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March 20, 2014

Teachers' Retirement Board
California State Teachers' Retirement System

Re: **Defined Benefit Program Actuarial Valuation as of June 30, 2013**

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, 2013. 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 to 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
Consulting Actuary

Mark C. Olleman, FSA, EA, MAAA
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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, 2013, 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 around 4.5% 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 **32.879%** 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 13.382% 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 13.382% accounts for the expected future recognition of $0.7 billion of asset losses that are currently being deferred under the actuarial smoothing method.

(Percent of Earned Salaries)	2013 Valuation	2012 Valuation
Calculated Contribution Rate for 30-Year Funding Period		
Normal Cost Rate	18.259%	18.276%
Amortization Rate	14.620%	15.816%
Total Level Rate over the Amortization Period	32.879%	34.092%
Current Contribution Rate	19.497%*	19.472%*
Estimated Additional Revenue Needed	13.382%*	14.620%*

* *The current contribution rate includes future supplemental contributions under EC §22955(b). In 2013, these are equivalent to 1.367% of earned salaries; the additional revenue of 13.382% 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 a decrease 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 strong return on investments (13.8%, as reported by CalSTRS) for the fiscal year ending in 2013 was the biggest factor causing the decrease 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 became effective for all California public pension plan members newly hired on or after January 1, 2013. The lower level of benefits for such 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. For the 2013 valuation, some members (CalSTRS 2% at 62 members) are now subject to these lower benefit levels, thereby resulting in a lower valuation Normal Cost rate as well.

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 2012 and 2013, 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, 2012 Actuarial Valuation	**14.6%**
Expected Year-to-Year Change	
• due to underfunding	0.8%
• due to rolling amortization	-0.3%
Current Year Asset Gain	-2.2%
Salary / Payroll Variation	
• Salary Increase < Assumed	-0.5%
• Payroll Increase < Assumed	1.0%
Assumption Changes	0.0%
All Other Sources	0.0%
Total Change	**-1.2%**
June 30, 2013 Actuarial Valuation	**13.4%**

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.

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, 2013 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 1.274% of payroll for the fiscal year beginning in 2014 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 1.367% 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 13.382% 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 (CalSTRS 2% at 62)

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, 2014 for this valuation. Generally, the member contribution rate is one-half of the Normal Cost rate within certain parameters.

Education Code Section 22901(a)(1) requires the board to adopt the Normal Cost rate that is used to determine the 2% at 62 member contribution rate. As of June 30, 2013, the Normal Cost rate for the CalSTRS 2% at 62 members is 16.059%. We recommend the Board adopt this rate.

Normal Cost Rate for New Members under PEPRA (CalSTRS 2% at 62) (continued)

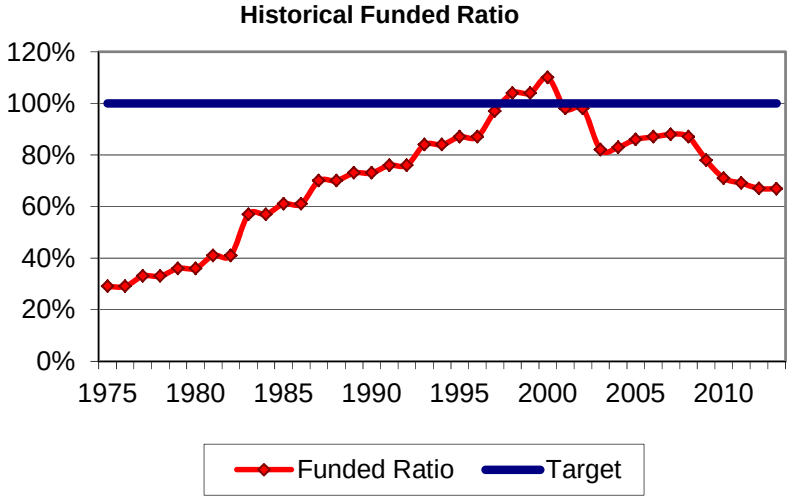
Education Code Section 22901(a)(1) specifies that CalSTRS 2% at 62 member contribution rates do not change if the increase or decrease in the Normal Cost rate for members is less than 1% of pay since the last adjustment. This year the change was an increase in the Normal Cost rate of 0.159% from 15.900% (the time of last adjustment) to 16.059% for this group. Therefore, we recommend the Board retain the current member contribution rate of 8.00% for these members.

