MERCER
Human Resource Consulting

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Oregon PERS

December 31, 2004 Actuarial Valuation Results

Bill Hallmark and Annette Strand

MMC Marsh & McLennan Companies

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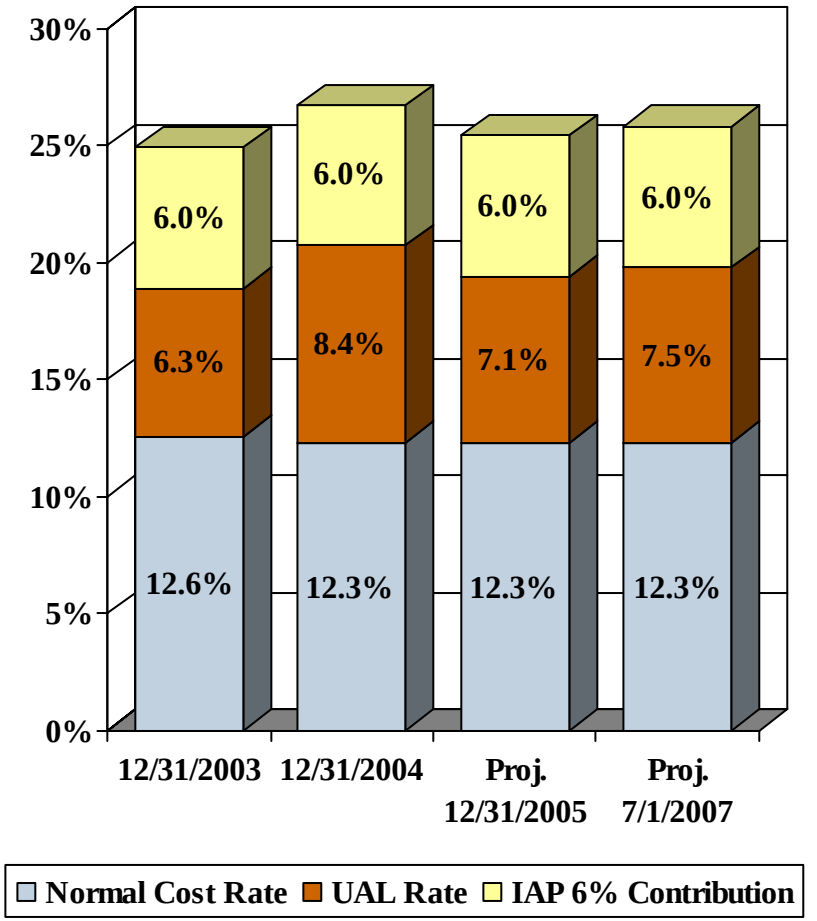
Review of 12/31/2004 Valuation Results Overview

- December 31, 2004 actuarial valuation results
  - Are advisory — no effect on contribution rates
  - Reflect estimated effect of Strunk/Eugene decisions
  - Use same methods and assumptions as prior valuation
    - Some exceptions due to transition (see Appendix), Strunk/Eugene (see Appendix), and a change to the SLGRP pooling method
  - Excludes OPSRP and IAP (assets, benefits, earnings, etc.)

Review of 12/31/2004 Valuation Results
Employer and Member Contribution Rates

- The average normal cost rate declined slightly since the prior valuation.
- The average UAL rate increased since the last valuation reflecting:
  - Strunk and Eugene decisions
  - Recognition of more of the prior investment losses, and
  - the 18-month delay in contribution rate changes
- The average UAL rate is expected to decrease slightly by 12/31/2005 reflecting 2004 and 2005 investment performance and the deployment of reserves, offset by the phase-in of contribution rates.



Review of 12/31/2004 Valuation Results
Change in Employer Contribution Rate

7/1/05 Employer Rate	**15.4%**
Planned Phase-in	5.0%
Asset Smoothing	1.8%
Strunk/Eugene	0.9%
2004/05 Earnings/ Reserves	(1.4%)
Other Gains/Losses	(0.7%)
Deploy Reserves	(1.2%)
7/1/07 Expected Employer Rate	**19.8%**
IAP 6% Contribution	**6.0%**

- In April, 2005, we projected employer rates to increase to 25.8% by 7/1/2007.
- With the Eugene decision, favorable investment experience, and the deployment of the Contingency and Capital Preservation Reserves, we now project 7/1/2007 employer contribution rates, using current methods and assumptions, to average 19.8%.

