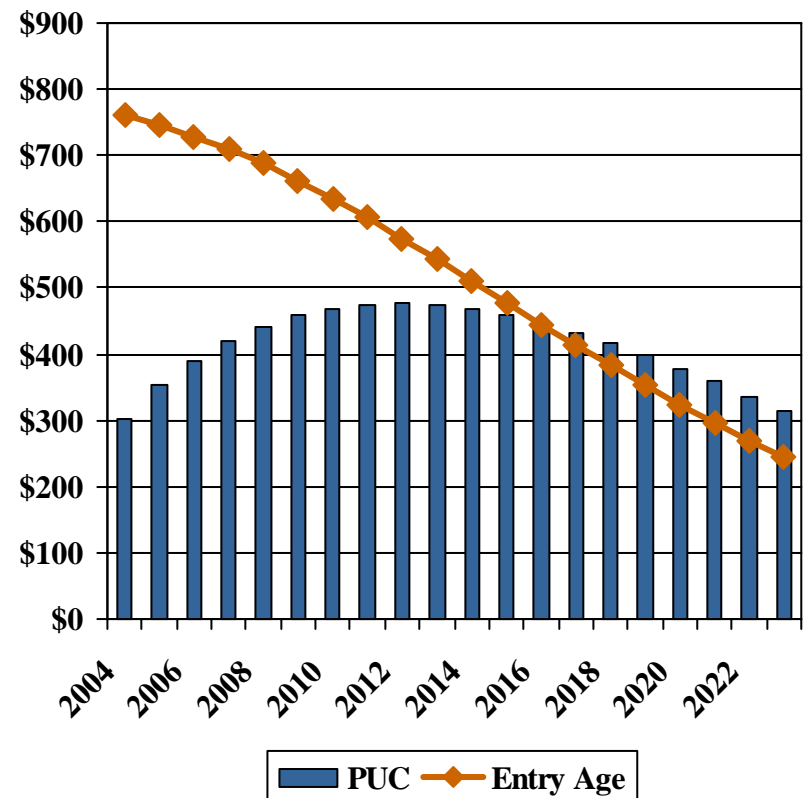
Percentile Distribution of Rates



Normal Cost

- Under Entry Age Normal, the normal cost payments decline relatively rapidly as members retire.
- Under PUC, the normal cost payments initially increase.
 - Members move from Money Match to Full Formula
 - Members age
- After about 10 years, this trend reverses and normal cost decreases.

Projected Normal Cost



Actuarial Accrued Liabilities Actives

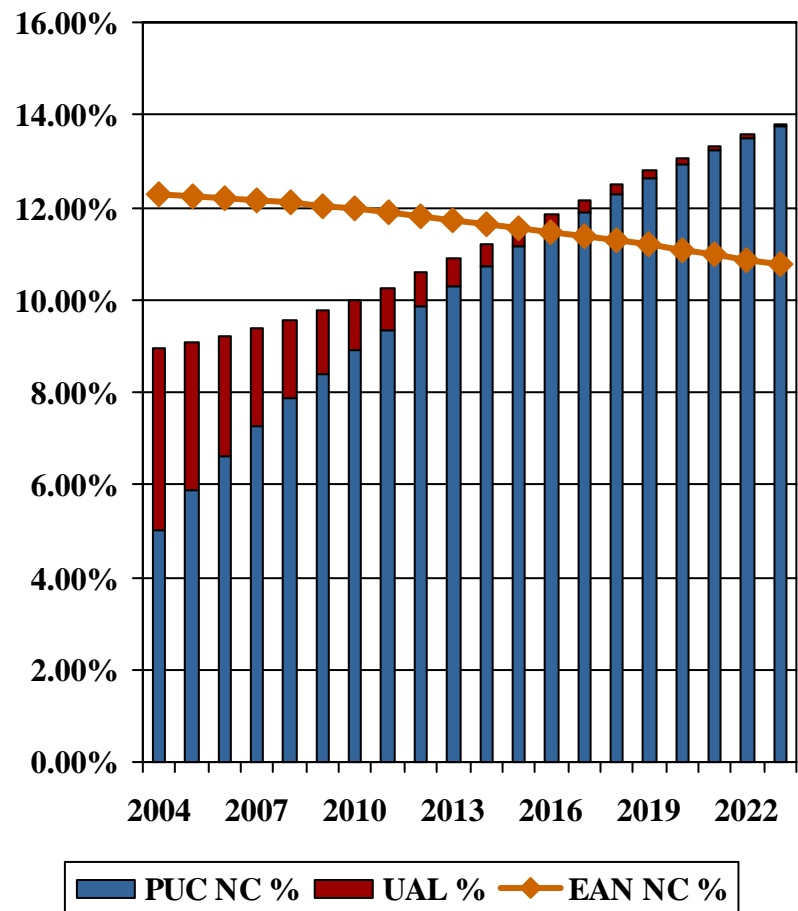
The actuarial accrued liability represents the value of benefits assigned to past service by the actuarial cost method.