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)	2013 Valuation	2012 Valuation
Actuarial Obligation	$ 222,281	$ 215,189
Actuarial Value of Assets	148,614	144,232
Unfunded Actuarial Obligation	$ 73,667	$ 70,957
Funded Ratio	66.9%	67.0%

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 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.



Funding Progress (continued)

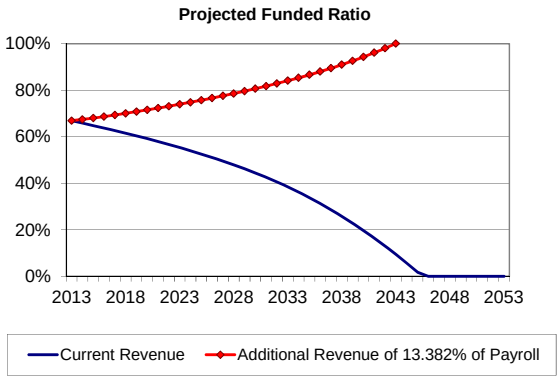
The following chart shows the factors that affected the DB Program's Funded Ratio since the last valuation. The recognition of prior asset losses was the most significant factor in the decrease; however, strong current year returns and other factors mostly offset this decrease, resulting in only a small reduction in the Funded Ratio.

Sources of Change	Funded Ratio
June 30, 2012 Actuarial Valuation	**67.0%**
Expected Year-to-Year Change (due to underfunding)	-0.9%
Recognized Asset (Gain)/Loss	
• From Prior Years	-1.5%
• From Current Year	1.3%
Salary Variation	0.8%
Assumption Changes	0.0%
All Other Sources	0.2%
Total Change	**-0.1%**
June 30, 2013 Actuarial Valuation	**66.9%**

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 33 years (the year the Funded Ratio goes to 0%), if additional funding is not secured.



Impact of Delay

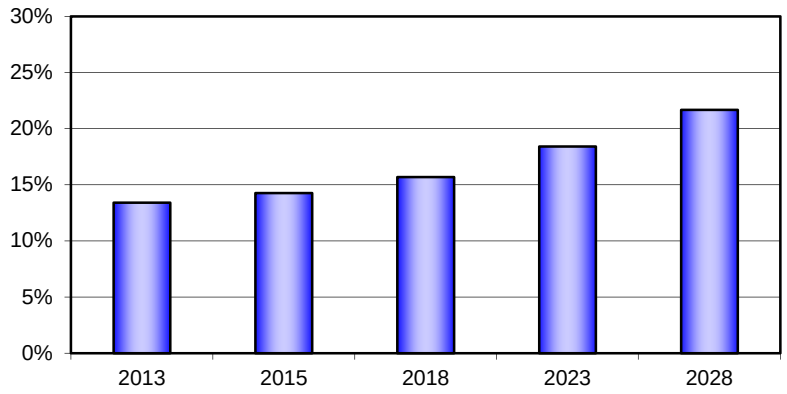
The additional revenue needed is a hypothetical calculation based on the June 30, 2013 valuation date. In particular, it assumes additional contributions will commence on that date. The reality is that increased contributions will not begin until some later date and may only increase gradually. The longer 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