Review of 12/31/2004 Valuation Results
Employer and Member Contribution Rates

Projected 7/1/2007 rates below reflect the deployment of reserves.

	SLGRP	Independ-ents	School Districts	Judiciary (Includes Member Contribution)	System-Wide
Actual 7/1/2005 Employer Contribution Rates	14.9%	11.5%*	17.0%	29.4%	15.4%
Projected 7/1/2007 Employer Contribution Rates	19.7%	12.9%	22.7%	26.0%	19.8%
IAP 6% Contribution	6.0%	6.0%	6.0%	N/A	6.0%

- While system-wide rates are projected to average 19.8%, rates vary significantly by pool and employer.
- Side accounts may further reduce the rates paid by employers.

* Assumes election of phase-in rate

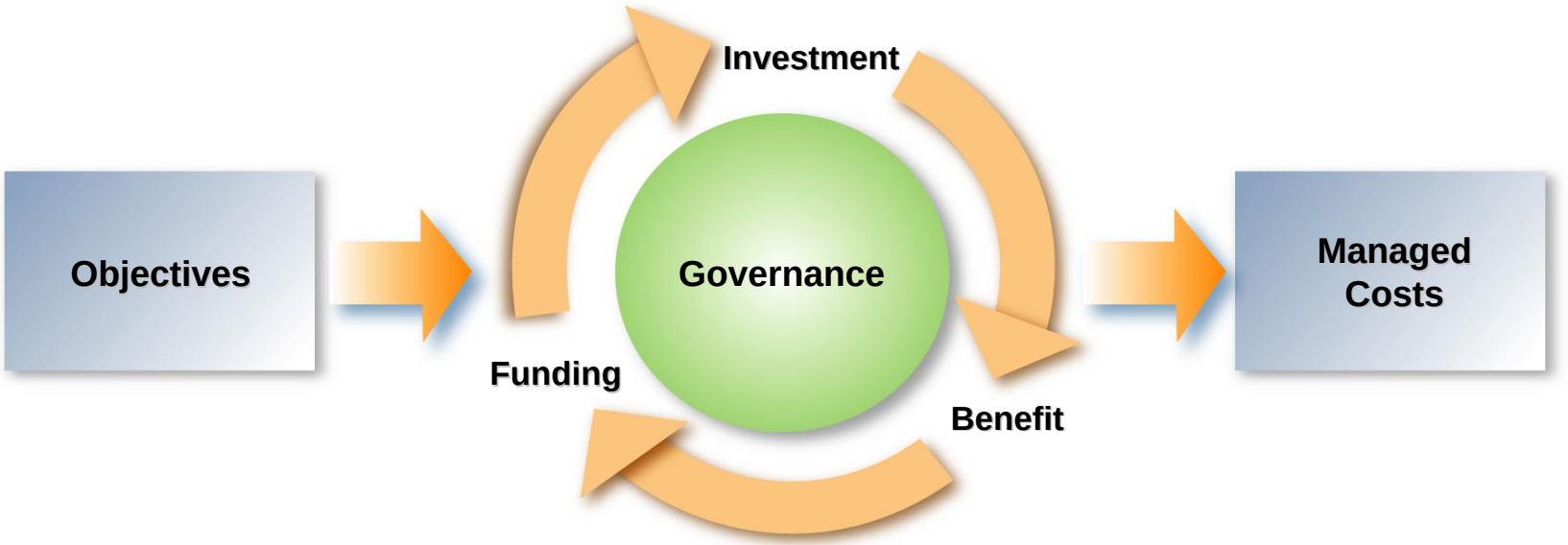
Review of 12/31/2004 Valuation Results
Impact of Side Accounts

	SLGRP	Independents	School Districts	Judiciary (Includes Member Contribution)	System-Wide
Total Number of Employers	286	287	232	1	806
Number of Employers with a Side Account	23	3	77	0	103
12/31/2004 Side Account Balance	$2,869.0	$35.0	$2,652.1	$0.0	$5,556.2
Average Reduction in Employer Contribution Rate due to Side Account	8.1%	3.8%	12.3%	0.0%	9.6%

- Average reduction in employer contribution rates is a weighted average for the employers with a side account.