	SLGRP	Independents	School Districts	Judiciary	System-Wide
T-1, General	\$7,323	\$1,271	\$6,589	\$61	\$15,244
T-1, P&F	\$1,214	\$533	\$3		\$1,752
T-1, Total	\$8,537	\$1,804	\$6,592	\$61	\$16,996
T-2, General	\$695	\$204	\$486		\$1,385
T-2, P&F	\$198	\$61	\$1		\$260
T-2, Total	\$893	\$265	\$487		\$1,645
Retiree Healthcare					\$162
PUC Total	\$9,430	\$2,069	\$7,080	\$61	\$18,804
EAN Total	\$8,852	\$1,921	\$6,569	\$68	\$17,587

The difference between the PUC accrued liability and the EAN accrued liability will be amortized over 5 years.

System-wide results include Multnomah Fire District #10
Mercer Human Resource Consulting

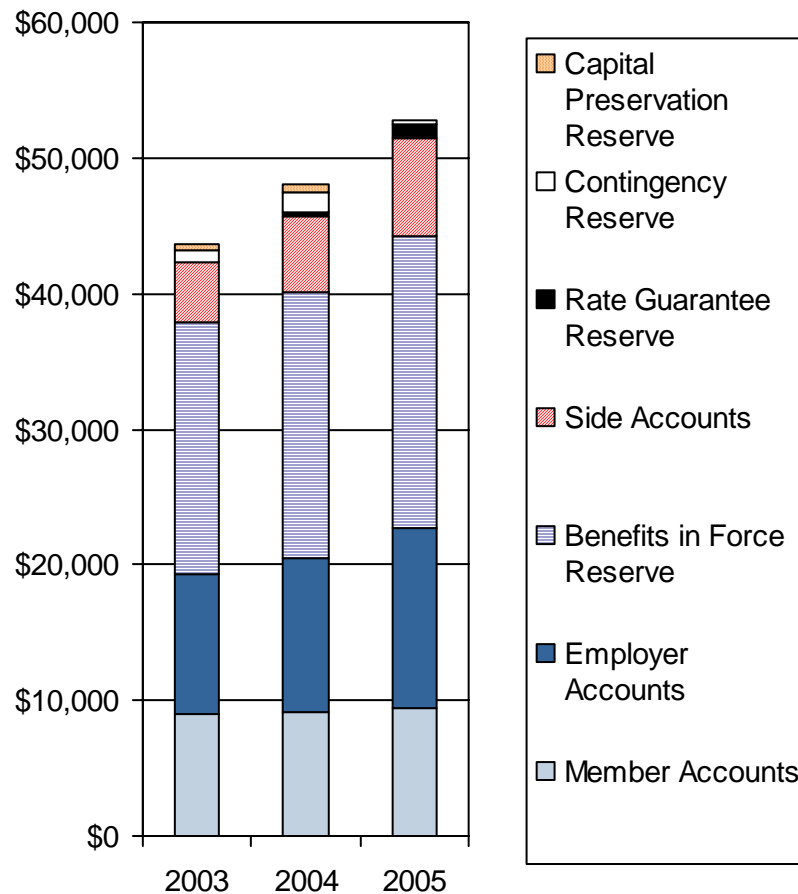
Actuarial Accrued Liabilities Amortization of Change Combined with Normal Cost



- The entry age normal cost rate is expected to decline over time, but the projected unit credit rate is expected to increase.
- The rate will be applied to a smaller and smaller group as time goes on, so the dollar amount contributed will decline under both methods
- The change in accrued liability is amortized over a rolling 5-year period that helps to somewhat level the increase in PUC normal cost rate. This rate, however, is charged to combined PERS and OPSRP payroll.