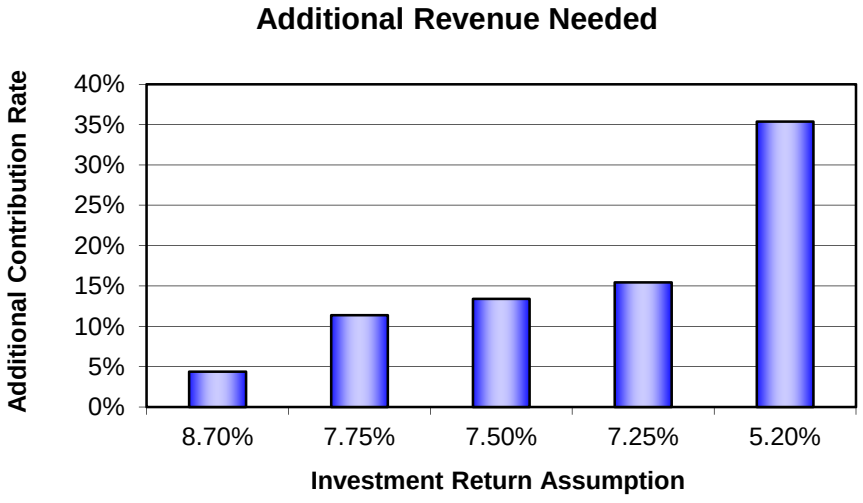
Investment Return Assumption

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 8.70% and 5.20% investment return assumptions. The expected returns are the 25th and 75th percentiles respectively for a 30-year period net of both administrative and investment expenses and are based on analysis provided to us by Pension Consulting Alliance (PCA) using their 2014 capital market assumptions. It should be noted that this is PCA's preliminary analysis, and they may incorporate future refinements, although they do not expect the results to change materially.

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 8.70%, but also a 25% chance the net return will be less than 5.20% 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. 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 needed 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 13.382% increase in contribution rate discussed in this report is based on a specific point in time (June 30, 2013) 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 13.382% 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 13.236% of earned salaries. This compares with 12.670% 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 13.382% 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 members' 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 2012 Valuation

There were no additional changes that materially impacted the 2013 valuation outside of the usual year-to-year asset, liability and payroll experience.

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.

Summary of Key Valuation Results

	2013 Valuation	2012 Valuation	Percent Change
1. Total Membership			
A. Active Members	416,643	421,499	(1.2) %
B. Inactive Members	182,576	178,655	2.2 %
C. Retired Members and Beneficiaries	269,274	262,038	2.8 %
D. Total Membership	868,493	862,192	0.7 %
2. Earned Salaries as of Valuation Date (All Members)			
A. Annual Total *($Millions)*	$ 25,479	$ 25,388	0.4 %
B. Annual Average per Active Member	$ 61,153	$ 60,233	1.5 %
3. Average Annual Allowance Payable			
A. Service Retirement	43,308	42,204	2.6 %
4. Actuarial Obligation *($Millions)*			
A. Active Members	$ 95,506	$ 93,749	1.9 %
B. Inactive Members	4,641	4,541	2.2 %
C. Retired Members and Beneficiaries	121,714	116,475	4.5 %
D. Existing MPPP Unfunded Obligation	420	424	(0.9) %
E. Total	$ 222,281	$ 215,189	3.3 %
5. Value of System Assets *($Millions)*			
A. Fair Market Value	$ 157,176	$ 143,118	9.8 %
B. Deferred Investment (Gains) or Losses	707	9,397	
C. Actuarial Value	$ 157,883	$ 152,515	3.5 %
D. Ratio of Actuarial Value to Fair Value	100%	107%	
E. Less SBMA Reserve	(9,269)	(8,283)	11.9 %
F. Net Actuarial Value	$ 148,614	$ 144,232	3.0 %
6. Funded Status -- Actuarial Value Basis			
A. Unfunded Actuarial Obligation *($Millions)*	73,667	70,957	3.8 %
B. Funded Ratio *(5F ÷ 4E)*	66.9%	67.0%	
7. Contribution Rates *(percent of salaries)*			
A. 30-Year Projected Revenue	19.497%	19.472%	0.1 %
B. Normal Cost Rate	18.259%	18.276%	(0.1) %
C. Available for Amortization of UAO *(7A – 7B)*	1.238%	1.196%	3.5 %
D. Period to Amortize	Does not amortize	Does not amortize	
E. Projected 30-Year Level Funding Rate	32.879%	34.092%	(3.6) %
F. Projected Shortfall (Surplus) *(7E – 7A)*	13.382%	14.620%	(8.5) %
8. Funded Status -- Market Value Basis			
A. Unfunded Actuarial Obligation *($Millions)*	74,374	80,354	(7.4) %
B. Alternate Funded Ratio (Based on Market Value of Assets)	66.5%	62.7%	

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, 2013.

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, 2013. 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, 2013.

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 2013 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, 2013.