Consideration of Method Changes
Retirement Plan Financial Management Framework

Total Contributions = Benefits Paid - Investment Earnings



Actuarial methods primarily affect the timing of contributions

Consideration of Method Changes
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
- April 11, 2005 LAC Meeting
  - Feedback from employer and member representatives on proposed alternative methods

Consideration of Method Changes
Board Objectives for Actuarial Methods

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

Consideration of Proposed Changes
Entry Age Normal vs. Projected Unit Credit

Entry Age Normal Cost Method:

- The cost of projected benefits is funded as a level percentage of pay over an employee's career. For Full Formula benefits, the result is an accrued liability greater than the value of the accrued benefit, but for Money Match benefits, the accrued liability is less than the value of accrued benefits. The normal cost does not reflect the pattern in which benefits accrue. Although the method funds the benefits adequately, stakeholders may be misled about the cost and liability of the system.

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.

Consideration of Proposed Changes
Entry Age Normal vs. Projected Unit Credit

As of 12/31/2004	EAN	PUC	Change
Normal Cost	$775	$316	($459)
Accrued Liability	$46,769	$47,984	$1,215
Assets	$38,003	$38,003	$0
UAL	$8,766	$9,981	$1,215

Amounts in millions

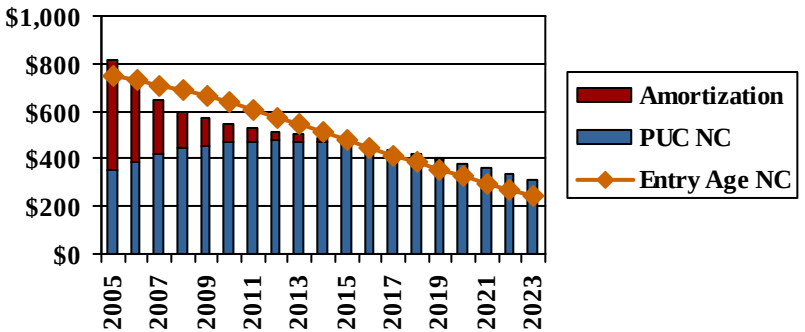
Change in Normal Cost and UAL

- Projected unit credit results in a significantly lower normal cost 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 $1.2 billion increase in accrued liability can be amortized over a shorter period than the rest of the UAL

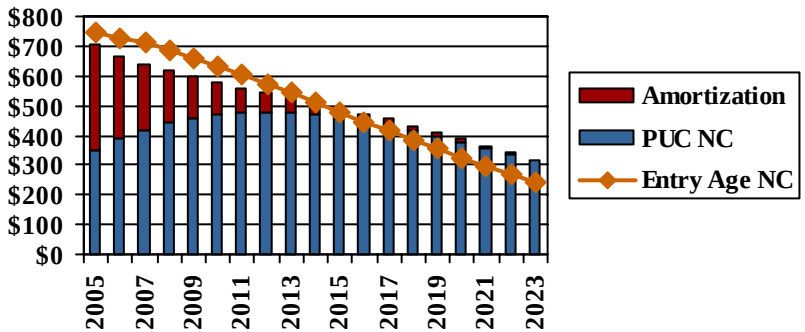
Consideration of Proposed Changes
Entry Age Normal vs. Projected Unit Credit

- The change in accrued liability due to the change to PUC could be amortized over rolling 3-, 4-, or 5-year periods to approximate the pattern of costs under entry age normal.
- At some point the Board will likely want to fix the amortization period instead of rolling it with each valuation.

