ORANGE COUNTY EMPLOYEES RETIREMENT SYSTEM

Review of Economic Actuarial Assumptions for the December 31, 2012 Actuarial Valuation

100 Montgomery Street, Suite 500
San Francisco, CA 94104

COPYRIGHT © 2012
ALL RIGHTS RESERVED
OCTOBER 2012

SEGAL

THE SEGAL COMPANY
100 Montgomery Street, Suite 500 San Francisco, CA 94104-4308
T 415.263.8200 F 415.263.8290 www.segalco.com

October 5, 2012

Board of Retirement
Orange County Employees Retirement System
2223 Wellington Avenue
Santa Ana, CA 92701

Re: Review of Economic Actuarial Assumptions for the December 31, 2012 Actuarial Valuation

Dear Members of the Board:

We are pleased to submit this report of our review of the December 31, 2012 economic actuarial assumptions for the Orange County Employees Retirement System. This report includes our recommendations and the analysis supporting their development.

Please note that the non-economic assumptions were last reviewed as part of the triennial experience study report as of December 31, 2010 and those assumptions were first applied in the December 31, 2011 valuation. We will continue to use those assumptions until they are reviewed again as of December 31, 2013.

We are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein.

We look forward to reviewing this report with you and answering any questions you may have.

Sincerely,

Paul Angelo, FSA, MAAA, FCA, EA
Senior Vice President and Actuary

Andy Yeung, ASA, MAAA, FCA, EA
Vice President and Associate Actuary

MYM/bqb

5210489v1/05794.001

TABLE OF CONTENTS

Page

I. INTRODUCTION, SUMMARY, AND RECOMMENDATIONS

To project the cost and liabilities of the pension fund, assumptions are made about all future events that could affect the amount and timing of the benefits to be paid and the assets to be accumulated. Each year actual experience is compared against the projected experience, and to the extent there are differences, the future contribution requirement is adjusted.

If assumptions are modified, contribution requirements are adjusted to take into account a change in the projected experience in all future years. There is a great difference in both philosophy and cost impact between recognizing the actuarial deviations as they occur annually and changing the actuarial assumptions. Taking into account one year's gains or losses without making a change in the assumptions in effect assumes that experience was temporary and that, over the long run, experience will return to what was originally assumed. Changing assumptions reflects a basic change in thinking about the future, and it has a much greater effect on the current contribution requirements than recognizing gains or losses as they occur.

The use of realistic actuarial assumptions is important to maintain adequate funding, while paying promised benefit amounts to participants already retired and to those near retirement. The actuarial assumptions used do not determine the "actual cost" of the plan. The actual cost is determined solely by the benefits and administrative expenses paid out, offset by investment income received. However, it is desirable to estimate as closely as possible what the actual cost will be so as to permit an orderly method for setting aside contributions today to provide benefits in the future, and to maintain equity among generations of participants and taxpayers.

This study was undertaken in order to review the economic actuarial assumptions. The study was performed in accordance with Actuarial Standard of Practice (ASOP) No. 27, "Selection of Economic Assumptions for Measuring Pension Obligations." This Standard of Practice puts forth guidelines for the selection of the economic actuarial assumptions utilized in a pension plan actuarial valuation.

We are recommending changes in the assumptions for investment return, inflation and the "across the board" salary increase assumption. Our recommendations for the economic actuarial assumptions for the December 31, 2012 Actuarial Valuation are as follows:

Investment Return - The estimated average future net rate of return on current and future assets of the System as of the valuation date. This rate is used to discount liabilities.

Recommendation: Reduce the current investment return assumption from 7.75% per annum to 7.50% per annum. As the 7.50% recommendation would only provide little margin under the risk-adjusted model used by Segal to evaluate this assumption, we are also making an alternative recommendation for a 7.25% assumption that is more consistent with the practice followed in the review of this assumption in the December 31, 2007 valuation prior to the last review for the December 31, 2011 valuation.

Inflation – Future increases in the Consumer Price Index (CPI) which drive investment returns and active member salary increases, as well as cost-of-living adjustments (COLAs) for retired employees.

Recommendation: Reduce the current inflation assumption from 3.50% per annum to 3.25% per annum.

Individual Salary Increases – Increases in the salary of a member between the date of the valuation and the date of separation from active service. This assumption has three components:

- Inflationary salary increases,
- Real "across the board" salary increases, and
- Promotional and merit increases.