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 2013 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 18.276% to 18.259% 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, 2012	$ 25,673	$ 4,692	18.276%
June 30, 2013	$ 25,759	$ 4,703	18.259%

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 slightly since last year due mainly to the addition of CalSTRS 2% at 62 members who have a lower overall Normal Cost Rate.

Normal Cost Rate for New Members under PEPRA (CalSTRS 2% at 62)

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, 2014 for this valuation. Generally, the member contribution rate is one-half of the Normal Cost rate within certain parameters.

Education Code Section 22901(a)(1) requires the board to adopt the Normal Cost rate that is used to determine the 2% at 62 member contribution rate. As of June 30, 2013, the Normal Cost rate for the CalSTRS 2% at 62 members is 16.059%. We recommend the Board adopt this rate.

Education Code Section 22901(a)(1) specifies that CalSTRS 2% at 62 member contribution rates do not change if the increase or decrease in the Normal Cost rate for members is less than 1% of pay since the last adjustment. This year the change was an increase in the Normal Cost rate of 0.159% from 15.900% (the time of last adjustment) to 16.059% for this group. Therefore, we recommend the Board retain the current member contribution rate of 8.00% for these members.

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)	**2013 Valuation**	**2012 Valuation**
Benefits Being Paid	$ 121,714	$ 116,475
Inactive Deferred Benefits	4,641	4,541
Active Members' Benefits	150,534	149,069
Existing MPPP Unfunded Obligation	420	424
Present Value of Projected Benefits	$ 277,309	$ 270,509
Present Value of Future Normal Costs	55,028	55,320
Actuarial Obligation	$ 222,281	$ 215,189

Actuarial Obligation (continued)

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)	2013	2012
Estimated Annual Earned Salaries [1]	$ 25,759	$ 25,673
Present Value of Future Normal Costs for Current Active Members	$ 55,028	$ 55,320
Present Value of Future Earned Salaries for Current Active Members	$ 301,373	$ 302,694
Normal Cost		
Retirement	$ 4,332	$ 4,321
Disability	188	189
Death	46	46
Withdrawal	137	136
Total Normal Cost	$ 4,703	$ 4,692
Normal Cost Rate Percent of Earned Salaries		
Retirement	16.818%	16.831%
Disability	0.730	0.736
Death	0.179	0.179
Withdrawal	0.532	0.530
Total Normal Cost	**18.259%**	**18.276%**

(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)	2013	2012
Present Value of Projected Benefits to All Current Members		
Benefits Currently Being Paid		
Service Retirement	$ 113,152	$ 108,382
Disability	2,977	2,805
Survivors	5,585	5,288
Total	$ 121,714	$ 116,475
Benefits to Inactive Members	4,641	4,541
Benefits to Active Members		
Retirement	$ 145,299	$ 143,852
Disability	3,699	3,671
Death	1,074	1,075
Withdrawal	462	471
Total	$ 150,534	$ 149,069
Existing MPPP Unfunded Obligation	420	424
Total Present Value of Projected Benefits	$ 277,309	$ 270,509
Present Value of Future Normal Costs	55,028	55,320
Actuarial Obligation	**$ 222,281**	**$ 215,189**

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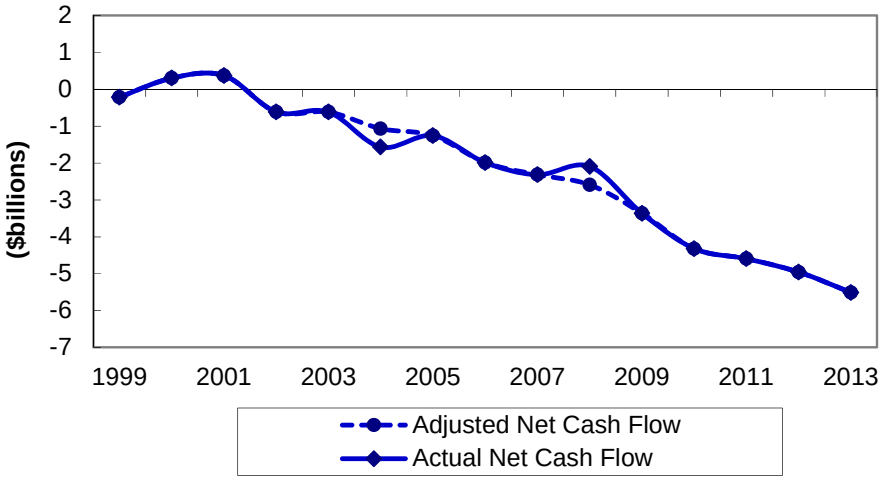
Section 5 Valuation Assets

