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March 26, 2013

Teachers' Retirement Board
California State Teachers' Retirement System

Re: **Defined Benefit Program Actuarial Valuation as of June 30, 2012**

Dear Members of the Board:

At your request, we have performed an actuarial valuation of the Defined Benefit Program of the State Teachers' Retirement Plan as of June 30, 2012. The major findings of the actuarial valuation are contained in the following report, which reflects the benefit provisions and contribution rates in effect as of the valuation date.

We certify that the information included in this report is complete and accurate to the best of our knowledge and belief. The report satisfies all basic disclosure requirements under the Model Disclosure Elements for Actuarial Valuation Reports recommended by the California Actuarial Advisory Panel. Please refer to Section 3 of this report for our full actuarial certification statement.

Actuarial computations presented in this report are for purposes of assessing the funding of CalSTRS. The calculations in the enclosed report have been made on a basis consistent with our understanding of CalSTRS' funding. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman's work is prepared solely for the internal business use of CalSTRS. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exceptions:

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(b) CalSTRS may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are pension actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

We would like express our appreciation to the CalSTRS staff who gave substantial assistance in supplying the data on which this report is based.

Respectfully submitted,

Nick J. Collier, ASA, EA, MAAA
Principal and Consulting Actuary

Mark C. Olleman, FSA, EA, MAAA
Principal and Consulting Actuary

NJC/MCO/nlo

# California State Teachers' Retirement System
# Defined Benefit Program – 2012 Actuarial Valuation

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## Appendices

## Section 1 Summary of the Findings

The primary purpose of the actuarial valuation is to analyze the sufficiency of future contributions from members, employers and the State to meet the current and future obligations of the Defined Benefit (DB) Program. By using the actuarial methods and assumptions adopted by the Teachers' Retirement Board, this actuarial valuation provides a reasonable estimate of the long-term financing of the DB Program.

The key findings of this actuarial valuation are:

### Funding Sufficiency

As of June 30, 2012, the future revenue from contributions and appropriations for the DB Program is **not** expected to be sufficient to finance its obligations. This is consistent with our projections in all of the actuarial valuations since 2003.

The projected revenue shortfall is due primarily to investment return experience averaging 3.8% per year since 2000, which is significantly less than the long-term actuarial assumption of 7.50% per year. Based on the current DB Program assets, current revenues and all future experience emerging as assumed, the Unfunded Actuarial Obligation (UAO) will not be amortized over any future period.

A level contribution rate of 34.092% beginning on the valuation date is projected to be needed to amortize the UAO over a 30-year period. This is equivalent to an **increase of 14.620% of Earned Salaries** for a period of 30 years from the valuation date. Details of this calculation are described in the "Other Assumptions and Methods" section near the end of the Executive Summary. In particular, the additional revenue needed of 14.620% accounts for the expected future recognition of $9.4 billion of asset losses that are currently being deferred under the actuarial smoothing method.

| *(Percent of Earned Salaries)* | 2012 Valuation | 2011 Valuation |
|---|---|---|
| **Calculated Contribution Rate for 30-Year Funding Period** | | |
| Normal Cost Rate | 18.276% | 18.299% |
| Amortization Rate | 15.816% | 14.044% |
| Total Level Rate over the Amortization Period | 34.092% | 32.343% |
| Current Contribution Rate | 19.472%* | 19.418%* |
| Estimated Additional Revenue Needed | 14.620%* | 12.925%* |

* *The current contribution rate includes future supplemental contributions under EC §22955(b). In 2012, these are equivalent to 1.334% of earned salaries; the additional revenue of 14.620% needed is in addition to these supplemental State contributions. See Section 8 for details on the Current Contribution Rate.*

**Funding Sufficiency (continued)**

As shown in the previous chart, there was an increase in the additional revenue needed, as well as a decrease in the Normal Cost rate, as compared to the last valuation. There were a number of factors that contributed to these changes.

The weak return on investments (1.8%, as reported by CalSTRS) for the fiscal year ending in 2012 was the biggest factor causing the increase in the additional revenue needed.

This valuation reflects the impact of Assembly Bill (AB) 340 (also known as the California Public Employees' Pension Reform Act of 2013, or PEPRA), which is effective for all California public pension plan members newly hired on or after January 1, 2013. The lower level of benefits for future hires specified in the Bill results in a reduced Normal Cost applicable to future hires, which has the effect of reducing the additional revenue needed.

Note that since the UAO is not being fully funded, each year we expect an increase in the additional revenue needed as unmade payments are put off into the future. Between 2011 and 2012, this resulted in an increase in additional revenue needed of 0.8% of payroll.

The following chart shows a numerical breakdown of each of the factors that caused the change in the additional revenue needed.

| Sources of Change | Additional Revenue Needed |
|---|---|
| **June 30, 2011 Actuarial Valuation** | **12.9%** |
| Expected Year-to-Year Change | |
| • due to underfunding | 0.8% |
| • due to rolling amortization | -0.3% |
| Current Year Asset Loss | 1.8% |
| AB340 Impact (PEPRA) | -0.9% |
| Salary / Payroll Variation | |
| • Salary Increase < Assumed | -0.6% |
| • Payroll Increase < Assumed | 0.7% |
| Assumption Changes | 0.0% |
| All Other Sources | 0.2% |
| **Total Change** | **1.7%** |
| **June 30, 2012 Actuarial Valuation** | **14.6%** |

**Funding Sufficiency (continued)**

Note that the recognition of prior year asset losses under the actuarial smoothing method reduced the Funded Ratio; however, the prior year's additional revenue calculation already accounted for the expected recognition of these losses. Therefore, the recognition of prior asset losses did not cause a change in the additional revenue needed.

**SCR 105**

A report on the funding of the DB Program was recently provided to the Legislature pursuant to Senate Concurrent Resolution 105 (SCR 105). The SCR 105 report was based on the June 30, 2011 actuarial valuation and an estimate of the investment return for the year ended June 30, 2012. The 2012 valuation reflects actual experience since June 30, 2011 and will therefore result in slightly different funding projections than the SCR 105 report.

For example, the additional contribution rate starting July 2014 needed to fund the UAO over a 30-year period is 15.6%, as reported in the Impact of Delay section of this report. This compares to a 15.1% figure in the SCR 105 report. The primary differences are the actual payroll increase – actually a decrease this year – being less than projected and the actual FYE2012 return on a dollar-weighted basis (used in the valuation) being less than the CalSTRS estimated return which is on a time-weighted basis (used by investment professionals).

**Supplemental Contributions**

Education Code §22955(b) describes a test for the funded status of the benefit structure in effect in 1990. As detailed in Section 7 of this report, there is a UAO as of June 30, 2012 related to the 1990 Benefit Structure that cannot be amortized under the current level of 22955(b) contributions. Therefore, additional supplemental contributions are called for under the current law with respect to the benefit structure in effect in 1990.

We recommend the State's supplemental contribution rate be increased to 1.024% of payroll for the fiscal year beginning in 2013 based on the following schedule:

| Supplemental Contributions Schedule Under 22955(b) | |
|---|---|
| **Fiscal Year Beginning** | **% of Earned Salaries** |
| 2011 | 0.524% |
| 2012 | 0.774% |
| 2013 | 1.024% |
| 2014 | 1.274% |
| 2015 & Later | 1.505% |

The supplemental contributions are equivalent to 1.334% of payroll paid over a 30-year period. This provides a small portion of the total revenue needed; however, additional funding (over and above the supplemental contributions) of 14.620% of payroll is still needed to amortize the UAO under the current benefit structure over a 30-year period.

**Normal Cost Rate for New Members under PEPRA**

As part of the annual valuation process, we determine the Normal Cost rate for members subject to the provisions of PEPRA, generally those hired on or after January 1, 2013. The Normal Cost rate is used as the basis for setting member contribution rates for this group for the following fiscal year, the fiscal year beginning July 1, 2013 for this valuation. As of June 30, 2012, there are no members subject to PEPRA to determine a Normal Cost rate in this valuation. Therefore, we recommend the Board retain the Normal Cost rate of 15.90% of pay calculated in our October 5, 2012 letter.

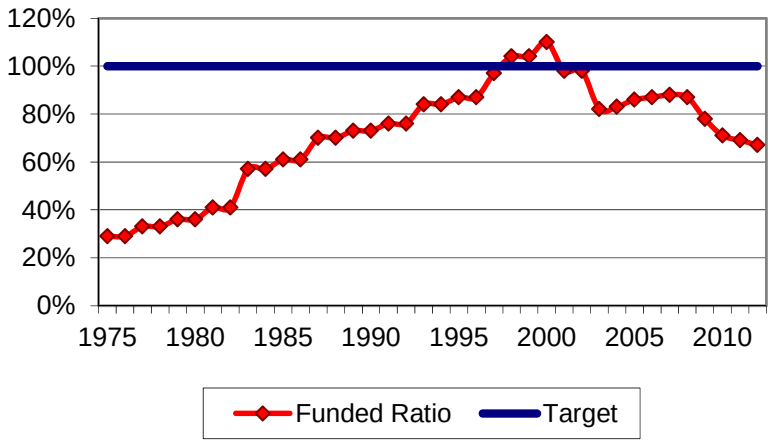
**Funding Progress**

The Funded Status of a retirement plan is equal to the difference between its Actuarial Value of Assets and its Actuarial Obligation. The Funded Ratio is equal to the Actuarial Value of Assets divided by the Actuarial Obligation.

| ***($ Millions)*** | **2012 Valuation** | **2011 Valuation** |
|---|---|---|
| **Actuarial Obligation** | $ 215,189 | $ 208,405 |
| **Actuarial Value of Assets** | 144,232 | 143,930 |
| **Unfunded Actuarial Obligation** | $ 70,957 | $ 64,475 |
| **Funded Ratio** | 67.0% | 69.1% |

Overall, the DB Program is in a slightly worse funded status compared to one year ago as measured by the Funded Ratio. The recognition of asset losses for the current and prior years, as well as insufficient funding, had the most significant effect on the Funded Ratio. The following graph shows a historical perspective of CalSTRS' funding. It shows the significant funding progress CalSTRS achieved from 1975 to 2000, and also the negative impact of the economic environment since then.

**Historical Funded Ratio**



## Funding Progress (continued)

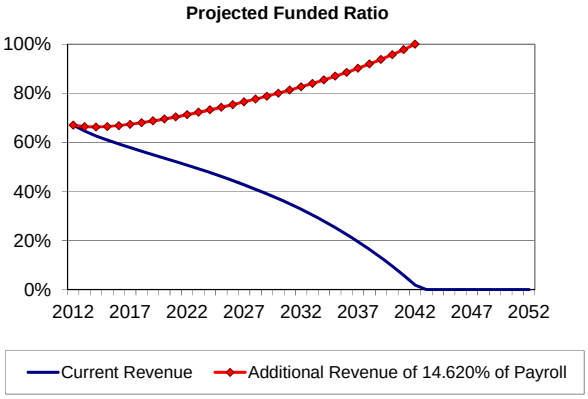
The following chart shows the factors that affected the DB Program's Funded Ratio since the last valuation. The recognition of prior asset losses was the most significant factor.

| Sources of Change | Funded Ratio |
|---|---|
| **June 30, 2011 Actuarial Valuation** | **69.1%** |
| Expected Year-to-Year Change (due to underfunding) | **-1.0%** |
| Recognized Asset (Gain)/Loss | |
| • From Prior Years | -0.6% |
| • From Current Year | -1.4% |
| AB340 Impact (PEPRA) | 0.0% |
| Salary Variation | 0.9% |
| Assumption Changes | 0.0% |
| All Other Sources | 0.0% |
| **Total Change** | **-2.1%** |
| **June 30, 2012 Actuarial Valuation** | **67.0%** |

## Looking Ahead

As previously noted, CalSTRS needs a significant increase in revenue to make progress towards its funding target. Still, the DB Program assets are sufficient to make benefit payments for a number of years. However, the projected time horizon before the assets are depleted (and benefits would have to be paid on a "pay-as-you-go" basis) is expected to continue to decrease in the future – if CalSTRS is not able to secure additional funding or future investment returns do not significantly exceed the 7.50% assumption.

The following projection shows the projected Funded Ratio if the DB Program earns 7.50% in each future year and all other assumptions are met. As shown in the graph, the DB Program is projected to have its assets depleted in about 31 years (the year the Funded Ratio goes to 0%), if additional funding is not secured.



**Impact of Delay**

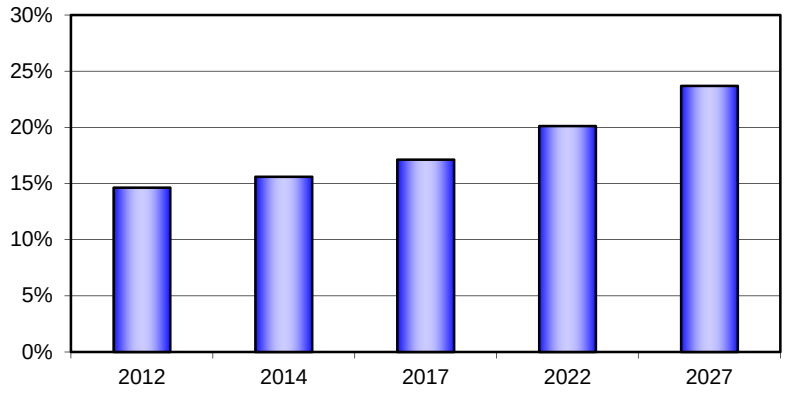
The additional revenue needed is a hypothetical calculation based on the June 30, 2012 valuation date. In particular, it assumes additional contributions will commence on that date. The reality is that increased contributions will not begin until some later date and may only increase gradually. The longer it takes for the additional contributions to begin, the greater the increase will need to be. The chart below shows the impact on the additional revenue needed based on the actual implementation date. Specifically, the longer it takes to implement a funding solution, the more expensive it is likely to be.

These calculations are based on the same provisions as the main additional revenue calculation except for the implementation date. In particular, it is assumed that:

- All experience is consistent with the valuation assumptions.
- Current deferred asset losses are reflected as they are expected to be recognized in the asset smoothing method.
- The entire additional contribution goes to funding the UAO
- The emerging Normal Cost rate will decrease over time due to the lower benefits provided under PEPRA.

All figures shown are calculated to fully pay off the UAO 30 years from the implementation date of the increased contribution.

**Additional Revenue Needed Under Various Implementation Dates**

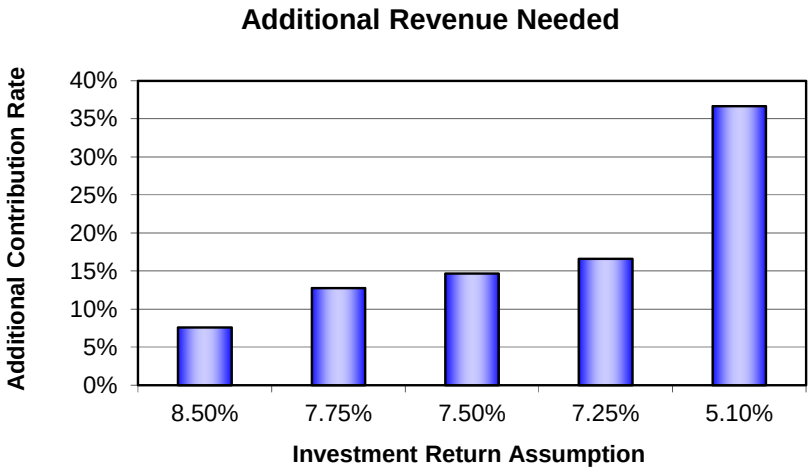


**Investment Return Assumption**

Future investment returns will have a material impact on the contributions ultimately needed to fund the UAO. To illustrate the sensitivity to future investment returns, we have performed an analysis of the impact of various investment return assumptions. We have shown the additional revenue needed under the valuation investment return assumption of 7.50%, as well as assumed returns that are 0.25% higher and lower.

We have also presented the additional revenue needed at 8.50% and 5.10% investment return assumptions. The currently expected returns shown are for the 25th and 75th percentiles respectively for a 30-year period. In our analysis, we used the 2013 capital market assumptions of Pension Consulting Alliance (PCA). These percentile returns indicate the likelihood that actual future returns will deviate significantly from the current 7.50% assumption. Specifically, based on these assumptions, there is a 25% chance the return will be greater than 8.50%, but also a 25% chance the return will be less than 5.10% over a 30-year period.

It should be noted that PCA's capital market assumptions are based on a 10-year time horizon, which is a shorter term than we use when recommending CalSTRS investment return assumption. For illustrative purposes, we have assumed that these assumptions would apply for the next 30 years. There are limitations to this approach, as expected returns for a 10-year period are not always representative of the longer term expectations associated with pension liabilities. In particular, one of the reasons PCA has a low expectation of fixed income returns over the next 10 years is that they are projecting rising inflation during the period; however, in the longer term an increased expectation of inflation should ultimately increase returns on fixed income. Nonetheless, we believe that applying the 10-year assumptions does provide a reasonable illustration of potential variation in the future.



