MERCER

Human Resource Consulting

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Oregon PERS and OPSRP

Experience Study for December 31, 2005 Valuation Methods and Economic Assumptions

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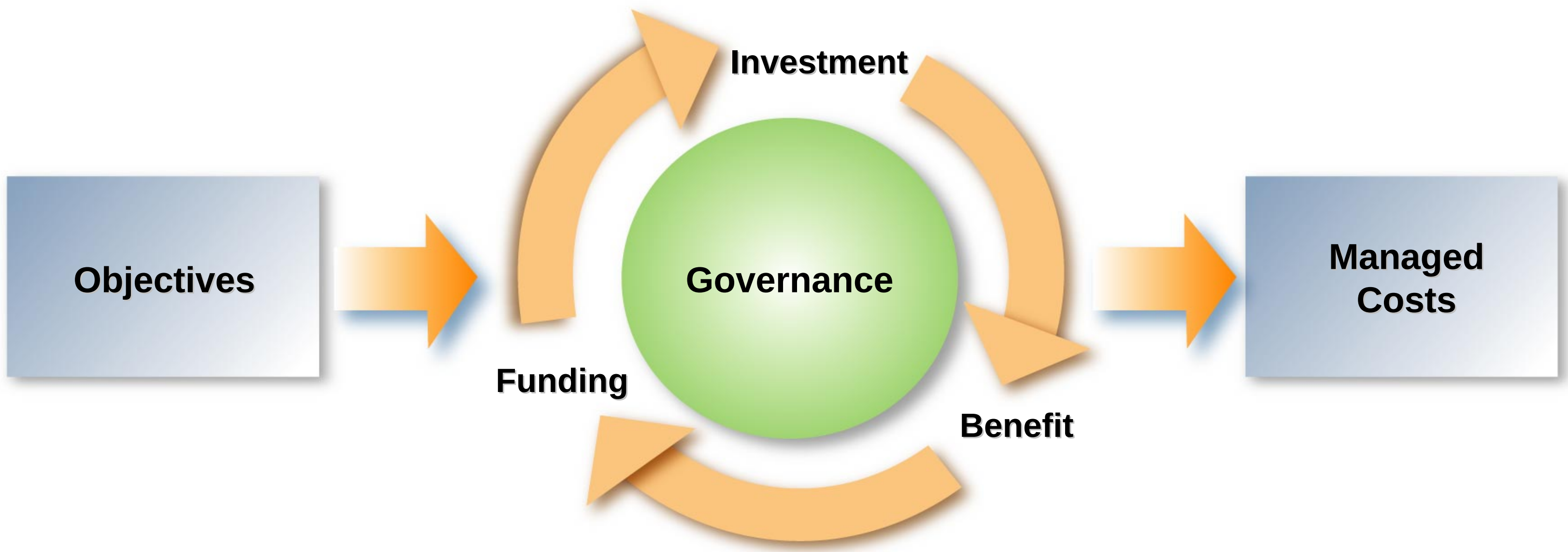
Introduction
Retirement Plan Financial Management Framework

Total Contributions = Benefits Paid - Investment Earnings



Actuarial methods primarily affect the timing of contributions

Introduction
Objectives for Actuarial Methods and Assumptions

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

Actuarial Methods
PERS and OPSRP

Actuarial Methods
Overview

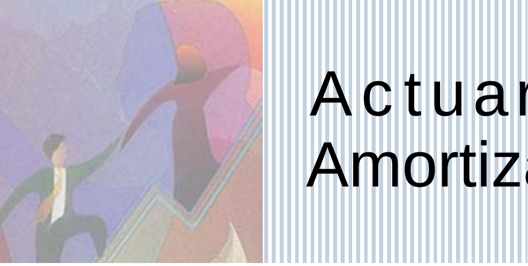
- Review of PERS methods
  - Significant method changes adopted with 12/31/2004 valuation
  - No changes recommended to the newly adopted methods
- Establish methods for first valuation of OPSRP
  - Recommend same basic methods as used for PERS valuation
  - Some minor differences

Actuarial Methods
Summary of Recommendations

	Current PERS	Recommended PERS	Recommended OPSRP
Actuarial Cost Method	Projected Unit Credit	Same as Current	Same as Current
Amortization Method	Level Percent of Combined Payroll	Same as Current	Same as Current
Amortization Period	▪ 12/31/2005 UAL – 22 years ▪ PUC Method change – 3-year rolling ▪ Future experience – Same as OPSRP	Same as Current	20 years (from first valuation used to set contribution rates in which experience is recognized)
Asset Valuation Method	Market Value	Same as Current	Same as Current
Excluded Reserves	Contingency, Capital Preservation, and Rate Guarantee	Same as Current	Contingency and Capital Preservation
Rate Collar	Greater of 20% of current rate or 3 percentage points. Rate collar doubles if funded percentage falls below 80% or increases above 120%	Same as Current	Same as Current