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, 2013. 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 $157,176 million as of June 30, 2013, up from $143,118 million as of June 30, 2012. **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 without 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 2003-2004 fiscal year, repaid in the 2007-2008 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, 2013	June, 2012
Fair Market Value	$ 157,176	$ 143,118
Actuarial Value of Assets	$ 157,883	$ 152,515
Deferred Investment Gains or (Losses)	$ (707)	$ (9,397)
Ratio of AVA to FMV	100%	107%

Due to the asset smoothing method, there are investment losses of $707 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 $707 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, 2013	June, 2012
Invested Assets		
Short-term	$ 1,982	$ 2,303
Debt Securities	27,327	27,170
Global Equity	82,011	69,352
Inflation Sensitive	666	296
Private Equity	21,161	21,315
Real Estate	22,598	21,614
Overlay	844	533
Total Investments	$156,589	$142,583
Cash and Cash Equivalents	1,827	1633
Other Assets	239	245
Receivables	3,167	1,552
Liabilities Net of Securities Lending Collateral	(4,646)	(2,895)
Fair Market Value of Net Assets	**$157,176**	**$143,118**

Table 4
Statement of Changes in Program Assets

($ Millions)	June, 2013	June, 2012
Contributions		
Members	$ 2,247	$ 2,229
Employers	2,192	2,167
State of California	1,328	1,303
Total Contributions	5,767	5,699
Benefits and Expenses		
Retirement, Death and Survivors	(10,844)	(10,208)
Refunds of Member Contributions	(78)	(83)
Purchasing Power Benefits	(222)	(235)
Administrative & Other Expenses	(133)	(131)
Total Benefits and Expenses	(11,277)	(10,657)
Net Cash Flow	**$ (5,510)**	**$ (4,958)**
Investment Income		
Realized Income	$ 4,690	$ 3,712
Net Appreciation	15,110	(2,755)
Net Securities Lending Income	100	151
Investment Expenses	(333)	(176)
Other (Expense) Income	1	4
Net Investment Return	19,568	936
Net Increase (Decrease)	**$ 14,058**	**$ (4,022)**
Fair Market Value of Net Assets		
Beginning of Year	143,118	147,140
End of Year	**$ 157,176**	**$ 143,118**
Estimated Net Rate of Return [(1)]	13.9%	0.6%

(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

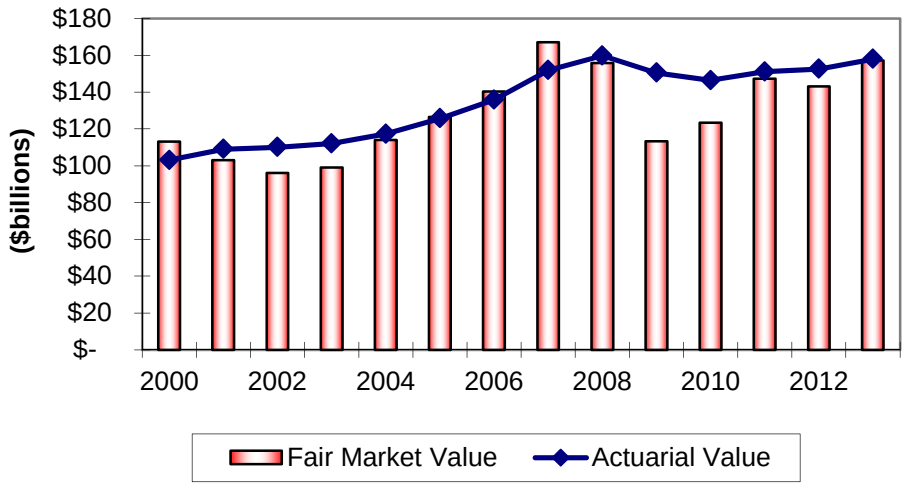
($ Millions)	June, 2013	June, 2012
Actuarial Value at Beginning of Year	$ 152,515	$ 151,030
Contributions	5,767	5,699
Benefits and Expenses	(11,277)	(10,657)
Expected Return at 7.50%	11,232	11,141
Expected Actuarial Value End of Year	$ 158,237	$ 157,213
Fair Market Value	157,176	143,118
Difference between Fair Market Value and Expected Actuarial Value	$ (1,061)	$ (14,095)
Recognition Factor	One-third	One-third
Recognized Gain or Loss	$ (354)	$ (4,698)
Actuarial Value at End of Year	**$ 157,883**	**$ 152,515**
Deferred Investment Gains or (Losses)	**$ (707)**	**$ (9,397)**
Ratio of Actuarial Value of Assets to Fair Market Value of Assets	*100%*	*107%*
Estimated Net Rate of Return (1)	7.3%	4.3%