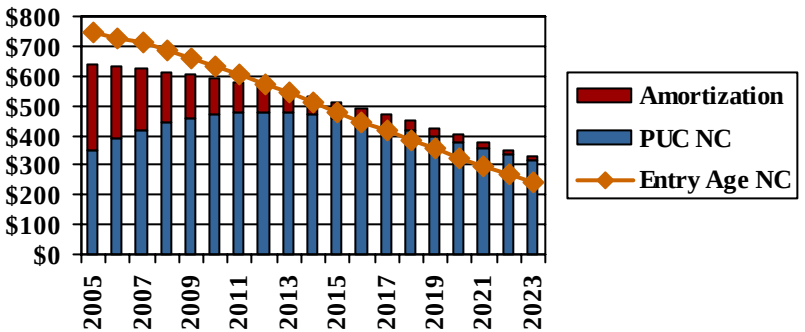
Rolling 3-Year Amortization



Rolling 4-Year Amortization



Rolling 5-Year Amortization

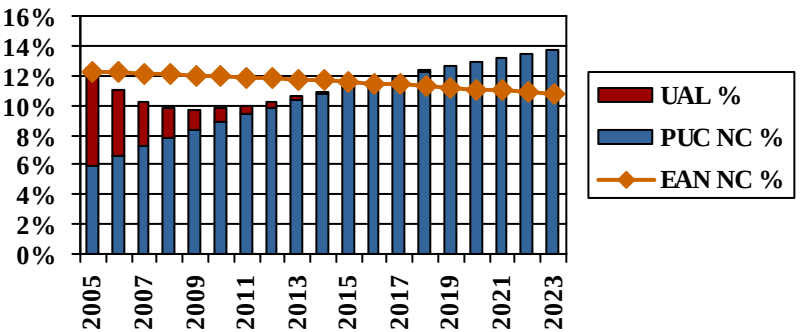


Amounts in millions

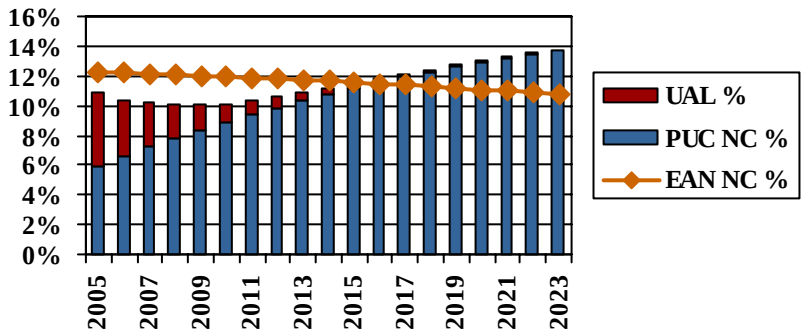
Consideration of Proposed Changes
Entry Age Normal vs. Projected Unit Credit

- Note that normal cost is paid on PERS T1/T2 payroll only while the UAL contribution rate is paid on combined PERS and OPSRP payroll.
- The PUC normal cost rate starts lower than the EAN normal cost rate, but they cross after about 10 years. However, the PERS T1/T2 payroll is much smaller at that point.

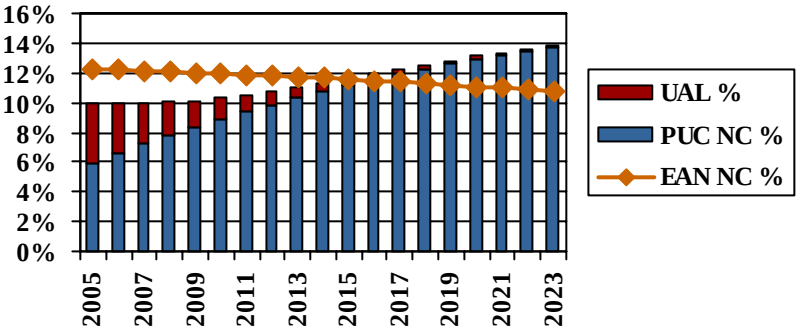
Rolling 3-Year Amortization



Rolling 4-Year Amortization



Rolling 5-Year Amortization



Amounts in millions

Consideration of Proposed Changes
Entry Age Normal vs. Projected Unit Credit

Expected contributions as of 12/31/2004	Entry Age Normal	Projected Unit Credit 3-Year Amortization	Projected Unit Credit 4-Year Amortization	Projected Unit Credit 5-Year Amortization
Normal Cost	$775	$316	$316	$316
UAL Change*		$428	$327	$266
Regular UAL	$569	$569	$569	$569
Total	**$1,344**	**$1,313**	**$1,212**	**$1,151**