**Other Assumptions and Methods**

Appendix B of this report provides a detailed description of the assumptions and methods used in the valuation.

One area that should be highlighted is how the additional revenue is determined.

- In calculating the needed additional contributions, we have used the 30-year amortization period, as it is the period CalSTRS uses to assess funding sufficiency. The calculation should be viewed as an estimate, as there are a number of factors, including those discussed below, which will impact this estimate. Milliman has developed a model so that we can work with CalSTRS staff to address any specific funding proposals.
- The 14.620% increase in contribution rate discussed in this report is based on a specific point in time (June 30, 2012) and numerous assumptions about the future. Even if this increase were implemented, actual investment returns and other assumptions will vary from what is assumed. If experience is worse than assumed, particularly if investment returns are less than expected, it is likely additional contributions would be needed in the future to maintain the 30-year amortization. Setting a higher contribution rate (i.e., an increase greater than 14.620% of payroll) would provide some buffer for possible future adverse experience.
- In the projection of the Actuarial Value of Assets (AVA), current asset losses are reflected as they would be expected to be recognized in the future assuming a 7.50% investment return on the Fair Market Value of Assets. Therefore, the amortization of the UAO reflects the full extent of the asset losses that have occurred in the past. If the expected future impact of the deferred assets losses was not accounted for, the additional revenue needed would be 12.670% of earned salaries. This compares with 12.126% last year reported on this basis.
- The current equivalent contribution rate takes into account future State supplemental contributions under §22955(b). In other words, the additional revenue needed is **in addition to** the currently scheduled supplemental State contributions.
- The amortization calculation assumes that the full 14.620% of total payroll will be used to fund the UAO. A 1% increase in the contribution by the State or members is actually worth less than 1% of pay, because the State contributes based on payroll that is two years old and a portion of any increase in member's contributions is expected to be refunded. Therefore, the additional revenue needed may be higher as a percent of payroll depending on the source.

**Changes Since the 2011 Valuation**

As discussed above, the passage of AB 340 (referred to as PEPRA for new members) will have an effect on new teachers hired on or after January 1, 2013. The amortization calculations shown in this report, including the additional revenue needed, take into account the projected effect of AB 340 on new hires beginning on that date. In particular, these new hires will be subject to lower benefits, and will therefore have a lower Normal Cost than members hired prior to the effective date of AB 340. Additionally, the pensionable payroll for new hires is expected to be reduced slightly by AB 340, therefore decreasing the salary on which future contributions will be collected. For additional details on the impact of AB 340 on new hires, please see our analysis dated October 23, 2012.

**Further Information**

Details of our findings are included in later sections of this report. The appendices include supporting documentation on the benefit and eligibility provisions used to project future benefits, the actuarial methods and assumptions used to value the projected benefits, and the underlying census data provided by CalSTRS for this valuation.

# California State Teachers' Retirement System
# Defined Benefit Program – 2012 Actuarial Valuation

## Summary of Key Valuation Results

| | 2012 Valuation | 2011 Valuation | Percent Change |
|---|---|---|---|
| **1. Total Membership** | | | |
| A. Active Members | 421,499 | 429,600 | (1.9) % |
| B. Inactive Members | 178,655 | 173,719 | 2.8 % |
| C. Retired Members and Beneficiaries | 262,038 | 253,041 | 3.6 % |
| D. Total Membership | 862,192 | 856,360 | 0.7 % |
| **2. Earned Salaries as of Valuation Date (All Members)** | | | |
| A. Annual Total *($Millions)* | 25,388 | 25,576 | (0.7) % |
| B. Annual Average per Active Member | 60,233 | 59,534 | 1.2 % |
| **3. Average Annual Allowance Payable** | | | |
| A. Service Retirement | 42,204 | 41,004 | 2.9 % |
| **4. Actuarial Obligation *($Millions)*** | | | |
| A. Active Members | 93,749 | 93,299 | 0.5 % |
| B. Inactive Members | 4,541 | 4,487 | 1.2 % |
| C. Retired Members and Beneficiaries | 116,475 | 109,984 | 5.9 % |
| D. Existing MPPP Unfunded Obligation | 424 | 635 | (33.2) % |
| E. Total | 215,189 | 208,405 | 3.3 % |
| **5. Value of System Assets *($Millions)*** | | | |
| A. Fair Market Value | 143,118 | 147,140 | (2.7) % |
| B. Deferred Investment (Gains) or Losses | 9,397 | 3,890 | |
| C. Actuarial Value | 152,515 | 151,030 | 1.0 % |
| D. Ratio of Actuarial Value to Fair Value | 107% | 103% | |
| E. Less SBMA Reserve | (8,283) | (7,100) | 16.7 % |
| F. Net Actuarial Value | 144,232 | 143,930 | 0.2 % |
| **6. Funded Status -- Actuarial Value Basis** | | | |
| A. Unfunded Actuarial Obligation *($Millions)* | 70,957 | 64,475 | 10.1 % |
| B. Funded Ratio *( 5F ÷ 4E )* | 67.0% | 69.1% | |
| **7. Contribution Rates *(percent of salaries)*** | | | |
| A. 30-Year Projected Revenue | 19.472% | 19.418% | 0.3 % |
| B. Normal Cost Rate | 18.276% | 18.299% | (0.1) % |
| C. Available for Amortization of UAO *( 7A – 7B )* | 1.196% | 1.119% | 6.9 % |
| D. Period to Amortize | Does not amortize | Does not amortize | |
| E. Projected 30-Year Level Funding Rate | 34.092% | 32.343% | 5.4 % |
| F. Projected Shortfall (Surplus) *( 7E – 7A )* | 14.620% | 12.925% | 13.1 % |
| **8. Funded Status -- Market Value Basis** | | | |
| A. Unfunded Actuarial Obligation *($Millions)* | 80,354 | 68,365 | 17.5 % |
| B. Alternate Funded Ratio (Based on Market Value of Assets) | 62.7% | 67.2% | |

## Section 2 Scope of the Report

This report presents the actuarial valuation of the Defined Benefit Program of the State Teachers' Retirement Plan as of June 30, 2012.

In reading our Actuarial Certification in Section 3, please pay particular attention to the guidelines employed in the preparation of this report. We also comment on the sources and reliability of both the data and the actuarial assumptions upon which our findings depend. Those comments are the basis for our certification that this report is complete and accurate to the best of our knowledge and belief.

A summary of the key results of this valuation is presented in the previous section. The remainder of this report is arranged as follows:

Section 4 describes the benefit obligations of CalSTRS including the development of the Normal Cost and the Actuarial Obligation.

Section 5 outlines the Fair Market Value of Assets of the DB Program and the determination of the Actuarial Value of Assets as of June 30, 2012. All of the assets of the Program are available to finance future DB Program benefits and expenses, except those allocated for the Supplemental Benefit Maintenance Account (SBMA) and for future payments from the Medical Premium Payment Program (MPPP).

Section 6 shows the relationship between the Actuarial Value of Assets and the Actuarial Obligation, also called the Funded Ratio.

Section 7 discusses the calculations used to determine if a supplemental contribution is required from the State in accordance with EC §22955(b). The key elements of this calculation pertain to an evaluation of the assets and obligations associated with the benefits in effect in 1990.

The funding sufficiency of the current projected revenue stream for the DB Program is tested in Section 8.

**Scope of the Report (continued)**

This report includes several appendices:

Appendix A — A summary of the current benefit structure, as determined by the provisions of governing law on June 30, 2012.

Appendix B — A summary of the actuarial methods and assumptions used to estimate actuarial obligations and the funding sufficiency.

In our opinion, the assumptions used in the valuation are reasonably related to the past experience of the DB Program, are internally consistent, and represent a reasonable estimate of future conditions affecting the DB Program. Nevertheless, the emerging costs of the DB Program will vary from those presented in this report to the extent that actual experience differs from that projected by the actuarial assumptions.

Appendix C — Schedules of valuation data classified by various categories of plan members. We relied upon the membership and beneficiary data supplied by CalSTRS. We compared the data for this and the prior valuation and tested for reasonableness. Based on these tests, we believe the data to be sufficient for the purposes of our calculations.

Appendix D — A glossary of actuarial terms used in this report.

## Section 3 Actuarial Certification

The major findings of the 2012 Actuarial Valuation are contained in this report. This report reflects the benefit provisions and contribution rates in effect as of the valuation date. To the best of our knowledge and belief, this report is complete and accurate and contains sufficient information to fully and fairly disclose the funded condition of the Defined Benefit Program as of June 30, 2012.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by CalSTRS' staff. This information includes, but is not limited to, statutory provisions, employee data and financial information. In our examination of these data, we have found them to be reasonably consistent and comparable with data used for other purposes. Since the valuation results are dependent on the integrity of the data supplied, the results can be expected to differ if the underlying data is incomplete or missing. It should be noted that if any data or other information is inaccurate or incomplete, our calculations may need to be revised.

All costs, liabilities, rates of interest and other factors for CalSTRS have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of CalSTRS and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting CalSTRS. Further, in our opinion, each actuarial assumption used is reasonably related to the experience of CalSTRS and to reasonable expectations which, in combination, represent a reasonable estimate of anticipated experience. The Teachers' Retirement Board has sole authority to determine the actuarial assumptions and methods used for the valuation of the DB Program. The Board adopted the actuarial methods and assumptions used in the 2012 valuation.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the Plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles. 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 contained herein.

Nick J. Collier, ASA, EA, MAAA
Principal and Consulting Actuary

Mark C. Olleman, FSA, EA, MAAA
Principal and Consulting Actuary

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## Section 4 Actuarial Obligation

In this section, the discussion will focus on the commitments of CalSTRS for retirement benefits, which are referred to as its actuarial obligation.

In an active system with new entrants, the actuarial obligation, or liabilities, will generally exceed the actuarial value of assets. This deficiency has to be provided by future contributions, net actuarial gains due to experience more favorable than assumed or, to some extent, net growth in the number of active members. An actuarial valuation method sets out a schedule of future contributions and determines if they will amortize any deficiency in an orderly fashion.

**Normal Cost**

The **Normal Cost** represents the cost assigned to an average member for a given year such that it would meet the continuing costs of a particular benefit if contributed each year starting with the date of membership. The Entry Age Actuarial Cost Method is designed to produce a Normal Cost that remains a level percentage of Earned Salaries, so it is best expressed as a rate. Normal cost contributions are assumed to be contributed uniformly throughout the year.

The following chart shows the Normal Cost Rate has decreased from 18.299% to 18.276% since the last valuation. **Table 1** provides more details on the calculation of the Normal Cost and Normal Cost Rates.

| | *($ Millions)* | | |
|---|---|---|---|
| | **Annualized Earned Salaries** | **Normal Cost** | **Normal Cost Rate** |
| June 30, 2011 | $ 25,860 | $ 4,732 | 18.299% |
| June 30, 2012 | $ 25,673 | $ 4,692 | 18.276% |

In general, the Normal Cost Rate is expected to remain fairly stable as a percentage of Earned Salaries as long as the benefit provisions are not amended, the assumptions are not changed, membership experience emerges as assumed, and the demographic characteristics of the membership remain reasonably consistent.

The Normal Cost Rate decreased very slightly since last year due to typical year-to-year changes in the member population.

**Actuarial Obligation**

The next step in the actuarial valuation process is to project all future DB Program benefit payments for current members and retirees. The level of benefits currently being paid is known, but assumptions are needed to estimate how long they will be paid, and the amount and timing of the payment of future benefits for active and inactive members who are not currently receiving payments. The summation of the discounted values of all of the projected benefit payments for all current members at the assumed rate of return is called the **Actuarial Present Value of Projected Benefits**.

Details are shown in **Table 2** and summarized below.

| ***($ Millions)*** | **2012 Valuation** | **2011 Valuation** |
|---|---|---|
| Benefits Being Paid | $ 116,475 | $ 109,984 |
| Inactive Deferred Benefits | 4,541 | 4,487 |
| Active Members' Benefits | 149,069 | 149,407 |
| Existing MPPP Unfunded Obligation | 424 | 635 |
| Present Value of Projected Benefits | $ 270,509 | $ 264,513 |
| Present Value of Future Normal Costs | 55,320 | 56,108 |
| Actuarial Obligation | $ 215,189 | $ 208,405 |

The **Actuarial Present Value of Future Normal Costs** is the value of all remaining Normal Costs expected to be received over the future working lifetime of current active members. The **Actuarial Obligation** is the difference between the Actuarial Present Value of Projected Benefits and the Actuarial Present Value of Future Normal Costs. The Actuarial Obligation is equal to the assets that would exist if the current Normal Cost Rate had been paid for all members since entry into the Program, and if all experience had emerged as assumed.

## Table 1
## Normal Cost

| *($ Millions)* | 2012 | 2011 |
|---|---|---|
| Estimated Annual Earned Salaries [1] | $ 25,673 | $ 25,860 |
| Present Value of Future Normal Costs for Current Active Members | $ 55,320 | $ 56,108 |
| Present Value of Future Earned Salaries for Current Active Members | $ 302,694 | $ 306,619 |
| **Normal Cost** | | |
| Retirement | $ 4,321 | $ 4,356 |
| Disability | 189 | 191 |
| Death | 46 | 47 |
| Withdrawal | 136 | 138 |
| Total Normal Cost | $ 4,692 | $ 4,732 |
| **Normal Cost Rate Percent of Earned Salaries** | | |
| Retirement | 16.831% | 16.844% |
| Disability | 0.736 | 0.739 |
| Death | 0.179 | 0.182 |
| Withdrawal | 0.530 | 0.534 |
| Total Normal Cost | **18.276%** | **18.299%** |

*(1) Annual rate of Earned Salaries for active members on the valuation date, excluding active members over age 75 on the valuation date who are assumed to retire immediately, and therefore, do not generate a Normal Cost. Earned salaries for new entrants who have only worked a partial year have been annualized.*

## Table 2
## Actuarial Obligation

| *($ Millions)* | 2012 | 2011 |
|---|---|---|
| Present Value of Projected Benefits to All Current Members | | |
| Benefits Currently Being Paid | | |
| Service Retirement | $ 108,382 | $ 102,316 |
| Disability | 2,805 | 2,678 |
| Survivors | 5,288 | 4,990 |
| Total | $ 116,475 | $ 109,984 |
| Benefits to Inactive Members | 4,541 | 4,487 |
| Benefits to Active Members | | |
| Retirement | $ 143,852 | $ 144,171 |
| Disability | 3,671 | 3,664 |
| Death | 1,075 | 1,086 |
| Withdrawal | 471 | 486 |
| Total | $ 149,069 | $ 149,407 |
| Existing MPPP Unfunded Obligation | 424 | 635 |
| Total Present Value of Projected Benefits | $ 270,509 | $ 264,513 |
| Present Value of Future Normal Costs | 55,320 | 56,108 |
| **Actuarial Obligation** | **$ 215,189** | **$ 208,405** |

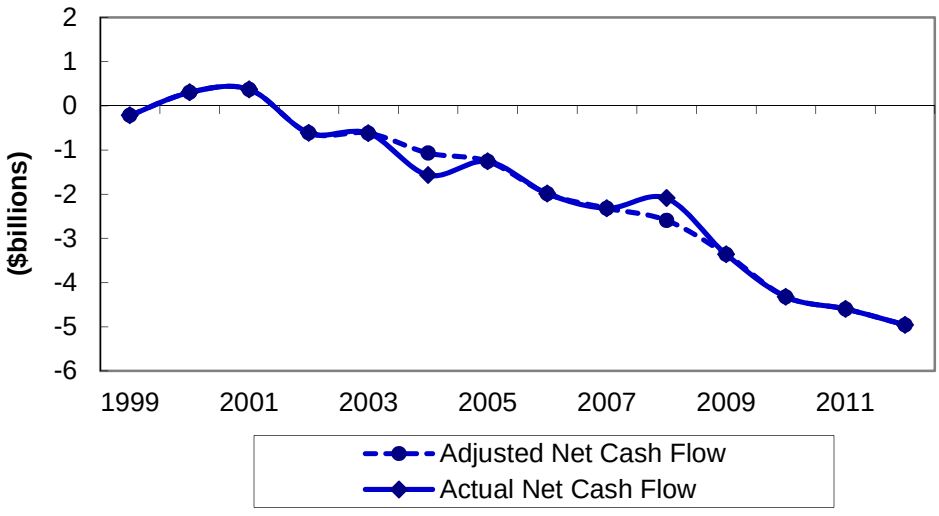
## Section 5 Valuation Assets

In many respects, an actuarial valuation can be thought of as an inventory process. The inventory is taken as of the actuarial valuation date, which for this valuation is June 30, 2012. On that date, the assets available for the payment of retirement benefits are appraised.