(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
2013	157,176	13.9	157,883	100

(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)	**2013 Valuation**	**2012 Valuation**
Actuarial Obligation	$ 222,281	$ 215,189
Actuarial Value of Assets (AVA)		
From Table 5	$ 157,883	$ 152,515
Less SBMA Reserve	(9,269)	(8,283)
Net for Funding	$ 148,614	$ 144,232
Unfunded Actuarial Obligation	$ 73,667	$ 70,957
Funded Ratio (on AVA)	**66.9%**	**67.0%**
Alternate Funded Ratio (based on Fair Market Value)	*66.5%*	*62.7%*

Overall, the DB Program is in approximately the same financial condition as it was one year ago as measured by the Funded Ratio. The Alternate Funded Ratio using the Fair Market Value of assets has increased since the last valuation, due to the investment gain for the 2012-13 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)

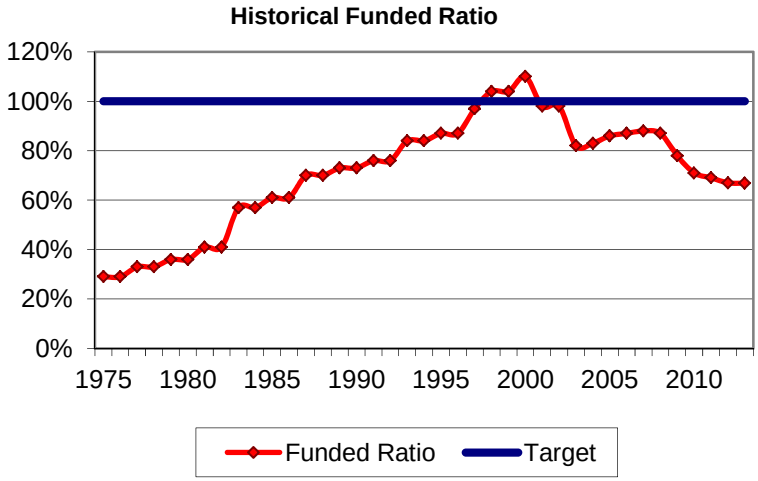
In addition, the Teachers' Retirement Board has established a policy of allocating funds for future costs associated with the Teachers' Health Benefits Fund (THBF). This policy was revised in April of 2009 to make a one-time credit to the THBF and "true up" the future MPPP obligations (payable from the THBF) in the funding of the DB Program. As of June 30, 2013, only a relatively small amount of less than $0.5 million resides in the THBF, while the remaining unfunded amount of $420 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%
2013	222,281	148,614	73,667	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	$224,891	$222,281	$ (2,610)
Act. Value of Assets	149,003	148,614	389
Unfunded Act. Oblig.	$ 75,888	$ 73,667	$ (2,221)
Actuarial (Gains) or Losses by Source			
Change in actuarial assumptions			$ 0
Salaries increased less than assumed			(2,834)
All other non-investment sources			224
(Gain) or Loss on the Actuarial Obligation			(2,610)
Investment Return on Actuarial Value of Assets			(517)
Contributions (in excess of) or less than assumed			(81)
Change in the SBMA Reserve			987
(Gain) or Loss on the Actuarial Value of Assets			389
Total Actuarial (Gain) or Loss			$ (2,221)

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	(2,834)	(1.3)
All other non-investment sources	224	0.1
(Gain) or Loss on the Actuarial Obligation	$ (2,610)	(1.2)%
Actuarial (Gains) or Losses on the Actuarial Value of Assets	**(Gain) or Loss**	**Percent of AVA**
Return on Actuarial Value of Assets	$ (517)	(0.4)%
Contributions greater than assumed	(81)	(0.0)
Change in the SBMA Reserve	987	0.7
(Gain) or Loss on the Actuarial Value of Assets	$ 389	0.3%

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 2012 Actuarial Valuation, the UAO was expected to increase to $75,888 million. The actual UAO of $73,667 million represents a net actuarial gain of $2,221 million.