Assets

Total Pension Assets



- Valuation assets are growing faster than expected
 - Deployment of reserves
 - Higher rate of earnings than expected
 - Building the rate guarantee reserve
- Continued high rate of earnings will drive contribution rates down regardless of which method is used.
- Side funds continue to grow with new deposits and high rates of earnings

Unfunded Accrued Liabilities Pension Only

Liability for pension obligation bonds is about equal to side accounts, implying that the total obligation for PERS on a market value basis is about \$7.2 billion. However, with the deployment of reserves and 2005 earnings, the obligation is expected to drop to about \$4.6 billion as of 12/31/2005.

	SLGRP	Independents	School Districts	Judiciary	System -Wide
Accrued Liability	23,407	4,315	19,483	129	47,399
Market Value of Assets	19,861	4,190	16,020	145	40,153
Unfunded Accrued Liability	3,546	125	3,463	(16)	7,246
Side Funds	2,869	35	2,652	0	5,556
UAL – Side Funds	677	90	811	(16)	1,690
POBs	3,175	176	2,165	0	5,516
Total Unfunded Obligations	3,852	266	2,976	(16)	7,206

System-wide results include Multnomah Fire District #10

Unfunded Accrued Liabilities Pension Only

The unfunded represents a significant portion of payroll, causing contribution rates to be relatively high.

	SLGRP	Independents	School Districts	Judiciary	System-Wide
Payroll (T1/T2 + OPSRP)	3,389	1,034	2,333	16	6,772
UAL	3,546	125	3,463	(16)	7,246
UAL as % of Payroll	105%	12%	148%	-100%	107%
UAL – Side Funds	677	90	811	(16)	1,690
Net UAL as % of Payroll	20%	9%	35%	-100%	25%
UAL – Side Funds + POBs	3,852	266	2,976	(16)	7,206
Net Obligation as % of Payroll	114%	26%	128%	-100%	106%

Funded Status

System-Wide Funded Status

Estimates as of 12/31/2005 include the deployment of reserves.

Valuation	12/31/2003		12/31/2004		12/31/2005 (est.)	
	Excluding Side Funds	Including Side Funds	Excluding Side Funds	Including Side Funds	Excluding Side Funds	Including Side Funds
Current	86%	96%	81%	93%	85%	99%
Proposed	N/A	N/A	85%	96%	90%	104%

- The current methods disclose funded status based on smoothed assets and the entry age accrued liability
- The proposed methods disclose funded status based on the market value of assets and projected unit credit accrued liability providing a better indicator of the funded status of the system
- After three years of good investment performance, it is expected that funded status will improve and contribution rates will decrease



Conclusions

- The proposed methods offer better indicators of the status of the system
 - Normal cost better represents the cost of benefits for additional years of service
 - Accrued liability better represents value of benefits earned to date
 - Market value of assets better represents funded status
 - Contribution rates move in intuitive directions
- The proposed methods also offer a significant reduction in employer contribution rates, and the financial modeling showed a more level contribution rate



Next Steps

- March Board Meeting -- 12/31/2004 system-wide valuation results
 - Projected unit credit method
 - Market value of assets
 - Contribution rate collar
- April Board Meeting – Decision on actuarial methods
- June Board Meeting – Experience study
- September Board Meeting – 12/31/2005 system-wide valuation results
 - OPSRP
 - PERS T1/T2