Recommendation: Reduce the current inflationary salary increase assumption from 3.50% per annum to 3.25% per annum consistent with our recommended general inflation assumption and increase the current real "across the board" salary increase

assumption from 0.25% to 0.50%. This means that the combined inflationary and real "across the board" salary increases will remain unchanged at 3.75% per annum. Please note that the promotional and merit increase assumptions were last reviewed by the Board in the December 31, 2010 triennial experience study. We would continue to use those assumptions in the valuations until they are reviewed again in the December 31, 2013 triennial experience study.

Section II provides some background on basic principles and the methodology used for the review of the economic actuarial assumptions. A detailed discussion of each of the economic assumptions and reasons behind the recommendations is found in Section III.

II. BACKGROUND AND METHODOLOGY

For this study, we analyzed the "economic" assumptions only. The "non-economic" assumptions were last reviewed as part of the December 31, 2010 triennial experience study report. The primary economic assumptions reviewed are inflation, investment return and salary increases.

Economic Assumptions

Economic assumptions consist of:

Inflation - Increases in the price of goods and services. The inflation assumption reflects the basic return that investors expect from securities markets. It also reflects the expected basic salary increase for active employees and drives increases in the allowances of retired members.

Investment Return – Expected long-term rate of return on the System's investments after expenses. This assumption has a significant impact on contribution rates.

Salary Increases – In addition to inflationary increases, it is assumed that salaries will also grow by real "across the board" pay increases in excess of price inflation. It is also assumed that employees will receive raises above these average increases as they advance in their careers. These are commonly referred to as promotional and merit increases. Payments to amortize any Unfunded Actuarial Accrued Liability (UAAL) are assumed to increase each year by the price inflation rate plus any "across the board" pay increases that are assumed.

The setting of these assumptions is described in Section III.

III. ECONOMIC ASSUMPTIONS

A. INFLATION

Unless an investment grows at least as fast as prices increase, investors will experience a reduction in the inflation-adjusted value of their investment. There may be times when "riskless" investments return more or less than inflation, but over the long term, investment market forces will generally require an issuer of fixed income securities to maintain a minimum return which protects investors from inflation.

The inflation assumption is long term in nature, so it is set using primarily historical information. Following is an analysis of 15-year and 30-year moving averages of historical inflation rates:

Historical Consumer Price Index – 1930 to 2011

(U.S. City Average - All Urban Consumers)

	25th Percentile	Median	75th Percentile
15-year moving averages	2.7%	3.5%	4.8%
30-year moving averages	3.3%	4.2%	5.0%

The average inflation rates have continued to decline gradually over the last several years due to the relatively low inflationary period over the past two decades. Also, the later of the 15-year averages during the period are lower as they do not include the high inflation years of the mid-1970s and early 1980s.

In the 2011 public fund survey published by the National Association of State Retirement Administrators, the median inflation assumption used by 126 large public retirement funds in their 2010 valuations has decreased to 3.25% from the 3.50% used in the 2009 valuations. In California, CalPERS and LACERA have recently reduced their inflation assumptions to 2.75% and 3.00%, respectively.

OCERS' investment consultant, NEPC, anticipates an annual inflation rate of 3.00%, while the average inflation assumption provided by NEPC and by eight other investment advisory firms retained by Segal's California public sector retirement system clients was 2.61%. Note that, in general, investment consultants use a time horizon for this assumption that is shorter than the time horizon we use for the actuarial valuation.

To find a forecast of inflation based on a longer time horizon, we referred to the 2012 report on the financial status of the Social Security program. The projected average increase in the Consumer Price Index (CPI) over the next 75 years under the intermediate cost assumptions used in that report was 2.80%. We also compared the yields on the thirty-year inflation indexed U. S. Treasury bonds to comparable traditional U. S. Treasury bonds. As of July 2012, the difference in yields is about 2.20%, which provides a measure of market expectations of inflation.

Based on all of the above information, we recommend that the current 3.50% annual inflation assumption be reduced to 3.25% for the December 31, 2012 actuarial valuation.

B. INVESTMENT RETURN

The investment return assumption is comprised of two primary components, inflation and real rate of investment return, with adjustments for expenses and risk.