The next step in the valuation process is to calculate the **Actuarial Value of Assets** that will be used to determine the funding status of the Program. As shown in **Table 3**, the Fair Market Value of assets was reported as $143,118 million as of June 30, 2012, down from $147,140 million as of June 30, 2011. **Table 4** shows the asset changes for the period.

As shown in Table 4, the net cash flow (contributions less benefits and expenses) continues to be increasingly negative. This is a typical pattern for a mature retirement system where it is expected that contributions will be less than benefits and that the System will begin drawing on the fund that has been built up over prior years. This trend will continue absent a significant increase in contributions.

As illustrated in the following graph, 2004 and 2008 were inconsistent with the trend over the last few years, due to a $500 million reduction in the State's contribution to the SBMA for the 2003-04 fiscal year, repaid in the 2007-08 fiscal year. The dotted line adjusts the cash flow trend for the deferral of this contribution.



**Valuation Assets (continued)**

Because the underlying calculations in the actuarial valuation are long-term in nature, it may be advantageous to use an asset smoothing method to lessen the impact of short-term fluctuations in the value of assets. The asset smoothing method uses a projection of the expected Actuarial Value of Assets from the Actuarial Value of Assets as of the previous year using the assumed rate of investment return. The projection then recognizes one-third of the difference between the expected value and the Fair Market Value to arrive at the Actuarial Value of Assets. The calculation of the Actuarial Value of Assets is shown in **Table 5** and the result is shown below.

| ***($ Millions)*** | **June, 2012** | **June, 2011** |
|---|---|---|
| **Fair Market Value** | $ 143,118 | $ 147,140 |
| **Actuarial Value of Assets** | $ 152,515 | $ 151,030 |
| **Deferred Investment Gains or (Losses)** | $ (9,397) | $ (3,890) |
| Ratio of AVA to FMV | 107% | 103% |

Due to the asset smoothing method, there are investment losses of $9,397 million that have not yet been recognized (the difference between the Actuarial and Fair Market Value of Assets). Absent investment returns in future years greater than the assumed rate to offset the deferred investment losses, the current losses will gradually be reflected in the Actuarial Value of Assets.

If the future returns on the Fair Market Value of Assets are 7.50% each year, then as the current deferred losses flow through the smoothing method and are recognized, future valuations will show an actuarial loss. The result will be a slow decrease in the DB Program's funded status, ultimately increasing the Unfunded Actuarial Obligation by the $9,397 million of currently deferred investment losses.

**Table 6** shows a history of the Actuarial Value of Assets compared to the Fair Market Value of Assets.

## Table 3
## Statement of Program Assets

| *($ Millions)* | June, 2012 | June, 2011 |
|---|---|---|
| **Invested Assets** | | |
| Short-term | $ 2,303 | $ 2,561 |
| Debt Securities | 27,170 | 26,084 |
| Equity | 69,352 | 74,764 |
| Alternative | 22,144 | 25,711 |
| Real Estate | 21,614 | 18,865 |
| Total Investments | $142,583 | $147,985 |
| **Cash and Cash Equivalents** | 1,878 | 587 |
| **Receivables** | 1,552 | 1,556 |
| **Liabilities** | (2,895) | (2,988) |
| **Fair Market Value of Net Assets** | **$143,118** | **$147,140** |

## Table 4
## Statement of Changes in Program Assets

| *($ Millions)* | June, 2012 | June, 2011 |
|---|---|---|
| **Contributions** | | |
| Members | $ 2,229 | $ 2,008 |
| Employers | 2,167 | 2,229 |
| State of California | 1,303 | 1,193 |
| Total Contributions | 5,699 | 5,430 |
| **Benefits and Expenses** | | |
| Retirement, Death and Survivors | (10,208) | (9,596) |
| Refunds of Member Contributions | (83) | (89) |
| Purchasing Power Benefits | (235) | (238) |
| Administrative Expenses | (131) | (104) |
| Total Benefits and Expenses | (10,657) | (10,027) |
| **Net Cash Flow** | **$ (4,958)** | **$ (4,597)** |
| **Investment Income** | | |
| Realized Income | $ 3,712 | $ 3,493 |
| Net Appreciation | (2,755) | 24,984 |
| Net Securities Lending Income | 151 | 160 |
| Investment Expenses | (176) | (149) |
| Other (Expense) Income | 4 | 7 |
| Net Investment Return | 936 | 28,495 |
| **Net Increase (Decrease)** | **$ (4,022)** | **$ 23,898** |
| **Fair Market Value of Net Assets** | | |
| Beginning of Year | 147,140 | 123,242 |
| **End of Year** | **$ 143,118** | **$ 147,140** |
| Estimated Net Rate of Return [(1)] | 0.6% | 23.6% |

*(1) Estimated return on a Fair Market Value basis, net of all investment expenses and assuming uniform cash flow throughout the year. This number will likely differ from the return reported by CalSTRS as it is a dollar-weighted value, whereas CalSTRS reports time-weighted values.*

## Table 5
## Actuarial Value of Assets

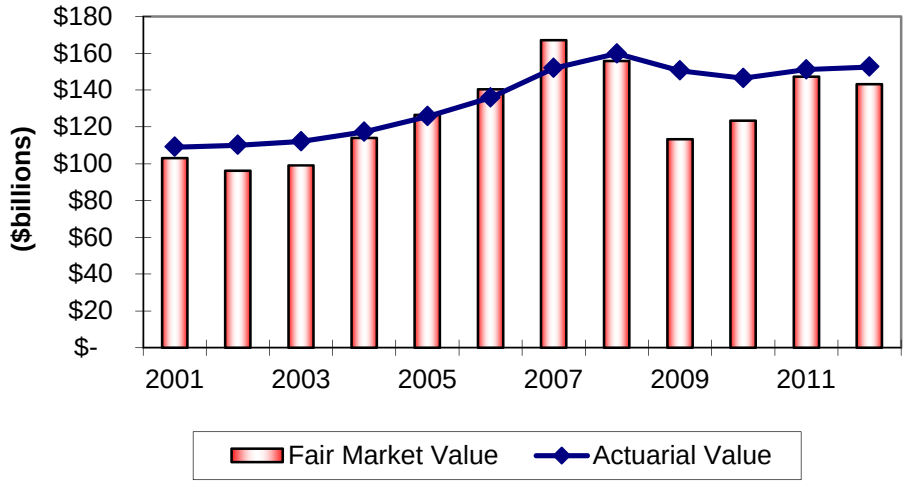
| *($ Millions)* | June, 2012 | June, 2011 |
|---|---|---|
| **Actuarial Value at Beginning of Year** | $ 151,030 | $ 146,404 |
| Contributions | 5,699 | 5,430 |
| Benefits and Expenses | (10,657) | (10,027) |
| Expected Return at 7.50%/7.75% | 11,141 | 11,168 |
| **Expected Actuarial Value End of Year** | $ 157,213 | $ 152,975 |
| **Fair Market Value** | 143,118 | 147,140 |
| **Difference between Fair Market Value and Expected Actuarial Value** | $ (14,095) | $ (5,835) |
| Recognition Factor | One-third | One-third |
| Recognized Gain or Loss | $ (4,698) | $ (1,945) |
| **Actuarial Value at End of Year** | **$ 152,515** | **$ 151,030** |
| **Deferred Investment Gains or (Losses)** | **$ (9,397)** | **$ (3,890)** |
| *Ratio of Actuarial Value of Assets to Fair Market Value of Assets* | *107%* | *103%* |
| Estimated Net Rate of Return (1) | 4.3% | 6.4% |

*(1) Estimated return on an Actuarial Value basis, net of all investment expenses and assuming uniform cash flow throughout the year.*

## Table 6
## History of Actuarial Value of Assets

| *($ Millions)* June 30 | Fair Market Value | Estimated Return [(1)] | Actuarial Value | Ratio of Actuarial to Market |
|---|---|---|---|---|
| 2001 | $ 102,915 | (9.1) % | $ 108,571 | 105% |
| 2002 | 96,028 | (6.1) | 109,755 | 114 |
| 2003 | 99,031 | 3.8 | 111,604 | 113 |
| 2004 | 113,815 | 16.6 | 117,206 | 103 |
| 2005 | 126,447 | 12.3 | 125,665 | 99 |
| 2006 | 140,192 | 12.5 | 135,832 | 97 |
| 2007 | 166,903 | 20.9 | 151,827 | 91 |
| 2008 | 155,763 | (5.5) | 159,785 | 103 |
| 2009 | 113,192 | (25.4) | 150,445 | 133 |
| 2010 | 123,242 | 12.9 | 146,404 | 119 |
| 2011 | 147,140 | 23.6 | 151,030 | 103 |
| 2012 | 143,118 | 0.6 | 152,515 | 107 |

*(1) Estimated return on a Fair Market Value basis, net of all investment expenses and assuming uniform cash flow throughout the year. This number will likely differ from the return reported by CalSTRS as it is a dollar-weighted value, whereas CalSTRS reports time-weighted values.*



## Section 6 Funded Status

The **Unfunded Actuarial Obligation** (UAO) is the excess of the Actuarial Obligation over the Actuarial Value of Assets, which represents a liability that must be funded over time. Contributions in excess of the Normal Cost are used to amortize the UAO. An **Actuarial Surplus** exists if the Actuarial Value of Assets exceeds the Actuarial Obligation.

The **Funded Ratio** is equal to the Actuarial Value of Assets divided by the Actuarial Obligation. A Funded Ratio of 100% means the Value of Assets equals the Actuarial Obligation, and the DB Program could be financed by contributions equal to the Normal Cost, if all future experience emerges as assumed. The Funded Ratio is shown below and in **Table 7**.

| ***($ Millions)*** | **2012 Valuation** | **2011 Valuation** |
|---|---|---|
| Actuarial Obligation | $ 215,189 | $ 208,405 |
| Actuarial Value of Assets (AVA) | | |
| From Table 5 | $ 152,515 | $ 151,030 |
| Less SBMA Reserve | (8,283) | (7,100) |
| Net for Funding | $ 144,232 | $ 143,930 |
| Unfunded Actuarial Obligation | $ 70,957 | $ 64,475 |
| **Funded Ratio (on AVA)** | **67.0%** | **69.1%** |
| *Alternate Funded Ratio (based on Fair Market Value)* | *62.7%* | *67.2%* |

Overall, the DB Program is in worse financial condition than it was one year ago as measured by the Funded Ratio. The Alternate Funded Ratio using the Fair Market Value of assets has also decreased since the last valuation, due to the investment loss for the 2011-12 year.

Future benefits provided through the Supplemental Benefits Maintenance Account (SBMA) are not part of the projected benefits included in this valuation. Therefore, the SBMA Reserve is subtracted from the DB Program assets to arrive at the value available to support the benefits included in this valuation.

**Funded Status (continued)**

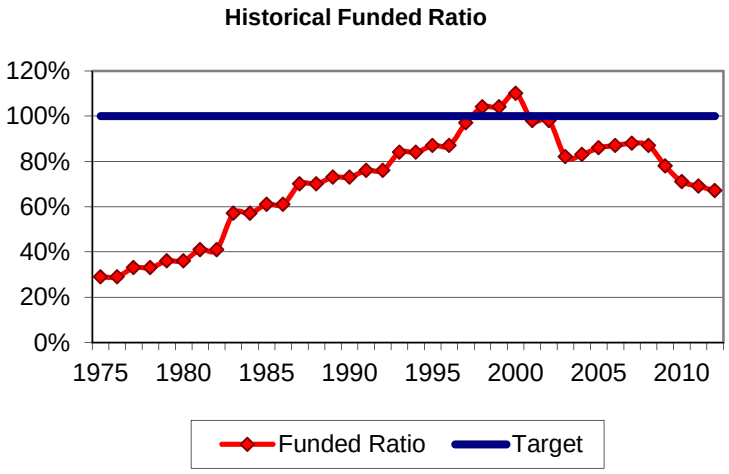
In addition, the Teachers' Retirement Board has established a policy of allocating funds for future costs associated with the Teachers' Health Benefits Fund (THBF). This policy was revised in April of 2009 to make a one-time credit to the THBF and "true up" the future MPPP obligations (payable from the THBF) in the funding of the DB Program. As of June 30, 2012, only a relatively small amount of less than $0.5 million resides in the THBF, while the remaining unfunded amount of $424 million is added to the DB Program obligation.

The following table shows a history of the Funded Status of the DB Program.

| *($ Millions)* Year | Actuarial Obligation | Actuarial Value of Assets | Unfunded Actuarial Obligation | Funded Ratio |
|---|---|---|---|---|
| 1975 | **$ 12,834** | **$ 3,775** | **$ 9,059** | **29%** |
| 1977 | 15,203 | 5,019 | 10,184 | 33% |
| 1979 | 17,971 | 6,488 | 11,483 | 36% |
| 1981 | 22,545 | 9,345 | 13,200 | 41% |
| 1983 | 26,553 | 15,023 | 11,530 | 57% |
| 1985 | **28,401** | **17,457** | **10,944** | **61%** |
| 1987 | 34,637 | 24,401 | 10,236 | 70% |
| 1989 | 40,266 | 29,327 | 10,939 | 73% |
| 1991 | 47,100 | 36,001 | 11,099 | 76% |
| 1993 | 53,581 | 45,212 | 8,369 | 84% |
| 1995 | **63,391** | **55,207** | **8,184** | **87%** |
| 1997 | 69,852 | 67,980 | 1,872 | 97% |
| 1998 | 74,234 | 77,290 | (3,056) | 104% |
| 1999 | 86,349 | 90,001 | (3,652) | 104% |
| 2000 | 93,124 | 102,225 | (9,101) | 110% |
| 2001 | 109,881 | 107,654 | 2,227 | 98% |
| 2003 | 131,777 | 108,667 | 23,110 | 82% |
| 2004 | 138,254 | 114,094 | 24,160 | 83% |
| 2005 | **142,193** | **121,882** | **20,311** | **86%** |
| 2006 | 150,872 | 131,237 | 19,635 | 87% |
| 2007 | 167,129 | 146,419 | 20,710 | 88% |
| 2008 | 177,734 | 155,215 | 22,519 | 87% |
| 2009 | 185,683 | 145,142 | 40,541 | 78% |
| 2010 | 196,315 | 140,291 | 56,024 | 71% |
| 2011 | 208,405 | 143,930 | 64,475 | 69% |
| 2012 | 215,189 | 144,232 | 70,957 | 67% |

**Funded Status (continued)**

The historical Funded Ratios are plotted in the following graph. In years in which a valuation was not performed, the Funded Ratio from the previous year is used.




**Actuarial Gains and Losses**

Comparing the UAO as of two valuation dates does not provide enough information to determine if there were actuarial gains or losses. The correct comparison is between the UAO on the valuation date and the Expected UAO projected from the prior valuation date using the actuarial assumptions in effect since the previous valuation.

The actuarial gains and losses since the last report are summarized in the following tables and shown in **Table 8**.

| ***($ Millions)*** | **Expected Results** | **Actual Results** | **(Gain) or Loss** |
|---|---|---|---|
| Actuarial Obligation | $218,243 | $215,189 | $ (3,054) |
| Act. Value of Assets | 149,261 | 144,232 | 5,029 |
| Unfunded Act. Oblig. | $ 68,982 | $ 70,957 | $ 1,975 |
| **Actuarial (Gains) or Losses by Source** | | | |
| Change in actuarial assumptions | | | $ 0 |
| Salaries increased less than assumed | | | (3,097) |
| All other non-investment sources | | | 43 |
| (Gain) or Loss on the Actuarial Obligation | | | (3,054) |
| Investment Return on Actuarial Value of Assets | | | 3,908 |
| Contributions (in excess of) or less than assumed | | | (62) |
| Change in the SBMA Reserve | | | 1,183 |
| (Gain) or Loss on the Actuarial Value of Assets | | | 5,029 |
| Total Actuarial (Gain) or Loss | | | $ 1,975 |

## Actuarial Gains and Losses (continued)

| *($ Millions)* | | |
|---|---|---|
| **Actuarial (Gains) or Losses on the Actuarial Obligation** | **(Gain) or Loss** | **Percent of Act. Oblig.** |
| Change in actuarial assumptions | $ 0 | 0.0% |
| Salaries increased less than assumed | (3,097) | (1.4) |
| All other non-investment sources | 43 | 0.0 |
| (Gain) or Loss on the Actuarial Obligation | $ (3,054) | (1.4)% |
| **Actuarial (Gains) or Losses on the Actuarial Value of Assets** | **(Gain) or Loss** | **Percent of AVA** |
| Return on Actuarial Value of Assets | $ 3,908 | 2.7% |
| Contributions less than assumed | (62) | (0.0) |
| Change in the SBMA Reserve | 1,183 | 0.8 |
| (Gain) or Loss on the Actuarial Value of Assets | $ 5,029 | 3.5% |

These net gains and losses are within a reasonable range for variances in a single year given the current low wage increase environment, and the asset losses that were recognized in the Actuarial Value of Assets this year.