- Salaries increased less than predicted by the current actuarial assumptions, causing the Actuarial Obligation to decrease by $2,834 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 greater than the 7.50% assumption that was used in the prior valuation. The return on market value was estimated at 13.9%, while the return on the Actuarial Value of Assets was estimated at 7.3% due to the recognition of a portion of the currently deferred investment losses being mostly offset by the current year gain.
- 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 $987 million over the year. Any increase in this value results in an actuarial loss in the subsequent DB Program valuation.

Volatility Ratios

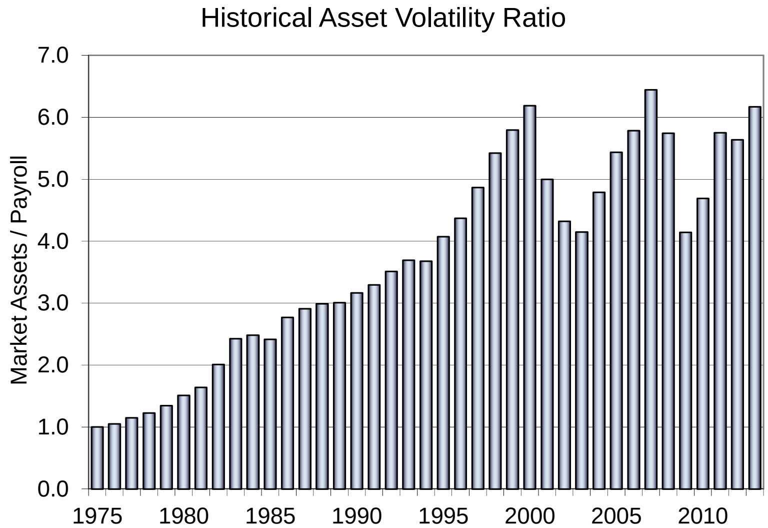
As a retirement system becomes more mature (i.e., a greater percentage of the obligation is attributable to benefits already earned), it tends to be subject to increased volatility in the contributions needed. Specifically, for CalSTRS, there may be significant swings in the Additional Revenue Needed 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 6.2, 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 6.2% 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 approximately a 0.33% 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.



Another measure of a system's maturity is the Liability Volatility Ratio (LVR), 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 8.7. 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.

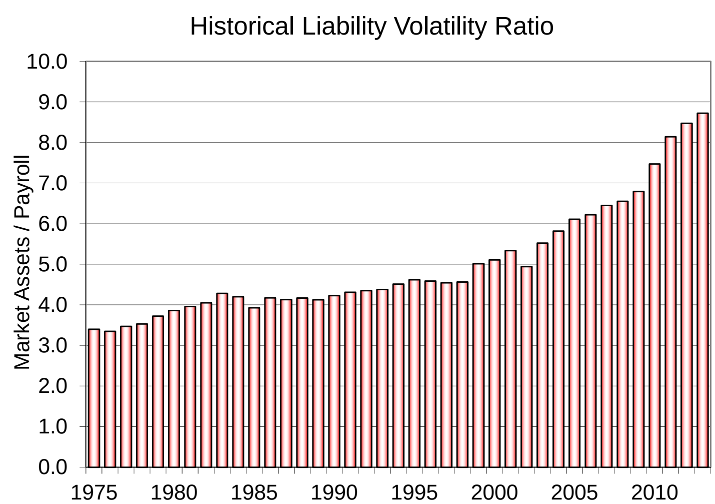


Table 7
Funded Status

($ Millions)	2013	2012
Actuarial Obligation *(Table 2)*	$222,281	$ 215,189
Actuarial Value of Assets		
Calculated *(Table 5)*	$ 157,883	$ 152,515
Less SBMA Reserve	(9,269)	(8,283)
Program Assets	$ 148,614	$ 144,232
Unfunded Actuarial Obligation	**$ 73,667**	**$ 70,957**
Funded Ratio	**66.9%**	**67.0%**