Real Rate of Investment Return

This component represents the portfolio's incremental investment market returns over inflation. Theory has it that as an investor takes a greater investment risk, the return on the investment is expected to also be greater, at least in the long run. This additional return is expected to vary by asset class and empirical data supports that expectation. For that reason, the real rate of return assumptions are developed by asset class. Therefore, the real rate of return assumption for a retirement system's portfolio will vary with the Board's asset allocation among asset classes.

The following is the System's current target asset allocation and the assumed real rate of return assumptions by asset class. The first column of real rate of return assumptions are determined by netting NEPC's total return assumptions by their assumed 3.00% for inflation. The second column of returns (except for Diversified Credit, Absolute Reurn, Real Return and Private Equity) represents the average of a sample of real rate of return expectations. The sample includes the expected annual real rates of return provided to us by NEPC and by eight other investment advisory firms retained by Segal's California public sector retirement system clients. We believe these averages reflect a reasonable consensus forecast of long-term future market returns.

OCERS' Target Asset Allocation as of May 2012 and Assumed Arithmetic Real Rate of Return Assumptions by Asset Class and for the Portfolio

Asset Class	Percentage of Portfolio	NEPC's Assumed Real Rate of Return[1]	Average Real Rate of Return from a Sample of Consultants to Segal's California Public Sector Clients[2]
Large Cap Equity	14.50%	6.46%	6.13%
Small/Mid Cap Equity	3.00	7.64	6.86
Developed International Equity	12.50	7.21	6.68
Emerging International Equity	6.00	9.65	8.76
Core Bonds	13.00	1.73	1.15
Global Bonds	3.00	0.73	1.14
Emerging Market Debt	3.00	5.03	4.41
Real Estate	10.00	4.04	4.93
Diversified Credit	7.00	3.23	3.23[3]
Absolute Return (Hedge Funds/GTAA)	13.00	3.48	3.48[3]
Real Return	10.00	4.74	4.74[3]
Private Equity	5.00	10.36	10.36[3]
Total Portfolio	100.00%	5.12%	4.94%

(1) *Derived by netting NEPC's rate of return assumptions by their assumed 3.00% inflation rate.*

(2) *These are based on the projected arithmetic returns provided by the investment advisory firms serving the county retirement systems of Orange, Ventura, Mendocino, Alameda, Contra Costa, Fresno, the LA City Employees' Retirement System, LA Department of Water and Power and the LA Fire & Police Pensions. These return assumptions are gross of any applicable investment expenses.*

(3) *For these asset classes, the NEPC assumption is applied in lieu of the average because there is a larger disparity in returns for these asset classes among the firms surveyed and using NEPC assumption should more closely reflect the underlying investments made specifically for OCERS.*

Please note that the above are representative of "indexed" returns and do not include any additional returns ("alpha") from active management. This is consistent with the Actuarial Standard of Practice No. 27, Section 3.6.3.e, which states:

"Investment Manager Performance - Anticipating superior (or inferior) investment manager performance may be unduly optimistic (or pessimistic). Few investment managers consistently achieve significant above-market returns net of expenses over long periods."

The following are some observations about the returns provided above:

1. The investment consultants to our California public sector retirement system clients have each provided us with their expected real rates of return for each asset class, over various future periods of time. However, in general, the returns available from investment consultants are projected over time periods shorter than the duration of a retirement plan's liabilities.

2. Using an average of expected real rates of return allows the System's investment return assumption to reflect a broader range of capital market information and should help reduce year to year volatility in the System's investment return assumption.

3. Therefore, we recommend that the 4.94% portfolio real rate of return be used in the development of the System's investment return assumption. For comparison purposes, the expected portfolio real rate of return from the last review of the economic assumptions for the December 31, 2011 valuation using the prior asset allocation was 4.62%.

System Expenses

The real rate of return assumption for the portfolio needs to be adjusted for administrative and investment expenses expected to be paid from investment income.

The following table provides these expenses in relation to the actuarial value of assets for the five years ending December 31, 2011.