Based on the 2011 Actuarial Valuation, the UAO was expected to increase to $68,982 million. The actual UAO of $70,957 million represents a net actuarial loss of $1,975 million.

- Salaries increased less than predicted by the current actuarial assumptions, causing the Actuarial Obligation to decrease by $3,097 million from the expected amount. As history has shown, salary increases less than those assumed are often offset in future years by actual salary increases greater than those assumed. Given the recessionary economic environment, smaller-than-expected salary increases have been common among public agencies in recent years. We expect to continue to see salary increase fluctuations from year to year.

- All other non-investment experience represents only a relatively small portion of the expected Actuarial Obligation. These relatively minor net gains and losses indicate that the census is consistent from the prior period, and the actual experience tracked closely overall with the actuarial assumptions (exclusive of the asset return and the salary increase).

**Actuarial Gains and Losses (continued)**

- On the asset side, there are a number of sources of the actuarial gain or loss. First, we identified an investment return on the Fair Market Value of Assets less than the 7.50% assumption that was used in the prior valuation. The return on market value was estimated at 0.6%, while the return on the Actuarial Value of Assets was estimated at 4.3% due to the recognition of a portion of the currently deferred investment losses.
- We do not predict future changes in the SBMA Reserve allocation in the DB Program valuation. The amount allocated to the SBMA Reserve increased by $1,183 million over the year. Any increase in this value results in an actuarial loss in the subsequent DB Program valuation.

**Volatility Ratios**

As a retirement system becomes more mature (i.e., a greater percentage of the obligation is attributable to benefits already earned), it tends to be subject to increased volatility in the contributions needed. Specifically, for CalSTRS, there may be significant swings in the Additional Revenue Needed from year to year due to the actual investment return.

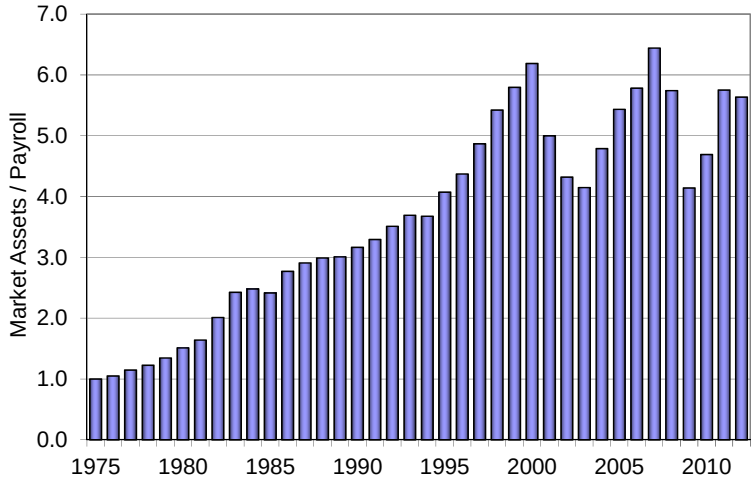
One indicator of this potential volatility is the Asset Volatility Ratio (AVR) which is equal to the Fair Market Value of Assets divided by total payroll. Plans with a high Asset Volatility Ratio will be subject to a greater level of contribution volatility. The AVR is a current measure since it is based on the current level of assets and will vary from year to year.

For CalSTRS, the current AVR is equal to 5.6, which is typical for a mature system. This means that for each 1% asset loss (in relation to the assumed investment return), there will need to be an increase in contributions equivalent to 5.6% of one-year's payroll. Since CalSTRS targets a funding period of 30 years, the increase (or decrease) in the Additional Revenue Needed will be spread out over 30 years, resulting in a 0.31% of payroll increase (decrease) in the Additional Revenue Needed for each 1% asset loss (gain).

**Volatility Ratios (continued)**

The following graph shows how the System matured during the last 25 years of the 20th Century, as represented by the increasing AVR. Over the last decade, the AVR has somewhat leveled off although there continues to be year-to-year variance.

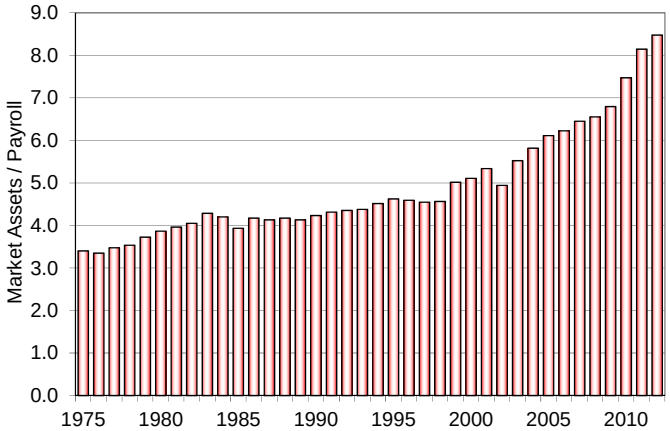
Historical Asset Volatility Ratio




Another measure of a system's maturity is the Liability Volatility Ratio, which is equal to the Actuarial Obligation divided by the total payroll. This ratio provides an indication of the longer-term potential for contribution volatility for any given level of investment volatility. In addition, this ratio provides an indication of the potential contribution volatility due to liability experience (gains and losses) and liability re-measurements (assumption changes). For CalSTRS the current LVR is 8.5. Ultimately, the LVR and AVR should be equal if CalSTRS achieves 100% funding in the future.

The following graph shows the historical LVR. It is a similar pattern to the Asset Volatility Ratio, except the increase is more gradual and the year-to-year variance is significantly less.

Historical Liability Volatility Ratio



## Table 7
## Funded Status

| *($ Millions)* | 2012 | 2011 |
|---|---|---|
| **Actuarial Obligation** *(Table 2)* | $ 215,189 | $ 208,405 |
| **Actuarial Value of Assets** | | |
| Calculated *(Table 5)* | $ 152,515 | $ 151,030 |
| Less SBMA Reserve | (8,283) | (7,100) |
| Program Assets | $ 144,232 | $ 143,930 |
| **Unfunded Actuarial Obligation** | **$ 70,957** | **$ 64,475** |
| **Funded Ratio** | **67.0%** | **69.1%** |

## Table 8
## Actuarial Gains and Losses

| *($ Millions)* | Expected | Actual | (Gain) / Loss |
|---|---|---|---|
| **Actuarial Obligation** | | | |
| Actuarial Obligation June 30, 2011 | $208,405 | | |
| Normal Cost for 2011-12 | 4,704 | | |
| Benefits Paid (Excludes Purchasing Power) | (10,291) | | |
| Expected Interest at 7.50% | 15,425 | | |
| **Actuarial Obligation June 30, 2012** | **$218,243** | **$215,189** | **$ (3,054)** |
| *By Source:* | | | |
| *Change in actuarial assumptions* | | | *0* |
| *Rehired Members* | | | *102* |
| *Retiree Mortality* | | | *(148)* |
| *Active Member Mortality* | | | *(7)* |
| *Service Retirements* | | | *19* |
| *Terminations* | | | *(28)* |
| *Disablement* | | | *88* |
| *Salary increases less than assumed* | | | *(3,097)* |
| *All Other Non-investment Sources* | | | *17* |
| *Total (Gain) Loss on the Actuarial Obligation* | | | *$ (3,054)* |
| **Actuarial Value of Assets** | | | |
| Actuarial Value of Assets June 30, 2011 | $143,930 | | |
| Expected Contributions for 2011-12 | 5,025 | | |
| Benefits Paid (Excludes Purchasing Power) | (10,291) | | |
| Expected Interest at 7.50% on AVA | 10,597 | | |
| **Actuarial Value of Assets June 30, 2012** | **$149,261** | **$144,232** | **$ 5,029** |
| *By Source: Investment Return on Actuarial Value of Assets (including the recognition of prior deferred investment gains and losses)* | | | *$ 3,908* |
| *Contributions (in excess of) or less than assumed (including service purchases)* | | | *(62)* |
| *Change in SBMA Reserve* | | | *1,183* |
| *Total (Gain) Loss on the Actuarial Value of Assets* | | | *$ 5,029* |
| **Unfunded Actuarial Obligation** | **$ 68,982** | **$ 70,957** | **$ 1,975** |

## Section 7 Supplemental Contributions

Under State law EC §22955(b), additional funds are required to be contributed by the State if at least one of the following two separate conditions is met:

- Additional funding is required if the sum of the 8% contribution from the members and the 8% contribution from the employers (excluding the 0.25% contribution for sick leave credit) is not sufficient to pay the Normal Cost of the benefits in effect as of July 1, 1990.
- Additional funding is required if the Actuarial Value of Assets associated with the benefit provisions in effect as of July 1, 1990 is less than the Actuarial Obligation for those benefits.

Specifically, the additional funds "shall be adjusted to reflect the contribution required to fund the normal cost deficit or the unfunded obligation as determined by the Board based upon a recommendation from its actuary." The amount will be in addition to the 2.017% of compensation described in 22955(a) and, as shown in the Summary of Findings, will not exceed 0.524% of compensation in the first year increasing by 0.25% per year and in no case will exceed 1.505%.

### Normal Cost Deficit

Since the Normal Cost Rate for the 1990 Benefit Structure is less than the 16% rate cited in the statute, there is no Normal Cost Deficit.

| | 2012 Valuation | 2011 Valuation |
|---|---|---|
| **Normal Cost Deficit – 1990 Benefit Structure** | | |
| Normal Cost Rate | 15.444% | 15.491% |
| Revenue for 1990 Benefits | 16.000 | 16.000 |
| Normal Cost Deficit | 0.000% | 0.000% |

### 1990 Unfunded Actuarial Obligation

The Actuarial Obligation for the DB Program is recalculated using the benefit provisions in place during 1990. CalSTRS provides us with supplementary information on the census data for this determination. The process has limitations since we do not know, for example, if members who retired would have done so if the post-1990 benefit enhancements had not been enacted. However, we believe we are using a reasonable process to estimate what the Actuarial Obligation would be if only the 1990 benefits were currently in place.

**1990 Unfunded Actuarial Obligation (continued)**

There were no benefit improvements enacted between 1990 and 1998 that had a material cost. All benefit enhancements enacted with effective dates from July 1, 1990 to December 31, 1998 have been presumed to be cost-neutral. Due to the enhanced retirement benefits enacted since 1990, we are using a separate set of retirement probabilities to evaluate the 1990 Benefit Structure.

The Actuarial Obligation related to the 1990 Benefit Structure is $175.4 billion. This compares to the Actuarial Obligation for the DB Program of $215.2 billion.

| *($ Millions)* | 2012 Valuation | 2011 Valuation |
|---|---|---|
| **Actuarial Obligation – 1990 Benefit Structure** | | |
| Value of Projected Benefits | $222,415 | $217,386 |
| Value of Future Normal Costs | 47,056 | 47,728 |
| Actuarial Obligation | $175,359 | $169,658 |

The Actuarial Value of Assets needs to be adjusted to reflect the contributions started on October 1, 1998, and an estimate of the additional benefits paid out due to the post-1990 benefit increases up to June 30, 2012. This task also has some limitations since we do not have precise data regarding the portion of, or the timing of, benefit payments that would be attributable to only the 1990 benefits.

The most significant adjustments to the assets are:

- Eliminate contributions in excess of 16.00%,
- Add back the member contributions that were directed to the DBS Program,
- Add back the benefit enhancements that have been paid, and
- Adjust for interest.

See **Table 9** for the details of the asset adjustment.

| *($ Millions)* | June, 2012 | June, 2011 |
|---|---|---|
| **Asset Adjustment – 1990 Benefit Structure** | | |
| Actuarial Value for DB Program | $144,232 | $143,930 |
| Adjustments per Table 9 | 10,783 | 9,452 |
| Board's THBF allocation | 0 | 0 |
| Actuarial Value of Assets | $155,015 | $153,382 |

For purposes of testing the funding sufficiency of the 1990 Benefit Structure, note that we did not reserve the Board's allocation of assets for future THBF costs because it was established subsequent to 1990.

**1990 Unfunded Actuarial Obligation (continued)**

The following table summarizes the Funded Status of the 1990 Benefit Structure as detailed in **Table 10**. The 1990 Benefit Structure has an Actuarial Deficit.

| *($ Millions)* | 2012 Valuation | 2011 Valuation |
|---|---|---|
| **Funded Status – 1990 Benefit Structure** | | |
| Actuarial Obligation | $175,359 | $169,658 |
| Actuarial Value of Assets | 155,015 | 153,382 |
| Unfunded Actuarial Obligation | $ 20,344 | $ 16,276 |
| Funded Ratio | 88.4% | 90.4% |

**Supplemental State Contributions**

The statute calls for a supplemental State contribution to fund the normal cost deficit or the unfunded obligation if one of the two conditions described above is met. Since a UAO on the 1990 Benefit Structure exists as of the 2012 Actuarial Valuation and, since **Table 11** shows that it cannot be amortized based on the current rate, an increase in the State supplemental contribution rate is required. This results in a required State contribution rate of 3.041% for the fiscal year beginning in 2013.

| State Contribution Rate | | |
|---|---|---|
| **Contribution Type** | **FYB2013 (2012 Val)** | **FYB2012 (2011 Val)** |
| Basic -- EC 22955(a) | 2.017% | 2.017% |
| Supplemental -- EC 22955(b) | 1.024% | 0.774% |
| Total State Contribution Rate | 3.041% | 2.791% |

The funded status of the 1990 Benefit Structure in future years is difficult to predict with certainty because the Actuarial Value of Assets for the 1990 Benefit Structure includes adjustments for contributions and benefits paid in excess of those in place in 1990. The benefits paid may vary considerably depending on demographic experience. In addition, the Actuarial Obligation can only be assessed accurately when current census data is evaluated along with current asset information.

## Table 9
## Asset Adjustment for 1990 Benefit Structure

| *($ Millions)* | 2012 | 2011 |
|---|---|---|
| **Assets Allocated to Post-1990 Benefit Increases** | | |
| Allocated Market Value at Beginning of Year | $ 9,209 | $ 6,465 |
| Adjustment for prior DBS Program benefit payments | 0 | 0 |
| Contributions During the Year | | |
| EC §22951 at 0.250% of Earned Salaries | (66) | (68) |
| EC §22955 at 2.017% of second preceding fiscal year Earned Salaries | (548) | (567) |
| EC §22955b at 0.524% of second preceding fiscal year Earned Salaries | (142) | 0 |
| 2% DBS redirection reallocated to DB Program | (3) | 264 |
| THBF costs reallocated to DB Program | 35 | 36 |
| Total Adjustment to Contributions[1] | (724) | (335) |
| Benefits Paid During the Year | | |
| Post-1990 Benefits Paid During the Year | 1,591 | 1,462 |
| 2% DBS redirection reallocated to DB Program | (19) | (20) |
| Total Adjustment to Benefits Paid [1] | 1,572 | 1,442 |
| Estimated Investment Earnings for the Year [2] | 62 | 1,637 |
| **Total Allocated Market Value at End of Year** | **$10,119** | **$ 9,209** |
| Ratio of Actuarial Value to Market Value [3] | 106.566% | 102.644% |
| **Actuarial Value of Assets for Post-1990 Benefit Increases** | **$10,783** | **$ 9,452** |

*(1) May not add exactly, due to rounding.*

*(2) Based on Fair Market Value and uniform cash flow for contributions, benefits and expenses. The rates of return used in these calculations were 23.56% for 2010-11 and 0.65% for 2011-12.*

*(3) Developed from Table 5.*

## Table 10
## Funding Sufficiency for 1990 Benefit Structure

| *($ Millions)* | 2012 | 2011 |
|---|---|---|
| **Actuarial Obligation** | | |
| Present Value of Projected Benefits | | |
| Benefits Currently Being Paid | $ 96,953 | $ 91,802 |
| Benefits to Inactive Members | 4,416 | 4,363 |
| Benefits to Active Members | 121,046 | 121,221 |
| Total | $222,415 | $217,386 |
| Present Value of Future Normal Costs | 47,056 | 47,728 |
| Actuarial Obligation | $175,359 | $169,658 |
| **Actuarial Value of Assets** | | |
| Actuarial Value of Assets *(Table 7)* | $144,232 | $143,930 |
| Plus, Asset Adjustment *(Table 9)* | 10,783 | 9,452 |
| Plus, Allocation to Health Benefits | 0 | 0 |
| Net Assets Available | $155,015 | $153,382 |
| **Funded Status** | | |
| Actuarial Obligation | $175,359 | $169,658 |
| Actuarial Value of Assets | 155,015 | 153,382 |
| Unfunded Actuarial Obligation (Surplus) | $ 20,344 | $ 16,276 |
| Funded Ratio | 88.4% | 90.4% |
| **Amortization Period** | | |
| Revenue for 1990 Benefits | 16.000% | 16.000% |
| Normal Cost Rate for 1990 Benefits | (15.444) | (15.491) |
| EC 22955(b) | 1.334 | 1.285 |
| Revenue Available for Amortization | 1.890% | 1.794% |
| Amortization Period | *Does Not Amortize*[(1)] | *Does Not Amortize*[(1)] |