Amounts in millions

- Amortizing the change over a rolling 3 years results in a slight reduction in expected contributions
- Amortizing the change over a rolling 5 years results in approximately a 14% reduction in expected contributions

*UAL change amounts are for illustration only. The actual amortization of the change will commence with the 12/31/2005 valuation.

Consideration of Proposed Changes
Entry Age Normal vs. Projected Unit Credit

		Projected 7/1/07 Rates			
			Projected Unit Credit		
	Current Rates	Entry Age Normal	3-Year Amortization	4-Year Amortization	5-Year Amortization
Normal Cost	12.6%	12.3%	5.9%	5.9%	5.9%
UAL Change			6.6%	5.0%	4.1%
Regular UAL	2.9%	7.1%	7.0%	6.9%	6.7%
Total	**15.5%**	**19.8%**	**19.5%**	**17.8%**	**16.7%**

Side accounts may further reduce the rates paid by employers.

- Amortizing the change over a rolling 3 years results in a 0.3% reduction in expected contribution rates
- Amortizing the change over a rolling 5 years results in approximately a 3.1% reduction in expected contribution rates

Consideration of Proposed Changes
Asset Smoothing vs. Market Value with Rate Collar

Four-year asset smoothing:

- Investment returns greater than or less than expected are not recognized immediately, but are smoothed in over a four-year period. The intent is to smooth out fluctuations in contribution rates. However, it also creates confusion among stakeholders as the actuarial value of assets may be higher or lower than the market value and contribution rates may go up after a year of good investment returns.

Contribution rate collaring:

- Smoothes 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.

Consideration of Proposed Changes
Asset Smoothing vs. Market Value with Rate Collar

As of 12/31/2004	Asset Smoothing	Market Value	Change
Accrued Liability	$46,769	$46,769	$0
Assets	$38,003	$40,306	$2,303
UAL	$8,766	$6,463	($2,303)
UAL Payment	$569	$420	($149)
UAL Rate	**8.4%**	**6.2%**	**(2.2%)**

Amounts in millions

- The market value of assets more accurately reflects the current funded status of the System.
- Recognizing the gains from 2003 and 2004 asset performance immediately reduces contribution rates by 2.2% or $149 million.
- The reduction is expected to be greater as of 12/31/2005 after reflecting the greater than expected investment performance of 2005.

Consideration of Proposed Changes
Asset Smoothing vs. Market Value with Rate Collar

		Projected 7/1/07 Rates			
			Projected Unit Credit		
	Current Rate	Entry Age Normal	3-Year Amortization	4-Year Amortization	5-Year Amortization
Smoothed Assets	15.5%	19.8%	19.5%	17.8%	16.7%
Market Value Assets		16.4%	16.1%	14.4%	13.3%
Net Change		(3.4%)	(3.4%)	(3.4%)	(3.4%)

Side accounts may further reduce the rates paid by employers.

- All projected rates are within the rate collar if you start from the current system-wide rate of 15.5%
- Immediately recognizing the gains from 2003, 2004 and 2005 reduces rates approximately 3.4%

Consideration of Proposed Changes
Additional Amortization Options

Amortization Periods	3.5% Payroll Growth	4.0% Payroll Growth
22 / 5	13.6%	13.3%
22 / 4	14.6%	14.4%
22 / 3	16.3%	16.1%
20 / 5	13.8%	13.6%
20 / 4	14.9%	14.6%
20 / 3	16.6%	16.4%