Administrative and Investment Expenses as a Percentage of Actuarial Value of Assets
(All dollars in 000's)

FYE	Actuarial Value of Assets[(1)]	Administrative Expenses	Investment Expenses[(2)]	Administrative %	Investment %	Total %
2007	$6,466,085	$10,459	$30,032	0.16%	0.46%	0.62%
2008	7,288,900	10,928	30,435	0.15	0.42	0.57
2009	7,748,380	10,893	34,819	0.14	0.45	0.59
2010	8,154,687	12,448	68,027[(3)]	0.15	0.83	0.98
2011	8,672,592	15,479	39,023	0.18	0.46	0.64
			Average	0.16%	0.52%	0.68%

(1) *As of beginning of plan year.*
(2) *Net of securities lending expenses because we do not assume any additional net return for this program, we effectively assume that any expense will be offset by related income.*
(3) *We understand that the 2010 investment expenses included some one-time expenses such as foreign tax expense that is expected to be offset by a future tax reclaim.*

While the average administrative and investment expense percentage over this five year period is 0.68%, this is heavily influenced by the expenses in 2010.The average excluding 2010 is 0.61%. Based on our understanding that some of those expenses for 2010 are one-time only, we believe a future expense assumption of 0.60% is reasonable.

Adjustment to Exclude Administrative Expenses in Developing Investment Return Assumption for use in GASB Financial Reporting

GASB has recently adopted Statements 67 and 68 that replace Statements 25 and 27 for financial reporting purposes. GASB Statements 67 and 68 are effective for plan year 2014 for the Retirement System and fiscal year 2014/2015 for the employer[1].

According to GASB, the investment return assumption for use in the financial reporting purposes should be based on the long-term expected rate of return on a retirement system's investments and should be net of investment expenses but not of administrative expenses

[1] The new Statements (67 and 68) will require more rapid recognition for investment gains or losses and much shorter amortization for actuarial gains or losses. Because of the more rapid recognition of those changes, retirement systems that have generally utilized the previous Statements (25 and 27) as a guideline to establish the employer's contribution amounts for both funding and financial reporting purposes would now have to prepare two sets of cost results, one for contributions and one for financial reporting under the new Statements.

(i.e., without reduction for administrative expenses). As can be observed from the above development of the expense assumption, if the Board would wish to develop a single investment return assumption for both funding and financial reporting purposes, then it would be necessary to exclude the roughly 0.16% administrative expense from the above development and to develop a separate treatment of administrative expenses.

However, there are some complications associated with eliminating the administrative expense in developing the investment return assumption used for funding:

1. Even though GASB requires the exclusion of the administrative expense from the investment return assumption, such expense would continue to accrue for a retirement system. For private sector retirement plans, where the investment return is developed using an approach similar to that required by GASB (i.e., without deducting administrative expenses), contribution requirements are increased explicitly by the anticipated annual administrative expense.

2. Under the current approach of subtracting the administrative expense in the development of the investment return assumption, such annual administrative expense is accounted for implicitly by many public sector retirement systems by effectively deducting it from future expected investment returns.

   Since an investment return assumption net of investment and administrative expenses has been used historically to establish both the employer's and the employee's contribution requirements, such expense has been paid for implicitly by both the employer and the employees.

3. A switch from the method described in (2) to the method described in (1) may require discussion on how to allocate administrative expenses between employers and employees, including possibly establishing a new method to allocate the anticipated annual administrative expense between them.

4. As the Board may be aware, legislative changes under AB 340 would impose major modifications to both the level of benefits and the funding of those benefits for county employees' retirement systems. It is our understanding that included in such modifications is the requirement to fund the Normal Cost on a 50:50 basis between the employer and the employee.

Based on all these considerations, including uncertainty as to how AB 340 will be implemented, it is our recommendation that a decision to adopt a single investment return assumption for both funding and financial reporting purposes be deferred until more analysis can be performed on the allocation of administrative expense. For that reason, this report continues to treat administrative expenses as an offset to future expected investment returns.

Risk Adjustment

The real rate of return assumption for the portfolio is adjusted to reflect the potential risk of shortfalls in the return assumptions. The System's asset allocation also determines this portfolio risk, since risk levels are driven by the variability of returns for the various asset classes and the correlation of returns among those asset classes. This portfolio risk is incorporated into the real rate of return assumption through a risk adjustment.

The purpose of the risk adjustment (as measured by the corresponding confidence level) is to increase the likelihood of achieving the actuarial investment return assumption in the long term. The 4.94% expected real rate of return developed earlier in this report was based on expected mean or average arithmetic returns. This means there is a 50% chance of the actual return in each year being at least as great as the expected return (assuming a symmetrical distribution of future returns). The risk adjustment is intended to increase that probability. This is consistent with our experience that retirement plan fiduciaries would generally prefer that returns exceed the assumed rate more often than not.