*(1) The available revenue does not pay off the Unfunded Actuarial Obligation over any period. Note that this factors in the expected recognition of losses that are currently deferred.*

## Table 11
## Amortization of 1990 Unfunded Actuarial Obligation(1)
(Deferred Losses are Recognized)

| *($Millions)* | | Beginning | Amortization Payment | | | | Interest | Recognition of | Ending |
|---|---|---|---|---|---|---|---|---|---|
| | | Unfunded | 16% | Supp. | Normal | Available | Charge | Deferred | Unfunded |
| Year | FYE | Act. Oblig. | Contrib. | Contrib. | Cost | Amtzn. | at 7.50% | Asset Losses | Act. Oblig. |
| 1 | 2013 | $20,344 | $4,267 | $211 | $4,132 | $346 | $1,513 | $3,367 | $24,878 |
| 2 | 2014 | 24,878 | 4,427 | 272 | 4,285 | 414 | 1,851 | 2,413 | 28,728 |
| 3 | 2015 | 28,728 | 4,591 | 340 | 4,445 | 486 | 2,137 | 1,729 | 32,108 |
| 4 | 2016 | 32,108 | 4,763 | 416 | 4,611 | 568 | 2,387 | 1,239 | 35,166 |
| 5 | 2017 | 35,166 | 4,940 | 432 | 4,783 | 589 | 2,616 | 888 | 38,081 |
| 6 | 2018 | 38,081 | 5,124 | 448 | 4,961 | 611 | 2,834 | 637 | 40,941 |
| 7 | 2019 | 40,941 | 5,315 | 465 | 5,146 | 634 | 3,047 | 456 | 43,810 |
| 8 | 2020 | 43,810 | 5,513 | 482 | 5,338 | 657 | 3,262 | 327 | 46,742 |
| 9 | 2021 | 46,742 | 5,718 | 500 | 5,537 | 681 | 3,481 | 234 | 49,776 |
| 10 | 2022 | 49,776 | 5,931 | 519 | 5,743 | 707 | 3,707 | 168 | 52,944 |
| 11 | 2023 | 52,944 | 6,152 | 538 | 5,957 | 733 | 3,944 | 120 | 56,275 |
| 12 | 2024 | 56,275 | 6,382 | 558 | 6,179 | 761 | 4,193 | 86 | 59,793 |
| 13 | 2025 | 59,793 | 6,619 | 579 | 6,409 | 789 | 4,455 | 62 | 63,521 |
| 14 | 2026 | 63,521 | 6,866 | 600 | 6,648 | 818 | 4,734 | 44 | 67,481 |
| 15 | 2027 | 67,481 | 7,122 | 623 | 6,895 | 850 | 5,030 | 32 | 71,693 |
| 16 | 2028 | 71,693 | 7,387 | 646 | 7,152 | 881 | 5,345 | 23 | 76,180 |
| 17 | 2029 | 76,180 | 7,662 | 670 | 7,418 | 914 | 5,680 | 16 | 80,962 |
| 18 | 2030 | 80,962 | 7,947 | 695 | 7,695 | 947 | 6,037 | 12 | 86,064 |
| 19 | 2031 | 86,064 | 8,243 | 721 | 7,981 | 983 | 6,419 | 8 | 91,508 |
| 20 | 2032 | 91,508 | 8,550 | 748 | 8,278 | 1,020 | 6,826 | 6 | 97,320 |
| 21 | 2033 | 97,320 | 8,869 | 775 | 8,586 | 1,058 | 7,260 | 4 | 103,526 |
| 22 | 2034 | 103,526 | 9,199 | 804 | 8,906 | 1,097 | 7,724 | 3 | 110,156 |
| 23 | 2035 | 110,156 | 9,541 | 834 | 9,237 | 1,138 | 8,220 | 2 | 117,240 |
| 24 | 2036 | 117,240 | 9,896 | 865 | 9,581 | 1,180 | 8,750 | 2 | 124,812 |
| 25 | 2037 | 124,812 | 10,265 | 897 | 9,938 | 1,224 | 9,316 | 1 | 132,905 |
| 26 | 2038 | 132,905 | 10,647 | 931 | 10,308 | 1,270 | 9,921 | 1 | 141,557 |
| 27 | 2039 | 141,557 | 11,044 | 965 | 10,692 | 1,317 | 10,568 | 1 | 150,809 |
| 28 | 2040 | 150,809 | 11,456 | 1,001 | 11,091 | 1,366 | 11,261 | 0 | 160,704 |
| 29 | 2041 | 160,704 | 11,882 | 1,039 | 11,504 | 1,417 | 12,001 | 0 | 171,288 |
| 30 | 2042 | 171,288 | 12,326 | 1,077 | 11,934 | 1,469 | 12,793 | 0 | 182,612 |

*(1) There is currently an Unfunded Actuarial Obligation based on the 1990 Benefit Structure which cannot be amortized by the current contribution rate, so a 0.25% increase in the State supplemental contribution rate is required.*

## Section 8 Funding Sufficiency

The contributions to fund the DB Program include those listed below and described in **Table 12,** including reference to the appropriate section of the California Education Code. Since each contribution is not paid uniformly over time as a percentage of Earned Salaries, we have calculated an equivalent rate over a 30-year period, the period used to test the sufficiency of the statutory revenue stream.

| Source of Revenue | FYB2012 Rate | Equivalent Rate |
|---|---|---|
| Members | 8.000% | 8.000% |
| Directed to DBS Accounts | (0.000) | (0.000) |
| Employers | 8.000 | 8.000 |
| Employers – Sick Leave | 0.250 | 0.250 |
| State | 2.017 | 1.888 |
| State – 1990 Benefit Structure | 0.774 | 1.334 |
| Equivalent Level Contribution Rate over 30 Years | | **19.472%** |

The basic State contribution rate will be 2.017% of the second preceding fiscal year Earned Salaries, which is equivalent to a lesser percentage of current Earned Salaries. For example, the State contribution for the 2012-13 will be equal to 2.017% of the 2010-11 Earned Salaries. Based on two years of known future contributions and projections for the other years, the equivalent rate for the 30-year period is 1.888% of current Earned Salaries.

As demonstrated in Tables 10 and 11, the supplemental contribution from the State for the 1990 benefit structure is required at this time. The equivalent contribution rate for the supplemental contributions over the 30-year period, taking into account currently scheduled projected increases, is 1.334%.

The calculation of the equivalent rates in **Table 13** results in a combined equivalent contribution of 19.472% of Earned Salaries over a 30-year period.

**Table 14** shows the amortization of the Unfunded Actuarial Obligation on a year-by-year basis. Based on the current Actuarial Value of Assets and all future experience emerging as assumed, the UAO will not be amortized over the next 30 years. This is consistent with our projections from prior valuations.

**Funding Sufficiency (continued)**

**Table 15** summarizes these findings. Note that the supplemental contributions under EC §22955(b) are reflected.

| | 2012 Valuation | 2011 Valuation |
|---|---|---|
| Normal Cost Rate | 18.276% | 18.299% |
| Amortization Rate | 15.816* | 14.044* |
| Total Level Rate over a 30-Year Period | 34.092% | 32.343% |
| Projected Revenue | 19.472% | 19.418% |
| Estimated Additional Revenue Needed | 14.620%* | 12.925%* |

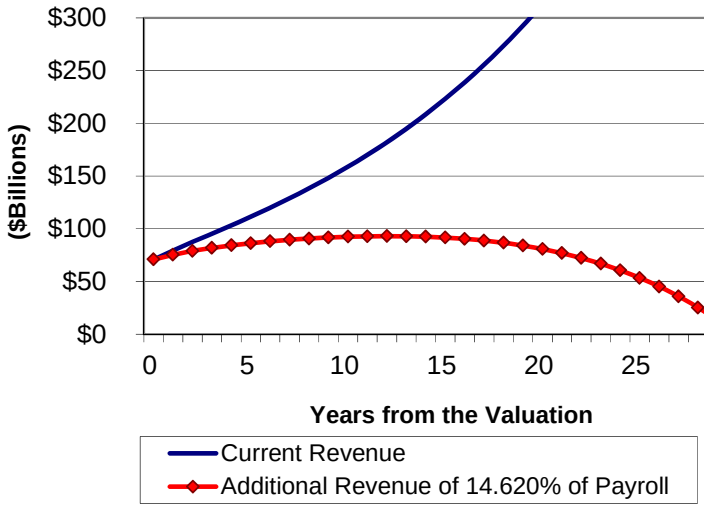
* *The additional revenue needed reflects the expected future recognition of asset losses currently being deferred in the June 30, 2012 Actuarial Value of Assets.*

It is clear that, based on the current data, methods and assumptions, the projected revenue for the DB Program is not sufficient.

**Table 16** (in the same format as Table 14) shows the amortization of the Unfunded Actuarial Obligation over a 30-year period **if contribution revenue were increased by 14.620% of current year Earned Salaries** on the valuation date. We did not address the source of the additional revenue as it is not relevant to the amortization schedule, except as previously noted an increase in the State and member contribution rates would have to be greater than 1.0% of payroll to be equivalent to a 1.0% contribution to pay off the UAO.

The following graph illustrates the expected amortization of the UAO with and without the additional revenue stream. This is based on a future investment return of 7.50% each year going forward and all other assumptions being met.

**Projected Unfunded Actuarial Obligation**



**Funding Sufficiency (continued)**

One of the future contingencies that may lessen the impact of the funding shortage is the potential growth of the active DB Program membership. An increase in the number of active members will improve the financial condition of the DB Program because the additional revenue should exceed the expected Normal Cost Rate (the Normal Cost Rate is the expected total cost for a new member).

The excess of revenue over the Normal Cost Rate for additional members will provide added resources to finance the current UAO. However, as the total current contribution rate is only slightly greater than the Normal Cost Rate, an increasing active population would not be expected to have a significant impact based on the current contribution level.

Conversely, a declining active population, which has been the recent experience of CalSTRS, could have a negative impact on the additional revenue percentage needed.

## Table 12
## Contributions

| | | Current Rate | Equivalent Rate [1] |
|---|---|---|---|
| EC 22901 | Members | 8.000% | 8.000% |
| EC 22950 & 22951 | Employers | 8.250 | 8.250 |
| EC 22950 (c) | Employers for THBF [2] | *as needed* | 0.000 |
| EC 22955 (a) | State [3] | 2.017 | 1.888 |
| EC 22955 (b) | State [4] | *varies by year* | 1.334 |
| **Equivalent Level Contribution Rate over 30-Year Period** | | | **19.472%** |

*(1) Equivalent level contribution rate payable over the next 30 years. See Table 13 for details.*

*(2) The Teachers' Health Benefit Fund is financed by a redirection of employer contributions. The Teachers' Retirement Board has set aside DB Program assets to finance these future costs. This is reflected in the valuation by adding the unfunded obligation for future THBF benefits to the Actuarial Obligation of the DB Program. See Table 2.*

*(3) The State's contribution of 2.017% is paid quarterly based on second prior fiscal year salaries.*

*(4) Additional funding is provided only if the Normal Cost Rate is greater than 16.000% of salaries for benefits in effect on July 1, 1990 or there is an Unfunded Actuarial Obligation (related to the 1990 Benefit Structure). The 1990 Benefit Structure was not adequately funded beginning with the June 30, 2010 actuarial valuation, so additional contributions are required.*

## Table 13
## 30-Year Projection of Contributions

| *($Millions)* | | | Member | Employer | | | |
|---|---|---|---|---|---|---|---|
| | Projected | Member | DBS | *22950 &* | State | State | Total |
| FYE | Salaries | 22901 | *22901.5* | *22951* | *22955(a)* | *22955(b)* | Contrib. |
| 2013 | $26,671 | $2,134 | $0 | $2,200 | $549 | $211 | $5,094 |
| 2014 | 27,664 | 2,213 | 0 | 2,282 | 536 | 272 | 5,303 |
| 2015 | 28,695 | 2,296 | 0 | 2,367 | 538 | 340 | 5,541 |
| 2016 | 29,765 | 2,381 | 0 | 2,456 | 558 | 416 | 5,811 |
| 2017 | 30,874 | 2,470 | 0 | 2,547 | 579 | 432 | 6,028 |
| 2018 | 32,025 | 2,562 | 0 | 2,642 | 600 | 448 | 6,252 |
| 2019 | 33,218 | 2,657 | 0 | 2,741 | 623 | 465 | 6,486 |
| 2020 | 34,456 | 2,756 | 0 | 2,843 | 646 | 482 | 6,727 |
| 2021 | 35,740 | 2,859 | 0 | 2,949 | 670 | 500 | 6,978 |
| 2022 | 37,072 | 2,966 | 0 | 3,058 | 695 | 519 | 7,238 |
| 2023 | 38,453 | 3,076 | 0 | 3,172 | 721 | 538 | 7,507 |
| 2024 | 39,886 | 3,191 | 0 | 3,291 | 748 | 558 | 7,788 |
| 2025 | 41,372 | 3,310 | 0 | 3,413 | 776 | 579 | 8,078 |
| 2026 | 42,913 | 3,433 | 0 | 3,540 | 804 | 600 | 8,377 |
| 2027 | 44,512 | 3,561 | 0 | 3,672 | 834 | 623 | 8,690 |
| 2028 | 46,170 | 3,694 | 0 | 3,809 | 866 | 646 | 9,015 |
| 2029 | 47,889 | 3,831 | 0 | 3,951 | 898 | 670 | 9,350 |
| 2030 | 49,672 | 3,974 | 0 | 4,098 | 931 | 695 | 9,698 |
| 2031 | 51,521 | 4,122 | 0 | 4,250 | 966 | 721 | 10,059 |
| 2032 | 53,438 | 4,275 | 0 | 4,409 | 1,002 | 748 | 10,434 |
| 2033 | 55,426 | 4,434 | 0 | 4,573 | 1,039 | 775 | 10,821 |
| 2034 | 57,489 | 4,599 | 0 | 4,743 | 1,078 | 804 | 11,224 |
| 2035 | 59,629 | 4,770 | 0 | 4,919 | 1,118 | 834 | 11,641 |
| 2036 | 61,849 | 4,948 | 0 | 5,103 | 1,160 | 865 | 12,076 |
| 2037 | 64,152 | 5,132 | 0 | 5,293 | 1,203 | 897 | 12,525 |
| 2038 | 66,542 | 5,323 | 0 | 5,490 | 1,247 | 931 | 12,991 |
| 2039 | 69,021 | 5,522 | 0 | 5,694 | 1,294 | 965 | 13,475 |
| 2040 | 71,594 | 5,728 | 0 | 5,907 | 1,342 | 1,001 | 13,978 |
| 2041 | 74,264 | 5,941 | 0 | 6,127 | 1,392 | 1,039 | 14,499 |
| 2042 | 77,035 | 6,163 | 0 | 6,355 | 1,444 | 1,077 | 15,039 |
| **PV** [(1)] | $481,906 | $38,552 | $0 | $39,757 | $9,097 | $6,430 | $93,836 |
| **Level Rate** [(2)] | | **8.000%** | **-** | **8.250%** | **1.888%** | **1.334%** | **19.472%** |

*(1) Present Value, as of the valuation date, of 30-year series of contributions and appropriations.*