Actuarial Methods
Actuarial Cost Method

- After significant analysis, the Board recently adopted the Projected Unit Credit Method for PERS.
- For OPSRP—
  - There is no Money Match benefit that drove our recommendation for PERS
  - OPSRP is not a closed group, so the PUC normal cost is not expected to rise over time as a percentage of payroll
  - Both the Entry Age Normal and Projected Unit Credit cost methods would work well for OPSRP
  - We believe there is an advantage in communicating to stakeholders using the same cost method for both systems, so we recommend the Projected Unit Credit Method for OPSRP



Actuarial Methods
Amortization Method

- PERS amortizes the UAL as a level percentage of payroll in order to target future contribution rates as a level percentage of payroll. We recommend that both PERS and OPSRP continue this methodology.
- For PERS, we recommend no change to the amortization period.
  – A rolling 3-year period for the increase in UAL due to the adoption of the PUC cost method.
  – A closed 22-year period for the regular UAL
  – Future gains and losses will be amortized over a closed 20-year period beginning with the first odd-year valuation in which they are recognized.
- For OPSRP, we recommend using PERS' ultimate method
  – Gains and losses are amortized over a closed 20-year period beginning with the first odd-year valuation in which they are recognized

Actuarial Methods
Asset Valuation Method and Excluded Reserves

- After significant analysis, the Board recently adopted the market value of assets as the asset valuation method for PERS.
- We recommend this method be continued for PERS and OPSRP.
- In the 12/31/2004 PERS valuation, the following reserve accounts were excluded from valuation assets
  - Contingency Reserve
  - Capital Preservation Reserve
  - Rate Guarantee Reserve
- We recommend the same reserve accounts continue to be excluded from the valuation assets

Actuarial Methods
Rate Collar Method

- After significant analysis, the Board recently adopted a rate collar that restricts the change in an employer’s contribution rate to the greater of 20% of the current rate or 300 basis points.
- If the funded status is less than 80% or greater than 120%, the size of the rate collar is doubled.
- The rate collar is applied for each employer prior to any adjustments to the employer contribution rate for side accounts, transition liabilities, or pre-SLGRP pooled liabilities.
- We recommend that this method be applied to both PERS and OPSRP.

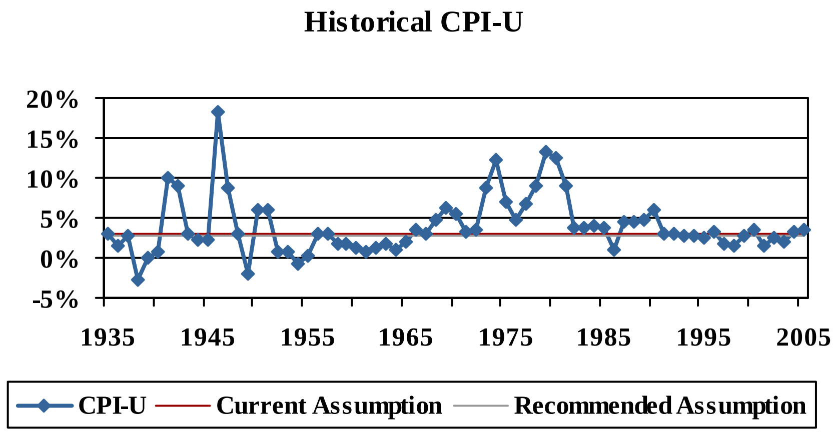
Economic Assumptions
PERS and OPSRP

Economic Assumptions
Summary of Recommendations

	Current Assumption	Recommended Assumption
Inflation	**3.00%**	**2.75%**
Real Wage Growth	1.00%	1.00%
Payroll Growth	**4.00%**	**3.75%**
Regular Investment Return	8.00%	8.00%
Variable Investment Return	8.50%	8.50%
Health Cost Trend Rate		
▪ **2007 Trend Rate**	**7.00%**	**9.00%**
▪ Ultimate Trend Rate	5.00%	5.00%
▪ **Year Reaching Ultimate Trend**	**2011**	**2013**

Economic Assumptions
Inflation

- The inflation assumption affects other assumptions, including payroll growth, investment return, and health care inflation
- Historical rates have varied significantly as shown in the chart on the top
- Market estimates of future inflation rates can be estimated from the difference in yield between nominal Treasury securities and Treasury inflation protection securities (TIPS)
- Market estimates of future average inflation rates as of December 31, 2005 are shown in the chart on the bottom.
- Expected inflation should be lower than breakeven inflation due to inflation risk premiums in nominal bonds



As of 12/31/2005	10-Year	30-Year
Treasury Yield	4.39%	4.54%
TIPS Yield	2.06%	1.90%
Breakeven Inflation	**2.33%**	**2.64%**