In our model, the confidence level associated with a particular risk adjustment represents the likelihood that the actual average return would equal or exceed the assumed value over

a 15-year period. For example, if we set our real rate of return assumption using a risk adjustment that produces a confidence level of 60%, then there would be a 60% chance (6 out of 10) that the average return over 15 years will be equal to or greater than the assumed value. The 15-year time horizon represents an approximation of the "duration" of the fund's liabilities, where the duration of a liability represents the sensitivity of that liability to interest rate variations.

Last year, Segal recommended an investment return assumption of either 7.50% or 7.25%; however, the Board adopted an investment return assumption of 7.75%. The 7.75% assumption prescribed by the Board and used in the December 31, 2011 valuation did not provide for any confidence level above 50% under the risk-adjusted model used by Segal. Prior to the assumption review performed for the December 31, 2011 valuation, the most recent review of the economic assumptions was performed for the December 31, 2007 valuation. In that review, the Board adopted an investment return assumption of 7.75%. In combination with the inflation, real return and expense components from that study, the return assumption adopted implied a risk adjustment of 0.80%, reflecting a confidence level of 61% that the actual average return over 15 years would not fall below the assumed return, assuming that the distribution of returns over that period follows the normal statistical distribution[2].

If we were to use the same 61% confidence level from the return assumption adopted for the December 31, 2007 valuation to set this year's risk adjustment, based on the current long-term portfolio standard deviation of 10.30% provided by NEPC (which is reduced from the 11.74% provided by CAI for the December 31, 2011 assumptions study), the corresponding risk adjustment would be 0.75%. Together with the other investment return components, this would result in a preliminary investment return assumption of 6.84%, which is substantially lower than the current assumption of 7.75%.

[2] Based on an annual portfolio return standard deviation of 10.95% provided by CAI for the December 31, 2007 assumptions study. Strictly speaking, future compounded long-term investment returns will tend to follow a log-normal distribution. However, we believe the Normal distribution assumption is reasonable for purposes of setting this type of risk adjustment.

Because this would be such a substantial change in this long-term assumption, we evaluated the effect on the confidence level of alternative investment return assumptions. In particular, a net investment return assumption of 7.50%, together with the other investment return components, would produce a risk adjustment of 0.09%, which corresponds to a confidence level of 51%. As this 7.50% assumption would only provide a confidence level only slightly above 50%, we are also making an alternative recommendation for a 7.25% assumption. A net investment return assumption of 7.25%, together with the other investment return components, would produce a risk adjustment of 0.34% which corresponds to a confidence level of 55%.

As we have discussed in prior years, the risk adjustment model and associated confidence level is most useful as a means for comparing how the System has positioned itself over periods of time[3]. The use of either a 51% or a 55% confidence level should be considered in context with other factors, including:

1. As noted above, the confidence level is more of a relative measure than an absolute measure, and so can be reevaluated and reset for future comparisons.

2. The confidence level is based on the standard deviation of the portfolio that is determined and provided to us by NEPC. The standard deviation is a statistical measure of the future volatility of the portfolio and so is itself based on assumptions about future portfolio volatility and can be considered somewhat of a "soft" number.

3. A lower level of inflation should reduce the overall risk of failing to meet the investment return assumption.

[3] In particular, it would not be appropriate to use this type of risk adjustment as a measure of determining an investment return rate that is "risk-free."

4. A confidence level of 51% (which is associated with a 7.50% investment return assumption) is below the range of 55% to 65% that corresponds to the risk adjustments used by most of Segal's other California public retirement system clients. Most public retirement systems that have recently reviewed their investment return assumptions have considered adopting more conservative investment return assumptions for their valuations, mainly to maintain the likelihood that future actual market return will meet or exceed the investment return assumption. While this may provide argument for a confident level of 55% (which is associated with a 7.25% investment return assumption), we would also note that a 0.50% reduction in the investment return assumption is a very significant reduction in a long-term assumption.

5. As with any model, the results of the risk adjustment model should be evaluated for reasonableness and consistency. This is discussed in the following "Test of Risk Adjustment" section, including (1) a discussion of the relationship between the inflation assumption and the risk adjustment and (2) a comparison with assumptions adopted by similarly situated public sector retirement systems.

Taking into account the factors above, our recommendation is to reduce the net investment return assumption from 7.75% to 7.50%. As noted above, this return implies a risk adjustment of 0.09%, reflecting a confidence level of 51% that the actual average return over 15 years would not fall below the assumed return. For that reason, the Board should also consider our alternative recommendation of 7.25% with its associated confidence level of 55%.