*(2) Equivalent level rate payable over the 30-year period.*

## Table 14
## Amortization of Unfunded Actuarial Obligation [1] [2]

| *($Millions)* | | Beginning | Amortization Payment | | | Interest | Recognition of | Ending |
|---|---|---|---|---|---|---|---|---|
| | | Unfunded | Total | Normal | Available | Charge | Deferred | Unfunded |
| Year | FYE | Act. Oblig. | Contrib. | Cost | Amtzn. | at 7.50% | Asset Losses | Act. Oblig. |
| 1 | 2013 | $70,957 | $5,093 | $4,874 | $219 | $5,314 | $3,367 | $79,419 |
| 2 | 2014 | 79,419 | 5,304 | 5,036 | 268 | 5,947 | 2,413 | 87,511 |
| 3 | 2015 | 87,511 | 5,541 | 5,204 | 337 | 6,551 | 1,729 | 95,454 |
| 4 | 2016 | 95,454 | 5,811 | 5,377 | 434 | 7,143 | 1,239 | 103,402 |
| 5 | 2017 | 103,402 | 6,028 | 5,557 | 471 | 7,738 | 888 | 111,557 |
| 6 | 2018 | 111,557 | 6,252 | 5,742 | 510 | 8,348 | 637 | 120,032 |
| 7 | 2019 | 120,032 | 6,485 | 5,933 | 552 | 8,982 | 456 | 128,918 |
| 8 | 2020 | 128,918 | 6,727 | 6,131 | 596 | 9,647 | 327 | 138,296 |
| 9 | 2021 | 138,296 | 6,978 | 6,334 | 644 | 10,349 | 234 | 148,235 |
| 10 | 2022 | 148,235 | 7,238 | 6,544 | 694 | 11,092 | 168 | 158,801 |
| 11 | 2023 | 158,801 | 7,507 | 6,761 | 746 | 11,883 | 120 | 170,058 |
| 12 | 2024 | 170,058 | 7,787 | 6,984 | 803 | 12,725 | 86 | 182,066 |
| 13 | 2025 | 182,066 | 8,077 | 7,214 | 863 | 13,623 | 62 | 194,888 |
| 14 | 2026 | 194,888 | 8,378 | 7,451 | 927 | 14,583 | 44 | 208,588 |
| 15 | 2027 | 208,588 | 8,690 | 7,696 | 994 | 15,608 | 32 | 223,234 |
| 16 | 2028 | 223,234 | 9,014 | 7,948 | 1,066 | 16,703 | 23 | 238,894 |
| 17 | 2029 | 238,894 | 9,350 | 8,206 | 1,144 | 17,875 | 16 | 255,641 |
| 18 | 2030 | 255,641 | 9,698 | 8,472 | 1,226 | 19,128 | 12 | 273,555 |
| 19 | 2031 | 273,555 | 10,059 | 8,744 | 1,315 | 20,468 | 8 | 292,716 |
| 20 | 2032 | 292,716 | 10,433 | 9,024 | 1,409 | 21,902 | 6 | 313,215 |
| 21 | 2033 | 313,215 | 10,821 | 9,312 | 1,509 | 23,436 | 4 | 335,146 |
| 22 | 2034 | 335,146 | 11,224 | 9,610 | 1,614 | 25,077 | 3 | 358,612 |
| 23 | 2035 | 358,612 | 11,642 | 9,918 | 1,724 | 26,833 | 2 | 383,723 |
| 24 | 2036 | 383,723 | 12,075 | 10,238 | 1,837 | 28,712 | 2 | 410,600 |
| 25 | 2037 | 410,600 | 12,525 | 10,569 | 1,956 | 30,723 | 1 | 439,368 |
| 26 | 2038 | 439,368 | 12,991 | 10,913 | 2,078 | 32,876 | 1 | 470,167 |
| 27 | 2039 | 470,167 | 13,475 | 11,270 | 2,205 | 35,181 | 1 | 503,144 |
| 28 | 2040 | 503,144 | 13,978 | 11,643 | 2,335 | 37,650 | 0 | 538,459 |
| 29 | 2041 | 538,459 | 14,499 | 12,031 | 2,468 | 40,294 | 0 | 576,285 |
| 30 | 2042 | 576,285 | 15,040 | 12,437 | 2,603 | 43,126 | 0 | 616,808 |

*(1) Based on the actuarial value of assets with projected recognition of deferred known asset losses as of June 30, 2012.*

*(2) Supplemental State contributions under EC §22955(b) are included, as they are required based on the current valuation.*

## Table 15
## Funding Sufficiency

| *($ Millions)* | June, 2012 | June, 2011 |
|---|---|---|
| **Funded Status** ***(Table 7)*** | | |
| Actuarial Obligation | $ 215,189 | $ 208,405 |
| Actuarial Value of Assets | 144,232 | 143,930 |
| Unfunded Actuarial Obligation | $ 70,957 | $ 64,475 |
| Funded Ratio | 67.0% | 69.1% |
| **Level Contributions over 30 Years** ***(Table 12)*** | 19.472% | 19.418% |
| **Amortization Period based on Current Revenues** | | |
| Total Level Rate over the Amortization Period | 19.472% | 19.418% |
| Normal Cost Rate[(1)] | 18.276 | 18.299 |
| Amortization Rate | 1.196% | 1.119% |
| *Amortization Period (Based on current revenue projections)* | *Does not amortize* | *Does not amortize* |
| **Calculated Contribution Rate for 30-Year Funding Period** | | |
| Normal Cost Rate | 18.276% | 18.299% |
| Amortization Rate | 15.816 | 14.044 |
| Total Level Rate over the Amortization Period | 34.092% | 32.343% |
| Estimated Additional Revenue Needed *(Based on current valuation assumptions)* | 14.620% | 12.925% |

*(1) Normal Cost Rate shown is for current DB Program members as of valuation date. Projected impact of reduced Normal Cost Rate for new members hired on or after January 1, 2013 due to AB 340 is reflected in amortization calculation.*

## Table 16
## Amortization of Unfunded Actuarial Obligation[1]
## Including Sufficient Additional Contributions[2] [3]

| *($Millions)* | | Beginning | Amortization Payment | | | Interest | Recognition of | Ending |
|---|---|---|---|---|---|---|---|---|
| | | Unfunded | Total | Normal | Available | Charge | Deferred | Unfunded |
| Year | FYE | Act. Oblig. | Contrib. | Cost | Amtzn. | at 7.50% | Asset Losses | Act. Oblig. |
| 1 | 2013 | $70,957 | $8,992 | $4,874 | $4,118 | $5,170 | $3,367 | $75,376 |
| 2 | 2014 | 75,376 | 9,349 | 5,036 | 4,313 | 5,494 | 2,413 | 78,970 |
| 3 | 2015 | 78,970 | 9,736 | 5,204 | 4,532 | 5,756 | 1,729 | 81,923 |
| 4 | 2016 | 81,923 | 10,163 | 5,377 | 4,786 | 5,968 | 1,239 | 84,344 |
| 5 | 2017 | 84,344 | 10,541 | 5,557 | 4,984 | 6,143 | 888 | 86,391 |
| 6 | 2018 | 86,391 | 10,934 | 5,742 | 5,192 | 6,288 | 637 | 88,124 |
| 7 | 2019 | 88,124 | 11,342 | 5,933 | 5,409 | 6,410 | 456 | 89,581 |
| 8 | 2020 | 89,581 | 11,764 | 6,131 | 5,633 | 6,511 | 327 | 90,786 |
| 9 | 2021 | 90,786 | 12,203 | 6,334 | 5,869 | 6,593 | 234 | 91,744 |
| 10 | 2022 | 91,744 | 12,658 | 6,544 | 6,114 | 6,656 | 168 | 92,454 |
| 11 | 2023 | 92,454 | 13,129 | 6,761 | 6,368 | 6,700 | 120 | 92,906 |
| 12 | 2024 | 92,906 | 13,618 | 6,984 | 6,634 | 6,724 | 86 | 93,082 |
| 13 | 2025 | 93,082 | 14,126 | 7,214 | 6,912 | 6,727 | 62 | 92,959 |
| 14 | 2026 | 92,959 | 14,652 | 7,451 | 7,201 | 6,707 | 44 | 92,509 |
| 15 | 2027 | 92,509 | 15,198 | 7,696 | 7,502 | 6,662 | 32 | 91,701 |
| 16 | 2028 | 91,701 | 15,764 | 7,948 | 7,816 | 6,590 | 23 | 90,498 |
| 17 | 2029 | 90,498 | 16,351 | 8,206 | 8,145 | 6,488 | 16 | 88,857 |
| 18 | 2030 | 88,857 | 16,960 | 8,472 | 8,488 | 6,352 | 12 | 86,733 |
| 19 | 2031 | 86,733 | 17,591 | 8,744 | 8,847 | 6,180 | 8 | 84,074 |
| 20 | 2032 | 84,074 | 18,246 | 9,024 | 9,222 | 5,967 | 6 | 80,825 |
| 21 | 2033 | 80,825 | 18,924 | 9,312 | 9,612 | 5,709 | 4 | 76,926 |
| 22 | 2034 | 76,926 | 19,629 | 9,610 | 10,019 | 5,401 | 3 | 72,311 |
| 23 | 2035 | 72,311 | 20,359 | 9,918 | 10,441 | 5,040 | 2 | 66,912 |
| 24 | 2036 | 66,912 | 21,117 | 10,238 | 10,879 | 4,618 | 2 | 60,653 |
| 25 | 2037 | 60,653 | 21,904 | 10,569 | 11,335 | 4,132 | 1 | 53,451 |
| 26 | 2038 | 53,451 | 22,720 | 10,913 | 11,807 | 3,575 | 1 | 45,220 |
| 27 | 2039 | 45,220 | 23,566 | 11,270 | 12,296 | 2,939 | 1 | 35,864 |
| 28 | 2040 | 35,864 | 24,444 | 11,643 | 12,801 | 2,219 | 0 | 25,282 |
| 29 | 2041 | 25,282 | 25,356 | 12,031 | 13,325 | 1,406 | 0 | 13,363 |
| 30 | 2042 | 13,363 | 26,302 | 12,437 | 13,855 | 492 | 0 | 0 |

*(1) Based on the actuarial value of assets.*

*(2) An additional contribution of 14.620% of Earned Salaries is included for each of the 30 years. This schedule is for illustrative purposes only since any legislated increase in contributions would likely be effective after the valuation date.*

*(3) Supplemental State contributions under EC §22955(b) are included, as they are required based on the current valuation.*

## Appendix A Provisions of Governing Law

The actuarial calculations contained in this report are based upon our understanding of the CalSTRS DB Program as contained in Part 13 of the California Education Code. The provisions used in this valuation are summarized below for reference purposes.

For purposes of calculating the Additional Revenue Needed, we have reflected the Normal Cost rate for new members hired on or after January 1, 2013 who will be covered by PEPRA. The plan provisions for these members are described in our letter dated October 23, 2012.

**Member Contributions**

| | |
|---|---|
| Contribution Rate: | 8.0% of creditable compensation. The employer can pay all or a portion of a member's contributions. 25% of this contribution was redirected to the member's Defined Benefit Supplement account from January 1, 2001 through December 31, 2010.<br><br>The redirection of member contributions does not apply to the 1990 Benefit Structure. |
| Interest Rate: | Interest is credited at the end of each fiscal year based on rates adopted by the Teachers' Retirement Board. Currently, rates are approximately equal to two-year Treasury notes. |

**Normal Retirement**

| | |
|---|---|
| Eligibility Requirement: | Age 60 with five years of credited service. |
| Allowance: | Two percent of final compensation for each year of credited service. |
| Final Compensation: | Average salary earnable for the highest three consecutive years of credited service for one position. For members with 25 years of service, the calculation is based on the highest average compensation earnable in a consecutive 12-month period.<br><br>12-month highest average compensation does not apply to the 1990 Benefit Structure. |
| Credited Service: | For each year of membership, credited service is granted based on the ratio of salary earned to full-time salary earnable for one position. |
| Sick Leave Service Credit: | Credited service is granted for unused sick leave at the time of retirement. Sick Leave Service Credit up to 0.2 years of Credited Service may be used for eligibility for One-Year Final Compensation or to attain the Career Factor or the Longevity Bonus.<br><br>Unused sick leave service credit does not apply to the 1990 Benefit Structure. |

**Normal Retirement (continued)**

| | |
|---|---|
| Career Factor: | If a member has 30 years of credited service, the age factor is increased by 0.2%. However, the maximum age factor is 2.4%.<br><br>Career factor does not apply to the 1990 Benefit Structure. |
| Longevity Bonus: | For members attaining 30 years of service by January 1, 2011, a longevity bonus of $200 per month is added to the unmodified allowance. The bonus is increased to $300 per month with 31 years of service, and $400 per month with 32 or more years of service.<br><br>Longevity bonus does not apply to the 1990 Benefit Structure. |
| IRC Section 415: | Benefits are subject to limits imposed under Internal Revenue Code (IRC) Section 415. However, no limits are imposed in the valuation of the DB Program in order to address the potential pay-as-you-go funding needs of the Teachers' Replacement Benefits Program Fund. |
| IRC Section 401(a)(17): | Compensation is limited under IRC Section 401(a)(17) and assumed to increase at the rate of inflation for valuation purposes. Current 401(a)(17) limits do not apply to members hired before July 1, 1993. |

**Early Retirement**

| | |
|---|---|
| Eligibility Requirement: | Age 55 with five years of credited service, or age 50 with 30 years of credited service. |
| Benefit Reduction: | A 1/2% reduction in the normal retirement allowance for each full month or partial month the member is younger than age 60, plus a reduction of 1/4% for each full month or partial month the member is younger than age 55. |

**Late Retirement**

| | |
|---|---|
| Allowance: | Members continue to earn additional service credit after age 60. The 2% age factor increases by 0.033% for each quarter year of age that the member is over age 60, up to a maximum of 2.4%.<br><br>The late retirement adjustment does not apply to the 1990 Benefit Structure. |

**Deferred Retirement**

| | |
|---|---|
| Allowance: | Any time after satisfying the minimum service requirement, a member may cease active service, leave the accumulated contributions on deposit, and later retire upon attaining the minimum age requirement. |

**Post-Retirement Benefit Adjustment**

| | |
|---|---|
| Benefit Improvement: | 2% simple increase on September 1 following the first anniversary of the effective date of the allowance, applied to all continuing allowances. |

**Disability Allowance - Coverage A**

| | |
|---|---|
| Eligibility Requirement: | Member has five years of credited California service and has not attained age 60. |
| Allowance*: | 50% of final compensation<br><br>or<br><br>5% of final compensation for each year of service credit if over age 45 with less than 10 years of service credit. |
| Children's Benefit: | 10% for each eligible dependent child, up to a maximum of 40% of final compensation. The increment for each eligible child continues until the child marries or attains age 22. |
| Offsets: | Allowance, including children's increment, is reduced by disability benefits payable under Social Security, Workers' Compensation and district-paid income protection plan. |

**Disability Allowance - Coverage B**

| | |
|---|---|
| Eligibility Requirement: | Member has five years of credited California service. |
| Allowance*: | 50% of final compensation, regardless of age and service credit. |
| Children's Benefit: | 10% for each eligible child up to four children, for a maximum of 40% of final compensation. The increment for each child continues until the child attains age 21, regardless of student, marital, or employment status. |
| Offsets: | The member's allowance is reduced by disability benefits payable under Workers' Compensation. |

**Death Before Retirement - Coverage A**

| | |
|---|---|
| Eligibility Requirement: | One or more years of service credit for active members or members receiving a disability allowance. |
| Lump Sum Payment: | $6,163 lump sum to the designated beneficiary. If there is no surviving spouse, domestic partner or eligible children, the contributions and interest are paid to the designated beneficiary. |

* *Note that, for valuation purposes, the greater of the service retirement allowance and disability allowance is valued if the member is eligible for service retirement.*

**Death Before Retirement - Coverage A (continued)**

| | |
|---|---|
| Allowance: | The surviving spouse or domestic partner with eligible children will receive a family benefit of 40% of final compensation for as long as there is at least one eligible child. An additional 10% of final compensation is payable for each eligible child up to a maximum benefit of 90%.<br><br>If there is no surviving spouse or domestic partner, an allowance of 10% of final compensation is payable to eligible children up to a maximum benefit of 50%.<br><br>When there are no eligible children, the spouse or domestic partner may elect to receive one half of a 50% joint and survivor allowance projected to age 60, or take a lump sum payment of the remaining contributions and interest. |

**Death Before Retirement - Coverage B**

| | |
|---|---|
| Eligibility: | One or more years of service credit for active members. |
| Lump Sum Payment: | $24,652 lump sum to the designated beneficiary. If there is no surviving spouse or domestic partner, the contributions and interest are paid to the designated beneficiary. |
| Allowance: | A lump sum payment of the contributions and interest.<br><br>or<br><br>One-half of a 50% joint and survivor allowance, beginning on the member's 60th birthday, or immediately with a reduction based on the member and spouse's (or domestic partner's) age at the time the benefit begins.<br><br>If the surviving spouse or domestic partner elects a monthly allowance, each eligible child would receive 10% of the member's final compensation, with a maximum benefit of 50%. |

**Death After Retirement**

| | |
|---|---|
| Lump Sum Payment: | $6,163 lump sum to the designated beneficiary. |
| Annuity Form: | If the retiree had elected one of the joint and survivor options, the retirement allowance would be modified in accordance with the option selected.<br><br>If no option had been elected, payment of the unpaid contributions and interest, if any, remaining in the retiree's account. |

**Termination from the Program**

| | |
|---|---|
| Refund: | Refund of contributions with interest as credited to the member's account to date of withdrawal. A refund terminates membership and all rights to future benefits from the System. |
| Re-entry After Refund: | Former members, who re-enter the System, may redeposit all amounts previously refunded plus regular interest. The member must earn one year of credited service after re-entry before becoming eligible for System benefits. |

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## Appendix B Actuarial Methods and Assumptions

This section of the report discloses the actuarial methods and assumptions used in this actuarial valuation. These methods and assumptions have been chosen on the basis of recent experience of the DB Program and on current expectations as to future economic conditions.

The assumptions are intended to estimate the future experience of the members of the DB Program and of the DB Program itself in areas that affect the projected benefit flow and anticipated investment earnings. Any variations in future experience from that expected from these assumptions will result in corresponding changes in estimated costs of the DB Program's benefits.