Economic Assumptions
Inflation

Inflation Assumption	
Current Assumption	3.00%
Mercer's Best-Estimate Range	1.75% -- 3.25%
Recommended Assumption	2.75%

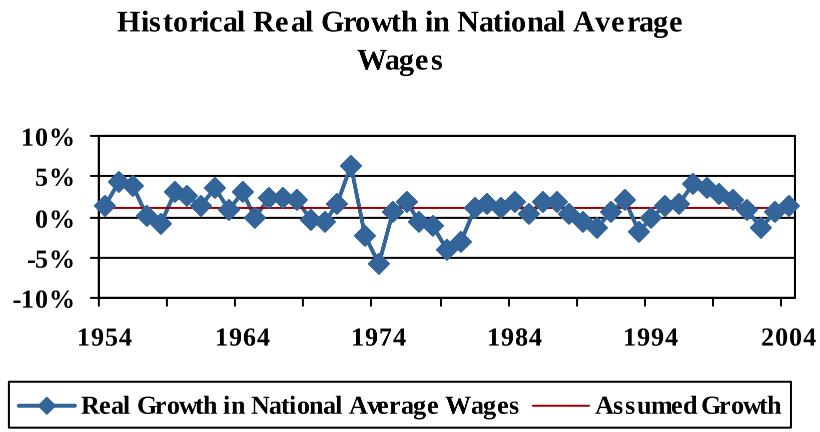
- Adjusting the breakeven inflation rate for a 30 to 50 basis point risk premium produces an expected long-term inflation rate well below 3.0%.
- Social Security's current intermediate inflation assumption is 2.8%.
- Congressional Budget Office projection of CPI is 2.8% for 2006 and 2.2% for 2007 -2016.
- Consequently, we recommend reducing the inflation assumption to 2.75%.

Economic Assumptions
Real Wage Growth

- An individual member’s expected salary increase is composed of three components:
  - Inflation
  - Real wage growth
  - Merit and longevity wage growth
- Real wage growth represents the increase in wages above inflation for the entire group due to improvements in productivity and competitive pressures
- Real wage growth combined with inflation represents the expected growth in total payroll for a stable population
  - Changes in payroll due to an increase or decline in the covered population are not captured by this assumption

Economic Assumptions
Real Wage Growth

- Social Security's intermediate assumption for real wage growth is 1.1%
- This rate plus inflation is used to amortize the UAL as a level percentage of expected payroll
- Our best-estimate range for this assumption is from 0.75% to 1.5%
- **We recommend maintaining this assumption at 1.0%**
- **Combined with our recommended inflation assumption, the payroll growth assumption would decrease from 4.0% to 3.75%.**



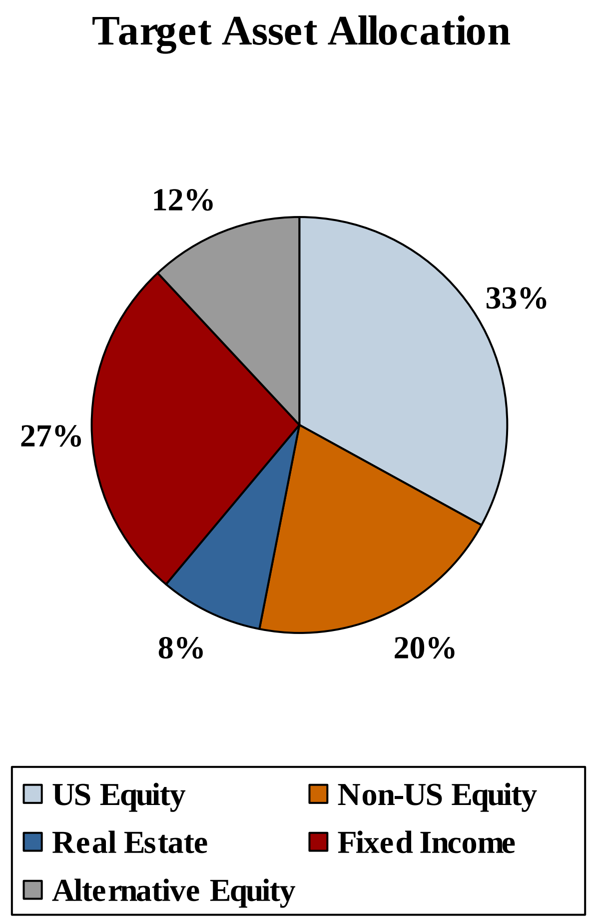
Period Ending December 31, 2004	Average Real Growth Rate National Average Wages
10 Years	1.67%
20 Years	1.01%
30 Years	0.64%
40 Years	0.61%
50 Years	0.93%

Economic Assumptions
Investment Return

- The investment return assumption is the most important assumption in the valuation. It is used to:
  - Discount expected future benefit payments to the valuation date
  - Project interest credits on member accounts to retirement
  - Convert member accounts to annuity benefits under the Money Match formula
- The assumption is based on the target asset allocation set by the Oregon Investment Council and capital market assumptions for each asset class.

