THE PERAC

ACTUARIAL UPDATE

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We are pleased to publish this *Actuarial Update,* which we hope will provide you with insight regarding PERAC's activities in the area of actuarial analysis, as well as inform you about topics related to actuarial valuations and pension financing.

PUBLIC EMPLOYEE RETIREMENT ADMINISTRATION COMMISSION
COMMONWEALTH OF MASSACHUSETTS

The Salary Increase Assumption: Is It Overstated?

In conducting an actuarial valuation, the actuary makes a number of assumptions related to future plan experience. These include investment return, rates of retirement, disability, turnover, mortality and salary increases. The salary increase assumption is often misunderstood, which can lead to the assertion by policy makers and members that the assumed increases are too high. In this update, we will explore an example and clarify this issue.

A widespread belief exists that the assumption measures the increase in *average pay for all employees*. Thus, if the average pay for all employees increases at a rate lower than the salary assumption it is thought that the system has achieved a gain or that the assumption should be reduced.

However, the salary increase assumption really estimates pay increases for individual employees who continue in service from one valuation to the next, excluding employees hired during that period. The increases for these employees (which include the many components of payroll administration such as cost-of-living, promotion, step raises, etc.) are what should be compared to the actuarial assumption.

The following example illustrates this point:

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	All Active Members		Continuing Active Members	
Valuation Date	January, 2000	January, 2001	January, 2000	January, 2001
Active Members	200	240	200	200
Total Pay	$6,000,000	$7,320,000	$6,000,000	$6,520,000
% Increase		22%		8.7%
Average Pay	$30,000	$30,500	$30,000	$32,600
% Increase		1.7%		8.7%

The 1.7% increase in average pay for the total group (including 40 new entrants) might give the impression that there was an actuarial gain, since this rate was less than the assumed 5.5%. However, in fact, there was an actuarial loss, since the increase for continuing active members was 8.7%, which exceeded the assumed rate.

Try PERAC's On-Line Buy-Back Calculator

PERAC has posted a buy-back calculator on its Web site (www.state.ma.us/perac) that computes the dollar amount a member must pay to buy back creditable service associated with Annuity Savings Fund refunds. Buy-backs include the amount withdrawn plus interest to the date of payment. The calculator will be updated annually to reflect interest rate changes.

To access the on-line buy-back calculator, click on "Actuarial" in the left hand menu column of PERAC's home page (www.state.ma.us/perac). Once there, click on "Buy-Back Worksheet". Then click on the "Instructions", and review them. Return to the "Buy-Back Worksheet" introduction page, and click on "Worksheet". You may enter the necessary information and calculate the amount owed. The completed form may be printed or saved to your computer. PERAC keeps no record of the transaction other than recording a "hit" on its various pages.

PERAC Issues State & Teachers' Experience Studies

In the fall of 2000, PERAC issued experience studies of the State Employees' Retirement System and the State Teachers' Retirement System. These studies reviewed five years of actual experience relating to retirement, disability, withdrawal, mortality and salary increases.

Analysis

Results from the studies were compared to results expected, using actuarial assumptions. In the event that actual experience deviated from estimated or assumed experience, the assumptions were changed to reflect actual experience. These studies also included analysis of the assumptions and actual experience for each Group.

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An Overview of the State Experience Study

We hope the following provides a general overview of what is a very complex subject. Overall, the revised assumptions in the *State Experience Study* decrease the total retirement plan cost for the state. The new retirement rate assumption had little impact on cost, while changes in disability rates, withdrawal rates and salary increases decreased plan cost. Changes in retired and disabled member mortality rates increased cost.

These changes and results are specific to the state system and do not necessarily reflect the experience of other systems.

Retirement Rates

As a result of the State study, retirement rates for Group 1 were decreased at ages 55 and 65, and increased slightly between age 56 and 64. Gender distinct rates were added between ages 50 and 59. For Group 2, retirement rates were added at ages 50 to 54, the rate at 65 was decreased, and the rates increased at ages 56 to 61. Retirement rates were reduced significantly for Group 3 at age 50 and above.

For Group 4, retirement rates were decreased significantly at age 50, increased significantly at 55 and moderately increased at other ages less than 65. *(Cont. on next page.)*

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Disability

Disability assumptions were changed by reducing rates significantly for Groups 1 and 2 at all ages, and increasing rates for Group 3. For Group 4, rates were increased from ages 20 to 37 and decreased at later ages.

Withdrawal

For Groups 1 and 2, the new rate tables are based upon the member's age and years of service for their first 10 years of service. After 10 years of service, the rate tables become strictly age based. For Groups 3 and 4, rates are based on service, rather than age. As a result, the new withdrawal rates are higher for Groups 1, 2, and 4 with a negligible adjustment for Group 3.

Mortality

PERAC adopted the Society of Actuaries' RP-2000 table, which contains projections for 10 years of improved mortality, with separate tables for gender and for disability retirees. The RP-2000 table is based on the retirement experience for a large number of pension plans in the United States. Published in 2000 by the Society of Actuaries, it reflects longer life expectancies than the prior table.

Salary

Finally, changes were made in the salary increase assumption. All Groups had previously been valued using a 6% assumption. We adopted service-based tables for each Group, with an ultimate assumption of 4.75% for Groups 1 and 2, and 5.5% for Groups 3 and 4.

A Local System Experience Study

PERAC has commenced a *Local System Experience Study* that includes analysis for systems other than the State and Teachers' Systems. We are conducting this analysis by focusing on a sample of systems and drawing general conclusions from that data. We will update you on the progress of that project.

Staff Profile: Jim Lamenzo

PERAC's Actuarial Unit presently consists of three individuals: Jim Lamenzo, John Boorack and Scott Henderson. Stella Ren, with whom many retirement boards have dealt in the past, recently left PERAC to relocate to New York.

Jim Lamenzo is a graduate of Trinity College, Hartford, Connecticut, with a degree in Mathematics. Prior to joining PERAC, Jim worked for the Hartford Insurance Group and KPMG Peat Marwick. While at KPMG, Jim served as actuarial consultant for a number of local retirement boards. He is an Associate of the Society of Actuaries, a member of the American Academy of Actuaries and an Enrolled Actuary.