**Actuarial Cost Method**

The accruing costs of all benefits are measured by the Entry Age Normal Actuarial Cost Method. The projected revenue in excess of the Normal Cost is tested for sufficiency to amortize the Unfunded Actuarial Obligation created by this method. Amortization is calculated on a level percentage of salary including general wage inflation but no increase or decrease in the number of active members.

Method:

The actuarial present value of projected benefits for each individual member included in the valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages. The portion of this actuarial present value allocated to a valuation year is called the Normal Cost. The Normal Cost is based on the benefit structure available to new entrants on the valuation date with an adjustment for the impact of the 2% redirection to the DBS Program that occurred from January 1, 2001 to December 31, 2010. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future Normal Costs is called the Actuarial Obligation. The excess of the Actuarial Obligation over the Actuarial Value of Assets is called the Unfunded Actuarial Obligation. If the Actuarial Value of Assets exceeds the Actuarial Obligation, the difference is called the Actuarial Surplus.

Entry Age:

The ages at entry of future active members are assumed to average the same as the entry ages of the present active members they replace. If the number of active members should increase (or decrease), it is further assumed that the average entry age of the larger (or smaller) group will be the same, from an actuarial standpoint, as that of the present active group. Under these assumptions, the Normal Cost Rate will not vary significantly due to the termination of the present active membership, or with an expansion or contraction of the active membership.

**Asset Valuation Method**

The assets are valued using a method that delays recognition of investment gains or losses. The expected actuarial value is the prior year's actuarial value increased with net cash flow of funds, and all increased with interest during the past year at the expected investment return assumption. One-third of the difference between the expected actuarial value of assets and the Fair Market Value of assets is added to the expected actuarial value of assets to arrive at the Actuarial Value of Assets.

The asset smoothing method was adopted for the 1999 Actuarial Valuation and is effective for the investment experience beginning in July of 1993.

**Actuarial Assumptions**

The Actuarial Standards Board has adopted Actuarial Standard of Practice No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*. This Standard provides guidance on selecting economic assumptions under defined benefit retirement programs such as the System. In our opinion, the economic assumptions have been developed in accordance with the Standard.

The Actuarial Standards Board has adopted Actuarial Standard of Practice No. 35, *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations*. This Standard provides guidance on selecting demographic assumptions under defined benefit retirement programs such as the System. In our opinion, the demographic assumptions have been developed in accordance with the Standard.

The assumptions are intended to estimate the future experience of the members of the DB Program and of the System itself in areas that affect the projected benefit flow and anticipated investment earnings. Any variations in future experience from that expected from these assumptions will result in corresponding changes in estimated costs of the Program's benefits.

The demographic assumptions are listed in **Table B.1** and illustrated at selected ages and duration combinations in **Tables B.2** – **B.7**.

**Payroll Growth Assumption**

The wage growth assumption is equal to 3.75%, and the active population is assumed to be stable. Additionally, the Earned Salaries applicable to the DB Program of new members hired on or after January 1, 2013 is assumed to be 99.23% of a similar non-PEPRA member. Thus, the DB Program payroll is assumed to increase at a rate slightly less than 3.75% each year depending on the expected number of new members.

## Table B.1
## List of Major Valuation Assumptions

### I. Economic Assumptions

| | | |
|---|---|---|
| A. | Investment Return (net of investment and administrative expenses) | 7.50% |
| B. | Interest on Member Accounts | 4.50% |
| C. | Wage Growth | 3.75% |
| D. | Inflation | 3.00% |

### II. Demographic Assumptions

A. Mortality*

| | | | |
|---|---|---|---|
| Active | - Male | 2011 CalSTRS Retired – M (-2 years) | Table B.2 |
| | - Female | 2011 CalSTRS Retired – F (-2 years) | Table B.2 |
| Retired & Beneficiary ** | - Male | 2011 CalSTRS Retired – M | Table B.2 |
| | - Female | 2011 CalSTRS Retired – F | Table B.2 |
| Disabled ** | - Male | 2011 CalSTRS Disabled – M | Table B.2 |
| | - Female | 2011 CalSTRS Disabled– F (select rates in first three years for both Males and Females) | Table B.2 |

* *The mortality assumptions specified contain a margin for expected future mortality improvement. Refer to the 2011 Experience Analysis Report for details. See Table B.9 of this report for a key to the custom mortality tables used for CalSTRS.*

** *Future retirees and beneficiaries are valued with a 2-year age setback*

| | | | |
|---|---|---|---|
| B. | Service Retirement | Experience Tables | Table B.3 |
| C. | Disability Retirement | Experience Tables | Table B.4 |
| D. | Withdrawal | Experience Tables | Table B.5 |
| | Probability of Refund | Experience Tables | Table B.6 |
| E. | Merit Salary Increases | Experience Tables | Table B.7 |
| F. | Supplemental Assumptions | | Table B.8 |

## Table B.2
## Mortality

| | Active Members | |
|---|---|---|
| **Age** | **Male** | **Female** |
| 25 | 0.023% | 0.013% |
| 30 | 0.033 | 0.014 |
| 35 | 0.034 | 0.018 |
| 40 | 0.057 | 0.034 |
| 45 | 0.076 | 0.041 |
| 50 | 0.103 | 0.063 |
| 55 | 0.143 | 0.093 |
| 60 | 0.238 | 0.179 |
| 65 | 0.435 | 0.368 |

| | Retired Members and Beneficiaries * | | Disabled Members (After Year 3) * | |
|---|---|---|---|---|
| **Age** | **Male** | **Female** | **Male** | **Female** |
| 50 | 0.114% | 0.073% | 2.400% | 1.750% |
| 55 | 0.164 | 0.118 | 2.600 | 1.875 |
| 60 | 0.300 | 0.254 | 2.800 | 2.000 |
| 65 | 0.596 | 0.468 | 3.000 | 2.125 |
| 70 | 1.095 | 0.864 | 3.054 | 2.331 |
| 75 | 1.886 | 1.451 | 4.972 | 3.334 |
| 80 | 3.772 | 2.759 | 7.285 | 4.477 |
| 85 | 7.619 | 5.596 | 9.797 | 8.367 |
| 90 | 14.212 | 11.702 | 17.639 | 14.007 |
| 95 | 22.860 | 17.780 | 27.005 | 20.992 |

| **Select rates for disability:** | | |
|---|---|---|
| First year of disablement | 6.0% | 3.5% |
| Second year of disablement | 4.8 | 3.0 |
| Third year of disablement | 3.5 | 2.5 |

* *Future retirees and beneficiaries are valued with a two-year age setback*

## Table B.3
## Service Retirement

| | Only for the 1990 Benefit Structure | | For the DB Program | | | |
|---|---|---|---|---|---|---|
| | | | Under 30 Years * | | 30 or More Years | |
| Age | Male | Female | Male | Female | Male | Female |
| 50 | 0.0% | 0.0% | 0.0% | 0.0% | 1.5% | 2.5% |
| 51 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 2.5 |
| 52 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 2.5 |
| 53 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 2.5 |
| 54 | 1.5 | 1.5 | 0.0 | 0.0 | 2.0 | 3.0 |
| 55 | 5.8 | 7.0 | 2.7 | 4.5 | 8.0 | 9.0 |
| 56 | 3.9 | 4.5 | 1.8 | 3.2 | 8.0 | 9.0 |
| 57 | 4.9 | 4.5 | 1.8 | 3.2 | 10.0 | 11.0 |
| 58 | 6.8 | 7.0 | 2.7 | 4.1 | 14.0 | 16.0 |
| 59 | 17.5 | 14.0 | 4.5 | 5.4 | 18.0 | 19.0 |
| 60 | 25.0 | 22.0 | 6.3 | 9.0 | 27.0 | 31.0 |
| 61 | 16.5 | 15.0 | 6.3 | 9.0 | 47.5 | 47.5 |
| 62 | 16.5 | 15.0 | 10.8 | 10.8 | 42.5 | 45.0 |
| 63 | 15.0 | 15.0 | 11.7 | 16.2 | 35.0 | 40.0 |
| 64 | 17.5 | 18.0 | 10.8 | 13.5 | 30.0 | 35.0 |
| 65 | 20.0 | 18.0 | 13.5 | 14.4 | 32.5 | 37.5 |
| 66 | 16.0 | 18.0 | 10.8 | 13.5 | 30.0 | 32.0 |
| 67 | 16.0 | 18.0 | 10.8 | 13.5 | 30.0 | 32.0 |
| 68 | 16.0 | 16.0 | 10.8 | 13.5 | 30.0 | 32.0 |
| 69 | 16.0 | 16.0 | 10.8 | 13.5 | 30.0 | 32.0 |
| 70 | 100.0 | 100.0 | 10.8 | 13.5 | 30.0 | 35.0 |
| 71 | | | 10.8 | 13.5 | 30.0 | 35.0 |
| 72 | | | 10.8 | 13.5 | 30.0 | 35.0 |
| 73 | | | 10.8 | 13.5 | 30.0 | 35.0 |
| 74 | | | 10.8 | 13.5 | 30.0 | 35.0 |
| 75 | | | 100.0 | 100.0 | 100.0 | 100.0 |

* *If service is equal to or greater than 25 but less than 28 years, the assumed retirement rates shown above for members with less than 25 years of service are increased by 100%. For example, a 60-year old female member with 26 years of service would have an 18.0% probability of retirement (twice the rate for service less than 25 years of 9.0%). For members with 28 but less than 30 years of service, the assumed retirement rates shown above for members with less than 25 years of service apply.*

The assumptions shown above are for retirement from active status. We assume that all vested terminated members retire at age 60.

## Table B.4
## Disability Retirement

### Coverage A

| Age | Male | Female |
|---|---|---|
| 25 | 0.018% | 0.018% |
| 30 | 0.027 | 0.027 |
| 35 | 0.045 | 0.054 |
| 40 | 0.072 | 0.081 |
| 45 | 0.099 | 0.099 |
| 50 | 0.144 | 0.198 |
| 55 | 0.189 | 0.252 |

### Coverage B

| Age | Male | Female |
|---|---|---|
| 25 | 0.010% | 0.020% |
| 30 | 0.020 | 0.020 |
| 35 | 0.030 | 0.040 |
| 40 | 0.060 | 0.070 |
| 45 | 0.100 | 0.110 |
| 50 | 0.140 | 0.185 |
| 55 | 0.245 | 0.300 |
| 60 | 0.365 | 0.380 |
| 65 | 0.400 | 0.400 |
| 70 | 0.400 | 0.400 |

## Table B.5
## Withdrawal

| Year | Male | Female |
|---|---|---|
| 0 | 16.0% | 15.0% |
| 1 | 13.0 | 12.0 |
| 2 | 9.0 | 8.5 |
| 3 | 6.4 | 6.4 |
| 4 | 4.6 | 4.6 |
| 5 | 3.9 | 3.9 |
| 10 | 1.8 | 1.8 |
| 15 | 0.9 | 0.9 |
| 20 | 0.5 | 0.5 |
| 25 | 0.3 | 0.3 |
| 30 | 0.2 | 0.2 |

## Table B.6
## Probability of Refund

| | Entry Ages - Male | | | | |
|---|---|---|---|---|---|
| **Year** | **Under 25** | **25 - 29** | **30 - 34** | **35 - 39** | **40 and Up** |
| Under 5 | 100% | 100% | 100% | 100% | 100% |
| 10 | 46 | 46 | 38 | 36 | 36 |
| 15 | 38 | 38 | 31 | 21 | |
| 20 | 28 | 31 | 15 | | |
| 25 | 15 | 15 | | | |
| 30 | 10 | | | | |

| | Entry Ages - Female | | | | |
|---|---|---|---|---|---|
| **Year** | **Under 25** | **25 - 29** | **30 - 34** | **35 - 39** | **40 and Up** |
| Under 5 | 100% | 100% | 100% | 100% | 100% |
| 10 | 34 | 32 | 32 | 29 | 29 |
| 15 | 27 | 24 | 24 | 24 | |
| 20 | 19 | 14 | 14 | | |
| 25 | 10 | 10 | | | |
| 30 | 10 | | | | |

## Table B.7
## Merit Salary Increases

| | Entry Age - Annual Increase in Salaries Due to Merit | | | | | |
|---|---|---|---|---|---|---|
| **Year** | **Under 25** | **25 - 29** | **30 - 34** | **35 - 39** | **40 - 44** | **45 & up** |
| 1 | 5.6% | 5.3% | 5.1% | 4.8% | 4.8% | 3.5% |
| 2 | 5.6 | 5.1 | 4.9 | 4.7 | 4.7 | 3.3 |
| 3 | 5.6 | 5.0 | 4.8 | 4.6 | 4.6 | 3.0 |
| 4 | 5.5 | 4.8 | 4.6 | 4.4 | 4.4 | 2.9 |
| 5 | 5.5 | 4.8 | 4.5 | 3.8 | 3.8 | 2.6 |
| 10 | 3.2 | 3.0 | 2.7 | 2.3 | 2.2 | 1.6 |
| 15 | 1.5 | 1.5 | 1.4 | 1.1 | 1.1 | 0.8 |
| 20 | 1.3 | 1.1 | 1.1 | 0.8 | 0.8 | 0.6 |
| 25 | 1.1 | 0.9 | 0.8 | 0.5 | 0.5 | |
| 30 | 0.9 | 0.7 | 0.6 | 0.5 | | |
| 35 | 0.8 | 0.7 | 0.6 | | | |
| 40 | 0.8 | 0.6 | | | | |
| 45 | 0.8 | | | | | |

## Table B.8
## Supplemental Assumptions

**PEPRA Coverage**

All members hired on or after January 1, 2013 are assumed to be subject to the provisions of PEPRA.

**Unused Sick Leave**

Credited Service is increased by 2.0%.

**Optional Forms**

Active & Inactive: Based on single life annuity assumed.
Retirees and Beneficiaries: Based on optional form in data.

**Probability of Marriage**

Male: 90%
Female: 70%

Male spouses are assumed to be three years older than female spouses.

**Number of Children**

Married members are assumed to have the following number of children:

| Member's Gender | Assumed Number of Children |
|---|---|
| Male | 0.65 |
| Female | 0.50 |

**Assumed Offsets**

The following offsets, expressed as a percentage of Final Compensation, are assumed to cease at age 60:

| | Coverage A | | Coverage B | |
|---|---|---|---|---|
| | Male | Female | Male | Female |
| Death | 2.0% | 1.0% | 0.0% | 0.0% |
| Disability | 2.0% | 1.0% | 1.0% | 1.0% |

**Valuation of Inactive Members**

Reliable salary and benefit information is not available for inactive members. Therefore, the Actuarial Obligation for inactive members is valued using individual contribution account balances as follows:

1) Projected Account balances at assumed retirement age of 60 are multiplied by 310%. Note this factor is based on a study of the relationship between individual accumulated contribution balances for inactive members and the Actuarial Obligation at actual retirement.

2) An additional load of 10% is applied to account for the potential redeposit of member contributions.

3) A reduction of 17% is applied to non-vested inactives.

## Table B.9
## Custom Mortality Table Key

| | |
|---|---|
| **Healthy (Service) Retirees and Beneficiaries -- Males*** | |
| Expected: | RP2000 Healthy Male -5 to age 70 smoothed to -2 at age 95 |
| Proposed: | RP2000 Healthy Male White Collar -2 Projected to 2025 to age 70 smoothed to -1 at age 90 |
| **Healthy (Service) Retirees and Beneficiaries -- Females*** | |
| Expected: | RP2000 Healthy Female -5/-1 adj from 75 to 90 |
| Proposed: | RP2000 Healthy Female White Collar -4 Projected to 2025 to age 75 smoothed to -0 at age 90 |
| **Disabled Retirees -- Males*** | |
| Expected: | RP2000 Male (minimum 2.5% with select rates in first three years) |
| Proposed: | Age < 70: 2% at age 40 & under, graded to 3.2% at age 70<br>Age > 70: RP2000 Male White Collar +7 Projected to 2025 at age 70 smoothed to +1 age 85<br>(select rates in first three years, regardless of age) |
| **Disabled Retirees -- Females*** | |
| Expected: | RP2000 Female (minimum 2.0% with select rates in first three years) |
| Proposed: | Age < 70: 1.5% at age 40 & Less graded to 2.25% at age 70<br>Age > 70: RP2000 Female White Collar +6 Projected to 2025 at age 70 smoothed to +2 at age 80<br>(select rates in first three years, regardless of age) |

** Tables shown are for current retirees as of the valuation date. Future retirees and beneficiaries are valued with a two-year setback.*

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## Appendix C Valuation Data

The membership data for this actuarial valuation was supplied by CalSTRS. Although we did not audit this data, we compared the data for this and the prior valuation and tested for reasonableness, as well as for consistency with prior periodic reports from the CalSTRS staff. Based on these tests, we believe the data to be sufficiently accurate for the purposes of this valuation. Since the valuation results are dependent on the integrity of the data supplied, the results can be expected to differ if the underlying data is incomplete or missing. It should be noted that if any data or other information is inaccurate or incomplete, our calculations may need to be revised.