Economic Assumptions
Investment Return

- The target asset allocation is established by the Oregon Investment Council (OIC).
- Based on capital market forecasts developed by OIC's investment consultant, Strategic Investment Solutions, Inc., and the OIC's expectation of annual active management returns, the OIC expects to earn a total expected annual policy return of 8.0% for the regular account and 8.7% for the variable account.
- These expectations assume 60 and 50 basis points in active management return net of fees for the regular and variable accounts respectively.



Economic Assumptions
Investment Return

Please note that the US equity allocation is overweighted by 40% to small cap stocks compared to the all cap index and 10% of the fixed income portfolio is non-US hedged government bonds.

Asset Class	Target Allocation	Compound Annual Return	Annual Arithmetic Return	Standard Deviation
US Equity – Large Cap	29%	8.05%	9.50%	18.0%
US Equity – Small Cap	4%	8.39%	10.90%	24.0%
Private Equity	12%	9.38%	14.00%	33.5%
Non-US Equity	20%	8.40%	10.10%	19.6%
US Fixed Income	24%	5.03%	5.20%	6.0%
Non-US Hedged Bonds	3%	4.63%	4.80%	6.0%
Real Estate	8%	7.27%	8.10%	13.5%
Portfolio -- Gross		8.16%	8.93%	13.0%
Portfolio – Net of Expenses		7.91%	8.68%	13.0%

Based on capital market expectations developed by Mercer Investment Consulting

Economic Assumptions
Investment Return

Percentile	Investment Return
35th	6.79%
40th	7.17%
45th	7.54%
50th	7.91%
55th	8.28%
60th	8.65%
65th	9.03%

- Using Mercer Investment Consulting assumptions the median expected return is 7.91% net of expenses.
- We assumed 5 basis points in administrative expenses and 20 basis points in passive investment expenses.
- We assume that expenses incurred for active management are offset by additional returns gained from active management.
- The OIC expected annual policy return is 8.0%
- We recommend no change to the 8.0% investment return assumption.

Economic Assumptions
Variable Account Investment Return

Asset Class	Target Allocation	Compound Annual Return	Annual Arithmetic Return	Standard Deviation
US Equity – Large Cap	89%	8.05%	9.50%	18.0%
US Equity – Small Cap	11%	8.39%	10.90%	24.0%
Portfolio -- Gross		8.16%	9.65%	18.3%
Portfolio – Net of Expenses		7.90%	9.40%	18.3%

- The variable account is invested entirely in US Equities.
- The annual arithmetic return is significantly higher than for the regular account, but so is the standard deviation.
- The result is a long-term compounded annual return very similar to the regular account.

Economic Assumptions
Variable Account Investment Return

Percentile	Investment Return
35th	6.32%
40th	6.86%
45th	7.39%
50th	7.90%
55th	8.42%
60th	8.94%
65th	9.48%

- Using Mercer Investment Consulting assumptions the median expected return is 7.90% net of expenses.
- The OIC expected annual policy return is 8.7%
- The OIC expected return is between the 55th and 60th percentiles of expected returns using Mercer Investment Consulting assumptions.
- A higher return assumption for the variable account is more conservative than a lower assumption.
- We recommend no change to the 8.5% variable account investment return assumption.

Economic Assumptions
Health Cost Trend Rate for RHIPA Subsidy

- The Maximum Subsidy increased an average of 9.6% over the last 4 years
- The Maximum Subsidy increased 17.3% and 7.5% in 2005 and 2006 respectively
- Mercer's healthcare actuaries expect medical costs to increase 7-13% in 2007
- We recommend revising the trend assumption to reflect recent increases and a longer timeframe before reaching the ultimate rate

Health Cost Inflation		
	Prior Assumption	**Recommended Assumption**
2005	8.0%	
2006	7.5%	
2007	7.0%	9.0%
2008	6.5%	8.0%
2009	6.0%	7.0%
2010	5.5%	6.5%
2011	5.0%	6.0%
2012	5.0%	5.5%
2013 and later	5.0%	5.0%

Next Steps

- June Board Meeting – Experience Study Part 1
  – Actuarial Methods
  – Economic Assumptions
  – No Decisions Required
- July Board Meeting – Experience Study Part 2
  – Demographic Assumptions
  – Allocation Procedures
  – Board Adoption of Methods and Assumptions for 12/31/2005 Actuarial Valuation
- September Board Meeting – 12/31/2005 system-wide valuation results
  – OPSRP
  – PERS T1/T2