Recommended Investment Return Assumption

The following table summarizes the components of the investment return assumption developed in the previous discussion. For comparison purposes, we have also included similar values from the last study and the study as of December 31, 2007.

Calculation of Net Investment Return Assumption

Assumption Component	December 31, 2012 Recommended Value	December 31, 2012 Alternative Recommendation	December 31, 2011 Adopted Value	December 31, 2007 Recommended Value
Inflation	3.25%	3.25%	3.50%	3.50%
Plus Portfolio Real Rate of Return	4.94%	4.94%	4.62%	5.65%
Minus Expense Adjustment	(0.60%)	(0.60%)	(0.60%)	(0.60%)
Minus Risk Adjustment	(0.09%)	(0.34%)	0.23%	(0.80%)
Total	7.50%	7.25%	7.75%	7.75%
Confidence Level	51%	55%	<50%	61%

Based on this analysis, we recommend that the investment return assumption be reduced from 7.75% per annum to 7.50% per annum with an alternative recommendation for a 7.25% assumption should the Board decide to increase the confidence level associated with this assumption to a level more consistent with the practice followed in the review of this assumption in the December 31, 2007 valuation prior to the last review for the December 31, 2011 valuation.

Test of Risk Adjustment

The original development of the risk adjustment component of our investment earnings assumption model arose from our experience with many retirement boards over many years. Quite simply, combining the boards' inflation assumption with the real return and expense components produced – and produces – a substantially higher assumed return than what the boards actually adopt, regardless of the consulting actuary or the methods involved in the process. This led to the development of a risk adjustment component for our model.

There is a range of risk adjustment methodologies that may be incorporated in the development of an earnings assumption. Ideally, the particular risk adjustment selected should reflect the "downside" risk tolerance of the boards making the decision. This is similar to the volatility risk that boards consider when selecting an appropriate asset allocation.

In addition to the generally risk adverse attitude of retirement boards noted above, we believe another reason for this involves the inflation assumption. As noted earlier, the inflation assumption for actuarial valuations is generally longer term than that used by investment consultants. For many years, that has led to higher actuarial valuation inflation assumptions. A higher inflation assumption has a conservative effect - higher current cost - on the wage increase and COLA assumption, but is less conservative as part of the investment earnings assumption. In effect, the risk adjustment compensates for this by offsetting the effect of the higher inflation assumption on assumed investment earnings.

One way to test the reasonableness of the risk adjustment incorporated in our recommendation is to compare our risk-adjusted investment return (i.e., 7.50%) against the expected net investment return that would result from using the average of all the capital market assumptions -- including the lower inflation assumption -- of the investment consultants in our sample.

The following table shows that comparison. This table shows how the difference between our recommended return and that derived using the average of all the capital market assumptions of the investment consultants in our sample can be attributed to the relationship between the two different inflation assumptions and the risk adjustment.

Assumption Element:	Risk-Adjusted Method	Average of Investment Consultant Sample	Difference
Inflation	3.25%	2.61%	0.64%
Risk Adjustment	(0.09%)	0.00%	(0.09%)
Real Rate of Return	4.94%	4.94%	0.00%
Expenses	(0.60%)	(0.60%)	0.00%
Total	7.50%	6.95%	0.55%

The 0.55% (55 basis points) difference between the two calculations represents about an 8% lower confidence level under the higher inflation, risk-adjusted method, as compared to the lower inflation result without the risk adjustment. This indicates that the risk adjustment is not providing a significant offset to the effect of the higher inflation assumption on assumed investment earnings.

Comparing with Other Public Retirement Systems

One final test of the recommended investment return assumption is to compare it against those used by other public retirement systems, both in California and nationwide.

We note that this 7.50% investment return assumption is emerging as a common assumption among those California public sector retirement systems that have studied this assumption recently. In particular two of the largest California systems, CalPERS and LACERA, recently adopted a 7.50% earnings assumption[4]. Note that CalPERS uses a lower inflation assumption of 2.75% while LACERA uses an inflation assumption of 3.00%.