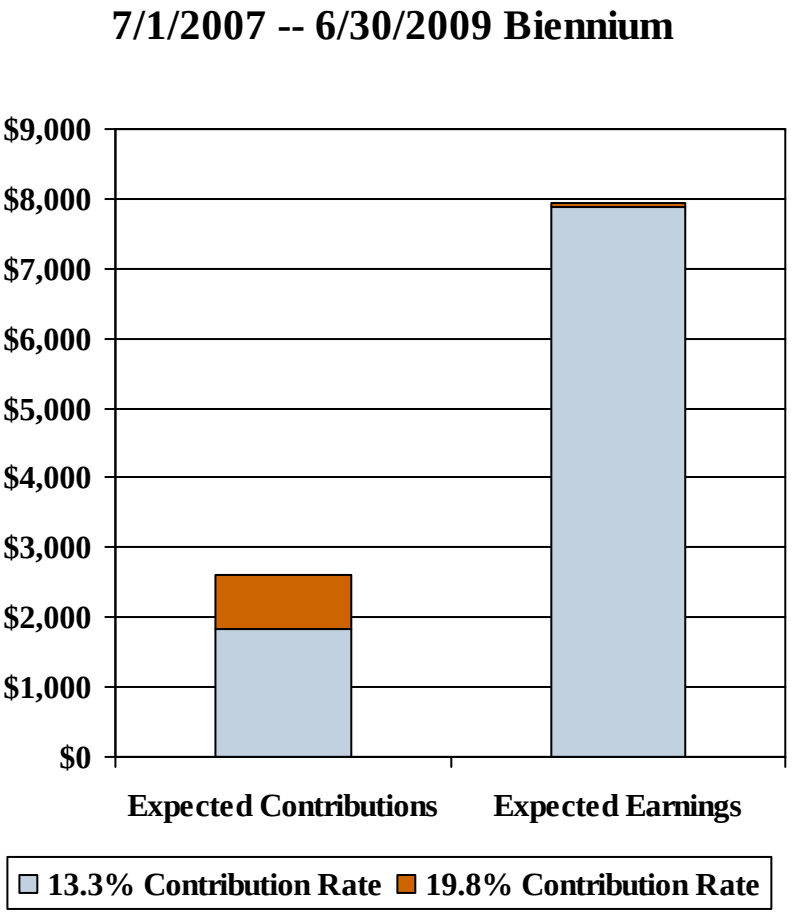
- The current amortization period is 22 years as of 12/31/2005, but is scheduled to drop to 20 years as of 12/31/2007 and then new gains and losses will continue to be amortized over 20 years. The Board could choose to accelerate this schedule to be at 20 years as of 12/31/2005
- With the experience study, we will review the payroll growth assumption. To illustrate the impact this assumption has on contribution rates, we have shown rates assuming the current 4.0% assumption and a 3.5% assumption

Side accounts may further reduce the rates paid by employers.

All rates shown are based on Projected Unit Credit and the market value of assets.

Consideration of Proposed Changes
Expected Contributions vs. Expected Earnings

- Reducing the contribution rate from 19.8% to 13.3% reduces expected employer contributions during the next biennium by approximately $775 million.
- By comparison, expected earnings for the biennium are approximately $8 billion with a minor difference in expectation depending on the contribution rate
- Expected earnings are about four times as large as expected contributions