**Tables C.1-C.6** summarize the census data used in this valuation.

## Table C.1
## Summary of Statistical Information

| | June 30, 2012 | June 30, 2011 |
|---|---|---|
| **Number of Members** | | |
| Active Members [1] | 421,499 | 429,600 |
| Inactive Members [1] | 178,655 | 173,719 |
| Retirees and Beneficiaries | | |
| Service Retirees | 230,278 | 222,222 |
| Disabled Retirees | 9,036 | 8,813 |
| Survivors | 22,724 | 22,006 |
| Total Benefit Recipients | 262,038 | 253,041 |
| Total Membership in Valuation | 862,192 | 856,360 |
| **Active Member Statistics** | | |
| Earned Salaries | $ 25,388 million | $ 25,576 million |
| Average Salary | $ 60,233 | $ 59,534 |
| Average Age | 45.5 years | 45.3 years |
| Average Service | 11.9 years | 11.6 years |

*(1) Some active members were reported with no Earnable Salaries, in which case their liabilities, if any, were included with inactive members*

| **Retired Member Statistics**[2] | June 30, 2012 | June 30, 2011 |
|---|---|---|
| Average Age | | |
| Service Retiree | 72.4 | 72.3 |
| Disabled Retiree | 64.9 | 64.7 |
| Survivors | 76.8 | 76.6 |
| All Benefit Recipients | 72.4 | 72.3 |
| Average Monthly Benefit | | |
| Service Retirees | $ 3,517 | $ 3,417 |
| Disabled Retirees | 2,425 | 2,360 |
| Survivors | 2,091 | 2,011 |
| All Benefit Recipients | $ 3,375 | $ 3,277 |

*(2) Average retiree ages shown here are current ages; average retiree ages shown elsewhere in this Appendix are age at retirement.*

| **Inactive Member Statistics** | June 30, 2012 | June 30, 2011 |
|---|---|---|
| Average Age | 47.2 | 46.8 |
| Average Account Balance | $ 11,818 | $ 12,035 |

## Table C.2
## Age and Service Distribution – Active Male Members

| | Years of Service | | | | | |
|---|---|---|---|---|---|---|
| **Age** | **Less than 1** | **1-5** | **6-10** | **11-15** | **16-20** | **21-25** |
| **Less than 25** | 234 | 329 | | | | |
| **25 to 30** | 1,010 | 4,648 | 305 | | | |
| **30 to 35** | 724 | 6,168 | 5,534 | 349 | | |
| **35 to 40** | 523 | 3,864 | 6,145 | 6,072 | 236 | 2 |
| **40 to 45** | 426 | 2,909 | 4,130 | 7,677 | 4,245 | 121 |
| **45 to 50** | 371 | 2,190 | 2,698 | 4,333 | 4,409 | 2,284 |
| **50 to 55** | 327 | 1,974 | 2,114 | 3,078 | 2,778 | 3,342 |
| **55 to 60** | 272 | 1,784 | 1,939 | 2,573 | 2,197 | 2,536 |
| **60 to 65** | 201 | 1,371 | 1,456 | 1,940 | 1,578 | 1,575 |
| **65 to 70** | 92 | 826 | 713 | 716 | 521 | 455 |
| **70 and over** | 40 | 447 | 281 | 221 | 128 | 128 |
| **Age Unknown** | | | | | | |
| **Total** | 4,220 | 26,510 | 25,315 | 26,959 | 16,092 | 10,443 |

| | Years of Service | | | | | |
|---|---|---|---|---|---|---|
| **Age** | **26-30** | **31-35** | **36-40** | **41-45** | **Over 45** | **Total** |
| **Less than 25** | | | | | | 563 |
| **25 to 30** | | | | | | 5,963 |
| **30 to 35** | | | | | | 12,775 |
| **35 to 40** | | | | | | 16,842 |
| **40 to 45** | | | | | | 19,508 |
| **45 to 50** | 93 | | | | | 16,378 |
| **50 to 55** | 1,872 | 69 | | | | 15,554 |
| **55 to 60** | 2,510 | 1,919 | 127 | 1 | | 15,858 |
| **60 to 65** | 1,216 | 1,175 | 807 | 9 | 1 | 11,329 |
| **65 to 70** | 299 | 188 | 183 | 93 | | 4,086 |
| **70 and over** | 67 | 48 | 45 | 37 | 33 | 1,475 |
| **Age Unknown** | | | | | | - |
| **Total** | 6,057 | 3,399 | 1,162 | 140 | 34 | 120,331 |

## Table C.3
## Age and Service Distribution – Active Female Members

| | Years of Service | | | | | |
|---|---|---|---|---|---|---|
| **Age** | **Less than 1** | **1-5** | **6-10** | **11-15** | **16-20** | **21-25** |
| **Less than 25** | 1,209 | 1,272 | | | | |
| **25 to 30** | 2,915 | 17,110 | 1,658 | | | |
| **30 to 35** | 1,569 | 15,894 | 20,247 | 1,393 | | |
| **35 to 40** | 1,050 | 8,780 | 16,084 | 17,387 | 747 | |
| **40 to 45** | 970 | 7,252 | 10,036 | 15,955 | 9,680 | 352 |
| **45 to 50** | 765 | 5,778 | 7,011 | 9,332 | 8,246 | 5,864 |
| **50 to 55** | 631 | 5,014 | 6,316 | 8,183 | 6,845 | 6,824 |
| **55 to 60** | 442 | 3,793 | 4,919 | 7,435 | 6,577 | 6,245 |
| **60 to 65** | 237 | 2,244 | 2,941 | 4,820 | 4,508 | 4,517 |
| **65 to 70** | 113 | 969 | 981 | 1,388 | 1,198 | 1,098 |
| **70 and over** | 49 | 403 | 308 | 292 | 227 | 224 |
| **Age Unknown** | | 1 | 2 | 1 | | |
| **Total** | 9,950 | 68,510 | 70,503 | 66,186 | 38,028 | 25,124 |

| | Years of Service | | | | | |
|---|---|---|---|---|---|---|
| **Age** | **26-30** | **31-35** | **36-40** | **41-45** | **Over 45** | **Total** |
| **Less than 25** | | | | | | 2,481 |
| **25 to 30** | | | | | | 21,683 |
| **30 to 35** | | | | | | 39,103 |
| **35 to 40** | | | | | | 44,048 |
| **40 to 45** | | | | | | 44,245 |
| **45 to 50** | 341 | 1 | | | | 37,338 |
| **50 to 55** | 4,600 | 260 | 2 | | | 38,675 |
| **55 to 60** | 5,188 | 4,282 | 264 | 3 | | 39,148 |
| **60 to 65** | 2,883 | 2,203 | 1,182 | 30 | 1 | 25,566 |
| **65 to 70** | 655 | 323 | 163 | 109 | 5 | 7,002 |
| **70 and over** | 132 | 105 | 53 | 35 | 47 | 1,875 |
| **Age Unknown** | | | | | | 4 |
| **Total** | 13,799 | 7,174 | 1,664 | 177 | 53 | 301,168 |

## Table C.4
## Age and Service Distribution – All Active Members

| | Years of Service | | | | | |
|---|---|---|---|---|---|---|
| **Age** | **Less than 1** | **1-5** | **6-10** | **11-15** | **16-20** | **21-25** |
| **Less than 25** | 1,443 | 1,601 | | | | |
| **25 to 30** | 3,925 | 21,758 | 1,963 | | | |
| **30 to 35** | 2,293 | 22,062 | 25,781 | 1,742 | | |
| **35 to 40** | 1,573 | 12,644 | 22,229 | 23,459 | 983 | 2 |
| **40 to 45** | 1,396 | 10,161 | 14,166 | 23,632 | 13,925 | 473 |
| **45 to 50** | 1,136 | 7,968 | 9,709 | 13,665 | 12,655 | 8,148 |
| **50 to 55** | 958 | 6,988 | 8,430 | 11,261 | 9,623 | 10,166 |
| **55 to 60** | 714 | 5,577 | 6,858 | 10,008 | 8,774 | 8,781 |
| **60 to 65** | 438 | 3,615 | 4,397 | 6,760 | 6,086 | 6,092 |
| **65 to 70** | 205 | 1,795 | 1,694 | 2,104 | 1,719 | 1,553 |
| **70 and over** | 89 | 850 | 589 | 513 | 355 | 352 |
| **Age Unknown** | | 1 | 2 | 1 | | |
| **Total** | 14,170 | 95,020 | 95,818 | 93,145 | 54,120 | 35,567 |

| | Years of Service | | | | | |
|---|---|---|---|---|---|---|
| **Age** | **26-30** | **31-35** | **36-40** | **41-45** | **Over 45** | **Total** |
| **Less than 25** | | | | | | 3,044 |
| **25 to 30** | | | | | | 27,646 |
| **30 to 35** | | | | | | 51,878 |
| **35 to 40** | | | | | | 60,890 |
| **40 to 45** | | | | | | 63,753 |
| **45 to 50** | 434 | 1 | | | | 53,716 |
| **50 to 55** | 6,472 | 329 | 2 | | | 54,229 |
| **55 to 60** | 7,698 | 6,201 | 391 | 4 | | 55,006 |
| **60 to 65** | 4,099 | 3,378 | 1,989 | 39 | 2 | 36,895 |
| **65 to 70** | 954 | 511 | 346 | 202 | 5 | 11,088 |
| **70 and over** | 199 | 153 | 98 | 72 | 80 | 3,350 |
| **Age Unknown** | | | | | | 4 |
| **Total** | 19,856 | 10,573 | 2,826 | 317 | 87 | 421,499 |

## Table C.5
## Inactive Members

| Fiscal Year Ending June 30 | Number Vested | Total Number | Male % of Total | Female % of Total |
|---|---|---|---|---|
| 2001 | 18,469 | 87,146 | 28.1% | 71.9% |
| 2002 | 19,703 | 96,159 | 28.0 | 72.0 |
| 2003 | 20,627 | 104,617 | 28.3 | 71.7 |
| 2004 | 22,511 | 116,128 | 28.7 | 71.3 |
| 2005 | 24,113 | 124,394 | 28.8 | 71.2 |
| 2006 | 26,733 | 133,601 | 28.8 | 71.2 |
| 2007 | 28,922 | 141,450 | 28.9 | 71.1 |
| 2008 | 30,370 | 147,997 | 29.0 | 71.0 |
| 2009 | 31,661 | 156,207 | 29.0 | 71.0 |
| 2010 | 33,036 | 166,976 | 29.2 | 70.8 |
| 2011 | 33,976 | 173,719 | 29.1 | 70.9 |
| 2012 | 34,848 | 178,655 | 29.1 | 70.9 |

| Fiscal Year Ending June 30 | Average Account on Deposit | Average Age | Average Service Credit | Average Years Inactive |
|---|---|---|---|---|
| 2001 | $ 12,889 | 50.7 | 3.2 | 8.2 |
| 2002 | 12,997 | 46.0 | 3.1 | 7.3 |
| 2003 | 12,691 | 46.0 | 3.0 | 7.4 |
| 2004 | 12,418 | 45.8 | 2.9 | 7.3 |
| 2005 | 12,177 | 45.9 | 2.9 | 7.4 |
| 2006 | 12,282 | 45.9 | 2.9 | 7.5 |
| 2007 | 12,440 | 46.0 | 3.0 | 7.7 |
| 2008 | 12,698 | 46.3 | 2.9 | 8.0 |
| 2009 | 12,717 | 46.5 | 2.9 | 8.2 |
| 2010 | 12,334 | 46.7 | 2.8 | 8.3 |
| 2011 | 12,035 | 46.8 | 2.8 | 8.6 |
| 2012 | 11,818 | 47.2 | 2.8 | 8.9 |

## Table C.6
## Members Retired for Service

| Fiscal Year Ending June 30 | Total | Male % of Total | Female % of Total |
|---|---|---|---|
| 2001 | 149,727 | 38.0% | 62.0% |
| 2002 | 154,884 | 37.8 | 62.2 |
| 2003 | 159,172 | 37.6 | 62.4 |
| 2004 | 169,022 | 37.2 | 62.8 |
| 2005 | 176,008 | 36.9 | 63.1 |
| 2006 | 181,833 | 36.5 | 63.5 |
| 2007 | 188,659 | 36.1 | 63.9 |
| 2008 | 195,960 | 35.7 | 64.3 |
| 2009 | 203,649 | 35.3 | 64.7 |
| 2010 | 213,952 | 34.9 | 65.1 |
| 2011 | 222,222 | 34.4 | 65.6 |
| 2012 | 230,278 | 34.0 | 66.0 |

| Fiscal Year Ending June 30 | Average Age at Retirement | Average Years of Service Credit | Final Average Compensation | Average Current Allowance Payable |
|---|---|---|---|---|
| 2001 | 60.7 | 25.4 | $ 3,356 | $ 2,033 |
| 2002 | 60.7 | 25.7 | 3,539 | 2,183 |
| 2003 | 60.7 | 25.9 | 3,735 | 2,339 |
| 2004 | 60.7 | 26.0 | 3,931 | 2,488 |
| 2005 | 60.8 | 26.1 | 4,103 | 2,617 |
| 2006 | 60.8 | 26.2 | 4,264 | 2,741 |
| 2007 | 60.8 | 26.3 | 4,437 | 2,878 |
| 2008 | 60.8 | 26.3 | 4,620 | 3,021 |
| 2009 | 60.8 | 26.4 | 4,798 | 3,164 |
| 2010 | 60.9 | 26.3 | 4,983 | 3,302 |
| 2011 | 61.0 | 26.3 | 5,138 | 3,417 |
| 2012 | 61.1 | 26.2 | 5,271 | 3,517 |

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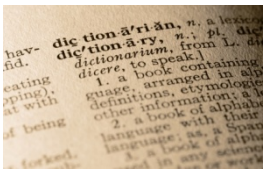
## Appendix D Glossary


dic tion·ā'ri·ăn, *n.* a lexicog
dic'tion·a·ry, *n.*; *pl.* dic
*dictionarium*, from L. dic
*dicere*, to speak.]
1. a book containing
nuage, arranged in alp
definitions, etymologie
other information; a b
2. a book of alphabe
language with their
language, as, a Span
1. a book of alphab

The following definitions are largely excerpts from a list adopted by the major actuarial organizations in the United States. In some cases, the definitions have been modified for specific applicability to the CalSTRS DB Program. Defined terms are capitalized throughout this Appendix.

**Actuarial Assumptions** — Assumptions as to the occurrence of future events affecting pension costs, such as mortality, withdrawal, disablement and retirement, changes in compensation, rates of investment earnings and asset appreciation or depreciation, and procedures used to determine other relevant items.

**Actuarial Cost Method** — A procedure for determining the Actuarial Present Value of pension plan benefits and expenses and for developing an actuarially equivalent allocation of such value to time periods, usually in the form of a Normal Cost and an Actuarial Obligation.

**Actuarial Equivalent** — Of equal Actuarial Present Value, determined as of a given date with each value based on the same set of Actuarial Assumptions.

**Actuarial Gain or Loss** — A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions during the period between two actuarial valuation dates, as determined in accordance with a particular Actuarial Cost Method.

**Actuarial Obligation** — That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of pension plan benefits and expenses which is not provided for by future Normal Costs.

**Actuarial Present Value** — The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions.

**Actuarial Surplus** — The excess, if any, of the Actuarial Value of Assets over the Actuarial Obligation.

**Actuarial Valuation** — The determination, as of a Valuation Date, of the Normal Cost, Actuarial Obligation, Actuarial Value of Assets and related Actuarial Present Values for a pension plan.

**Actuarial Value of Assets** — The value of cash, investments and other property belonging to a pension plan, as used by the actuary for the purpose of an actuarial valuation.

| | |
|---|---|
| **Additional Revenue Needed** | The percentage of valuation year Earned Salaries needed, in addition to all currently scheduled contributions (including scheduled increases in the State supplemental contributions under EC 22955b), in order to amortize the Unfunded Actuarial Obligation over a 30-year period, assuming all actuarial assumptions are met in the future. Assumes increase in contribution rate begins on valuation date.<br><br>Beginning with the June 30, 2012 actuarial valuation, this number takes into account the projected impact of AB 340 on the Normal Cost rate of members hired on or after January 1, 2013. |
| **Entry Age Cost Method** | An Actuarial Cost Method under which the Actuarial Present Value of Projected Benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages. The portion of this Actuarial Present Value allocated to a valuation year is called the Normal Cost. The portion of this Actuarial Present Value not provided for at a Valuation Date by the Actuarial Present Value of future Normal Costs is called the Actuarial Obligation. |
| **Normal Cost** | The portion of the Actuarial Present Value of Projected Benefits which is allocated to a valuation year by the Actuarial Cost Method. |
| **Unfunded Actuarial Obligation** | The excess, if any, of the Actuarial Obligation over the Actuarial Value of Assets. |
| **Valuation Date** | June 30, 2012. |