Appendix



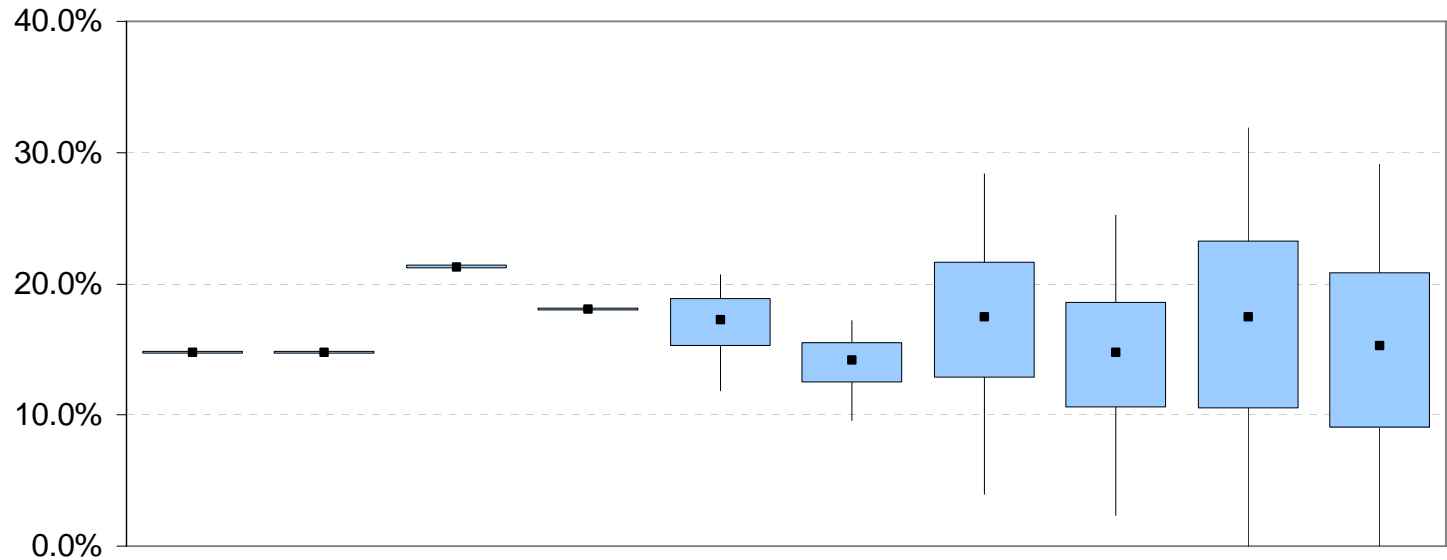
Actuarial Cost Method Observations

- The primary advantage of the PUC method is the increased transparency provided by a more realistic allocation of costs between the past (accrued liability) and the future (normal cost).
- There are two other effects of switching to PUC:
 - The average normal cost rate will tend to rise as Money Match members retire and they represent a smaller proportion of the population.
 - The average normal cost rate will tend to rise as the closed Tier 1/2 population ages.
- Both of these effects are somewhat mitigated by the declining payroll to which they apply.
- The PUC method also produces lower contribution rates. The amount of reduction is less than it appears as the UAL is amortized over combined payroll while the normal cost rate is only charged to the closed Tier 1/2 payroll.

Actuarial Cost Method Entry Age Normal vs. Projected Unit Credit

Contribution Rate effective from 7/1 (Base vs. Alt#2)

PUC contribution rates are approximately 200 basis points less than the EAN contribution rates.