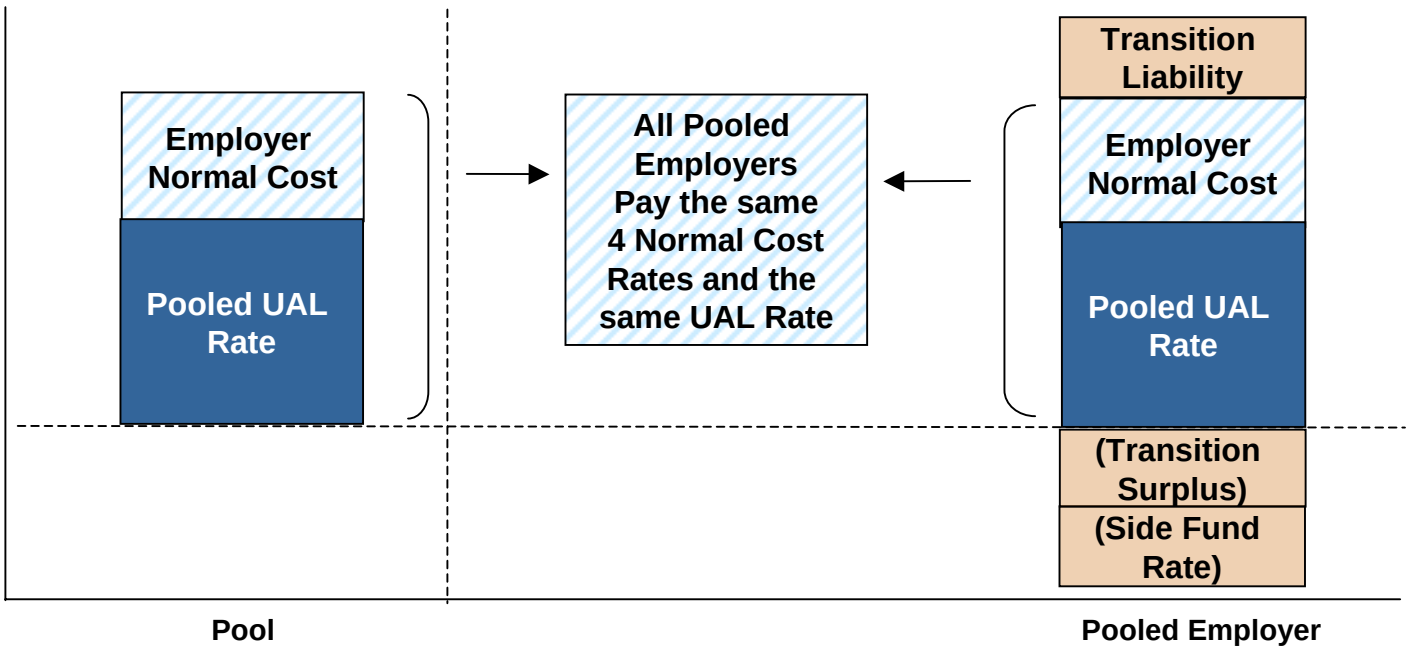


SLGRP Pooling Methodology
Overview

- Milliman's approach created a separate pool for each year and assigned a portion of the UAL attributable to that year to each employer who participated in the pool that year.
- UAL payments were allocated to each year in proportion to the absolute value of the UAL allocated for that year.
- Result was a complex web of contribution rates that were difficult for employers to follow and produced unexpected increases or decreases in transition liabilities due to the use of absolute values.
- Alternative approach assigns one UAL rate to every employer in the SLGRP regardless of when they join. The balance of an employer's UAL (fair value basis) is the employer's transition liability or surplus (or pre-SLGRP pooled liability for the state, community colleges, and LGRP members).
- Contributions are allocated to normal cost, UAL, and transition liability based on actual payroll and the contribution rates in effect.

SLGRP Pooling Methodology
Development of Pooled Rates

- Employer rates are made up of a few components:
  - Normal Cost Rate (Weighted Average of 4 Pooled Normal Cost Rates)
  - Pooled UAL Rate
  - Transition Liability/(Surplus) Rate
  - Side Fund Rate



SLGRP Pooling Methodology
Fresh Start Methodology

- Establish initial SLGRP UAL Rate on 1/1/2004
  - Initial SLGRP UAL rate set based on current SLGRP assets, liabilities and transition liabilities.
  - Side funds are not considered part of the SLGRP assets.
- All pooled employers are treated as joining the pool on 1/1/2004 with their prior pooled assets and liabilities as reported in the 12/31/2003 actuarial valuation
  - The SLGRP's fair value UAL is allocated to each employer based on their payroll from the 12/31/2003 valuation.
  - A new transition liability is established equal to the employer's fair value UAL from the 12/31/2003 valuation less the portion of the SLGRP's fair value UAL allocated to the employer.