The following table compares the OCERS recommended net investment return assumption against those of the nationwide public retirement systems that participated in the National Association of State Retirement Administrators (NASRA) 2011 Public Fund Survey:

Assumption	**OCERS**	**NASRA 2011 Public Fund Survey**		
		Low	Median	High
Net Investment Return	7.50%	7.00%	8.00%	8.50%

The detailed survey results show that of the systems that have an investment return assumption in the range of 7.50% to 7.90%, over a third of those systems have used an assumption of 7.50%. The survey also notes that several plans have reduced their investment return assumption during the last year, and others are considering doing so. State systems outside of California tend to change their economic assumptions less frequently and so may lag behind emerging practices in this area.

While the recommended assumption of 7.50% provides only a slight risk margin within the risk adjustment model, it is consistent with the System's current practice relative to other public systems.

[4] The approach adopted by LACERA was to phase in the reduction from their then current 7.75% assumption to their 7.50% assumption over a three-year period.

C. SALARY INCREASE

Salary increases impact plan costs in two ways: (i) by increasing members' benefits (since benefits are a function of the members' highest average pay) and future normal cost collections; and (ii) by increasing total active member payroll which in turn generates higher UAAL amortization payments (or higher amortization credits if the UAAL is negative). These two impacts are discussed separately below.

As an employee progresses through his or her career, increases in pay are expected to come from three sources:

1. Inflation – Unless pay grows at least as fast as consumer prices grow, employees will experience a reduction in their standard of living. There may be times when pay increases lag or exceed inflation, but over the long term, labor market forces will require an employer to maintain its employees' standards of living.

   As discussed earlier in this report, we are recommending that the assumed rate of inflation be reduced from 3.50% per annum to 3.25% per annum. This inflation component will be used as part of the salary increase assumption.

2. Real "Across the Board" Pay Increases – These increases are sometimes termed productivity increases since they are considered to be derived from the ability of an organization or an economy to produce goods and services in a more efficient manner. As that occurs, at least some portion of the value of these improvements can provide a source for pay increases. These increases are typically assumed to extend to all employees "across the board." The State and Local Government Workers Employment Cost Index produced by the Department of Labor provides evidence that real "across the board" pay increases have averaged about 0.6% - 0.8% annually during the last ten to twenty years.

We also referred to the annual report on the financial status of the Social Security program published in April 2012. In that report, real "across the board" pay increases are forecast to be 1.1% per year under the intermediate assumptions.

The real pay increase assumption is generally considered a more "macroeconomic" assumption, which is not based on individual plan experience specific to OCERS. However, we note that the actual average inflation plus "across the board" increase (i.e., wage inflation) over the past five years was 4.3%.

Valuation Date	Actual Average Increase[(1)]	Actual Change in CPI[(2)]
December 31, 2007	5.48%	3.30%
December 31, 2008	7.31%	3.53%
December 31, 2009	4.83%	-0.80%
December 31, 2010	1.78%	1.20%
December 31, 2011	1.97%	2.67%
Average	4.27%	1.98%

(1) *Reflects the increase in average salary for members at the beginning of the year versus those at the end of the year. It does not reflect the average salary increases received by members who worked the full year.*

(2) *Based on the change in the annual average CPI for the Los Angeles-Riverside-Orange County Area compared to the prior year.*

Considering these factors, we recommend increasing the real "across the board" salary increase assumption from 0.25% to 0.50% for the December 31, 2012 actuarial valuation. This means that the combined inflation and "across the board" salary increase assumption will remain unchanged at 3.75%.

3. Promotional and Merit Increases – As the name implies, these increases come from an employee's career advances. This form of pay increase differs from the previous two, since it is specific to the individual. For OCERS, there are service-specific promotional and merit increases. The review of the promotional and

merit component was provided in a separate triennial experience study report as of December 31, 2010.

For the December 31, 2012 valuation we would continue to use the assumptions adopted by the Board in the December 31, 2010 triennial experience study until those assumptions are reviewed again in the December 31, 2013 triennial experience study.

All three of these components are incorporated into a salary increase assumption that is applied in the actuarial valuation to project future benefits and future normal cost contribution collections.

Active Member Payroll

Projected active member payrolls are used to develop the UAAL contribution rate. Future values are determined as a product of the number of employees in the workforce and the average pay for all employees. The average pay for all employees is assumed to increase only by inflation and real "across the board" pay increases. The merit and promotional increases are not an influence, because this average pay is not specific to an individual.

For the December 31, 2012 valuation, we recommend that the active member payroll increase assumption be maintained at 3.75% annually, consistent with the combined inflation and "across the board" salary increase assumptions.