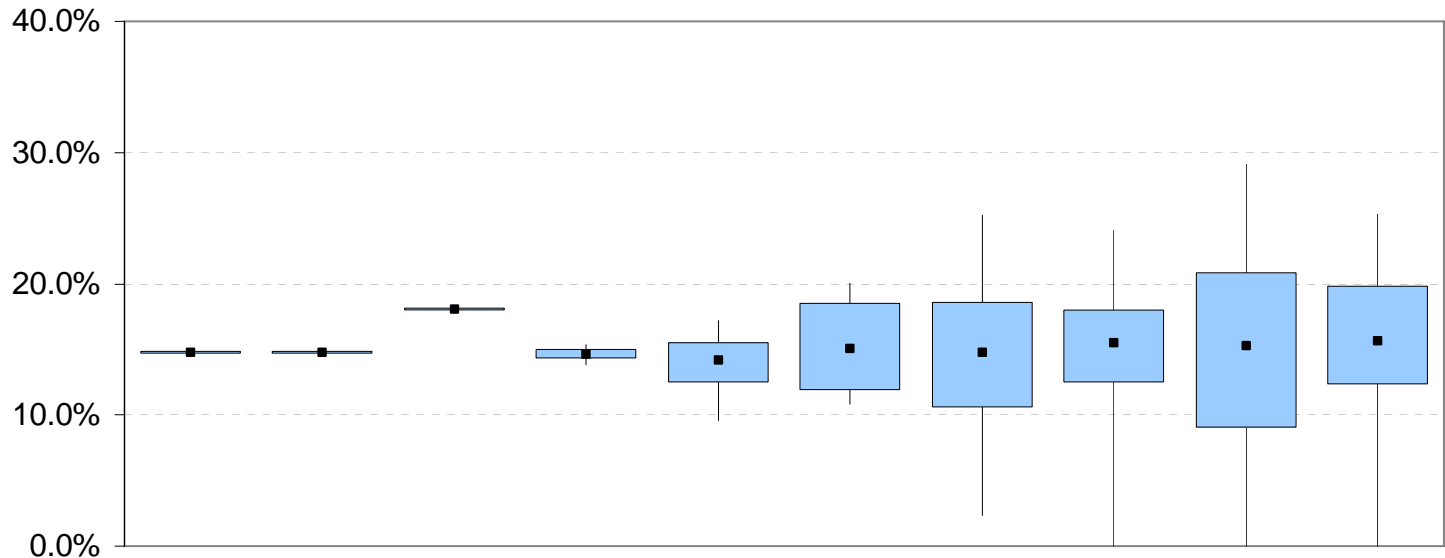


	Base	Alt2	Base	Alt2	Base	Alt2	Base	Alt2	Base	Alt2
	2005	2005	2007	2007	2009	2009	2011	2011	2013	2013
5th V. Bad	14.8%	14.8%	21.6%	18.3%	20.7%	17.2%	28.4%	25.2%	31.9%	29.1%
25th Bad	14.8%	14.8%	21.4%	18.2%	18.9%	15.5%	21.7%	18.6%	23.3%	20.8%
50th Median	14.8%	14.8%	21.3%	18.1%	17.2%	14.2%	17.5%	14.8%	17.5%	15.3%
75th Good	14.8%	14.8%	21.2%	18.0%	15.3%	12.5%	12.9%	10.6%	10.5%	9.1%
95th V. Good	14.8%	14.8%	21.1%	17.9%	11.9%	9.6%	4.0%	2.3%	0.0%	0.0%

Contribution Rate Smoothing Asset Smoothing vs. Contribution Rate Collaring

Contribution Rate effective from 7/1 (Alt#2 vs. Alt#3)

The rate collar reduces contribution rates as of 7/1/2007 because it immediately recognizes the asset gains of 2003, 2004, and 2005. The range of future contribution rates has also narrowed considerably, particularly between the 25th and 75th percentiles.



	Alt2	Alt3	Alt2	Alt3	Alt2	Alt3	Alt2	Alt3	Alt2	Alt3
	2005	2005	2007	2007	2009	2009	2011	2011	2013	2013
5th V. Bad	14.8%	14.8%	18.3%	15.4%	17.2%	20.0%	25.2%	24.1%	29.1%	25.3%
25th Bad	14.8%	14.8%	18.2%	15.0%	15.5%	18.5%	18.6%	18.0%	20.8%	19.8%
50th Median	14.8%	14.8%	18.1%	14.7%	14.2%	15.0%	14.8%	15.5%	15.3%	15.7%
75th Good	14.8%	14.8%	18.0%	14.3%	12.5%	11.9%	10.6%	12.5%	9.1%	12.4%
95th V. Good	14.8%	14.8%	17.9%	13.8%	9.6%	10.9%	2.3%	0.0%	0.0%	0.0%

Alt2 = Asset Smoothing

Alt3 = Rate Collaring

Mercer Human Resource Consulting