SLGRP Pooling Methodology
Conclusions

- In addition to simplicity, the result is a greater pooling of liabilities than under the prior method. That is, for the vast majority, transition liabilities have been reduced.
- The LAC has been very supportive of this change, however, one issue has arisen that affects a small number of employers.
  - Employers who issued bonds in 2004 or 2005 with the intent of paying off their transition liability may instead have a side account established
  - Instead of a fixed reduction in borrowing costs between the interest rate of the bonds and the interest rate of the transition liability, they now have an investment in the PERS portfolio with an underlying borrowing expense.

Treatment of Rate Guarantee Reserve

- Inclusion of rate guarantee / deficit reserve in actuarial asset value
  - Fails to treat rate guarantee reserve as a true reserve with a single purpose
  - Creates mismatch between plan liabilities and actuarial asset value, by assuming reserve will provide benefit increases which are not included in plan liabilities
  - Increases contribution volatility
- Therefore, the rate guarantee / deficit reserve should be excluded from assets when determining actuarial asset value

Summary
Next Steps

- 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

Summary
Decisions to be Made

Method or Assumption	Alternatives		
Cost Method	Projected Unit Credit	Entry Age Normal	
Amortization Period for Change in Cost Method	Rolling 3 Years	Rolling 4 Years	Rolling 5 Years
Contribution Rate Stabilization Method	Market Value of Assets with Collar on Contribution Rate Changes	4-Year Asset Smoothing	
Amortization Period at 12/31/2005	20 Years	22 Years	
SLGRP Pooling Method	New Method with Fresh Start 1/1/2004		
Rate Guarantee Reserve	Exclude from Valuation Assets		
Technical Changes	Adopt Technical Changes in Appendix		

Appendix

Appendix
Method and Assumption Changes

- Strunk/Eugene
  - Tier 1 member accounts earn 8.0% for all years
  - COLA applied for all retirees (i.e., no freeze)
  - Assets and benefits adjusted to reflect:
    - 1999 earnings of 11.33% instead of 20.00%
    - 2003 Tier 1 member account earnings of 8.0% instead of 0.0%
    - 2004 Tier 1 member account earnings of 8.0%
    - Retiree benefits adjusted for missed COLAs

Appendix
Method and Assumption Changes

- Transition Changes
  - Assume beginning of year decrements instead of mid-year decrements
  - Entry age defined as valuation date minus credited service
  - Valuation pay is defined as prior year pay increased for a year of salary scale instead of half a year increase
  - Amortization factor based on monthly interest instead of continuous interest
  - UAL is amortized over combined OPSRP and PERS payroll for members who are under the maximum assumed retirement age instead of all payroll
  - BIF assets are allocated to pools/employers in proportion to their BIF liability instead of in proportion to Member Accounts + Employer Accounts + BIF liability
  - Assets in the Rate Guarantee Reserve are excluded from valuation assets
  - In applying the smoothing method, actual earnings are reduced by any transfers to the Contingency, Capital Preservation, or Rate Guarantee reserves
  - The 10% corridor for the smoothing method is applied based on the valuation assets instead of total assets (including reserves)
  - Transfers from side accounts are calculated equal to actual payroll times the rate relief increased for interest at the rate credited to employer accounts

Appendix
Method and Assumption Changes

- SLGRP Pooling Methodology
  - One UAL rate is charged to all employers in the pool instead of a different UAL rate for each year of the pool
  - Employer contributions are allocated to normal cost, UAL and transition liability based on actual payroll and the contribution rates in effect instead of based on a proportion of the absolute value of the amount outstanding
  - Transition liability or surplus is calculated such that employers joining the pool pay the same pooled UAL rate and a transition rate to make up for the difference between the employer's and pool's market value funded status
  - The transition to the new pooling methodology was accomplished through a fresh start calculation of the pool as of 1/1/2004 reflecting the assets and liabilities allocated to each employer under the prior pooling methodology as of 12/31/2003
  - The new pooling methodology and fresh start transition approach were presented to and discussed with the LAC on 11/4/2005 and 1/5/2006