Table 8
Actuarial Gains and Losses

($ Millions)	Expected	Actual	(Gain) / Loss
Actuarial Obligation			
Actuarial Obligation June 30, 2012	$215,189		
Normal Cost for 2012-13	4,714		
Benefits Paid (Excludes Purchasing Power)	(10,922)		
Expected Interest at 7.50%	15,910		
Actuarial Obligation June 30, 2013	**$224,891**	**$222,281**	**$ (2,610)**
By Source:			
Change in actuarial assumptions			*0*
Rehired Members			*113*
Retiree Mortality			*(117)*
Active Member Mortality			*(8)*
Service Retirements			*37*
Terminations			*(14)*
Disablement			*93*
Salary increases less than assumed			*(2,834)*
All Other Non-investment Sources			*120*
Total (Gain) Loss on the Actuarial Obligation			*$ (2,610)*
Actuarial Value of Assets			
Actuarial Value of Assets June 30, 2012	$144,232		
Expected Contributions for 2012-13	5,094		
Benefits Paid (Excludes Purchasing Power)	(10,922)		
Expected Interest at 7.50% on AVA	10,599		
Actuarial Value of Assets June 30, 2013	**$149,003**	**$148,614**	**$ 389**
By Source: Investment Return on Actuarial Value of Assets (including the recognition of prior deferred investment gains and losses)			*$ (517)*
Contributions (in excess of) or less than assumed (including service purchases)			*(81)*
Change in SBMA Reserve			*987*
Total (Gain) Loss on the Actuarial Value of Assets			*$ 389*
Unfunded Actuarial Obligation	**$ 75,888**	**$ 73,667**	**$ (2,221)**

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 are 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.

	2013 Valuation	2012 Valuation
Normal Cost Deficit – 1990 Benefit Structure		
Normal Cost Rate	15.393%	15.444%
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 $181.1 billion. This compares to the Actuarial Obligation for the DB Program of $222.3 billion.

($ Millions)	2013 Valuation	2012 Valuation
Actuarial Obligation – 1990 Benefit Structure		
Value of Projected Benefits	$227,919	$222,415
Value of Future Normal Costs	46,805	47,056
Actuarial Obligation	$181,114	$175,359

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, 2013. 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, 2013	June, 2012
Asset Adjustment – 1990 Benefit Structure		
Actuarial Value for DB Program	$148,614	$144,232
Adjustments per Table 9	12,568	10,783
Board's THBF allocation	0	0
Actuarial Value of Assets	$161,182	$155,015

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)	2013 Valuation	2012 Valuation
Funded Status – 1990 Benefit Structure		
Actuarial Obligation	$181,114	$175,359
Actuarial Value of Assets	161,182	155,015
Unfunded Actuarial Obligation	$ 19,932	$ 20,344
Funded Ratio	89.0%	88.4%

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 2013 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 total State contribution rate of 3.291% for the fiscal year beginning in 2014.

State Contribution Rate		
Contribution Type	**FYB2014 (2013 Val)**	**FYB2013 (2012 Val)**
Basic -- EC 22955(a)	2.017%	2.017%
Supplemental -- EC 22955(b)	1.274%	1.024%
Total State Contribution Rate	3.291%	3.041%

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)	2013	2012
Assets Allocated to Post-1990 Benefit Increases		
Allocated Market Value at Beginning of Year	$10,119	$ 9,209
Adjustment for prior DBS Program benefit payments	0	0
Contributions During the Year		
EC §22951 at 0.250% of Earned Salaries	(66)	(66)
EC §22955 at 2.017% of second preceding fiscal year Earned Salaries	(531)	(548)
EC §22955b at 0.524% of second preceding fiscal year Earned Salaries	(203)	(142)
2% DBS redirection reallocated to DB Program	0	(3)
THBF costs reallocated to DB Program	35	35
Total Adjustment to Contributions[(1)]	(765)	(724)
Benefits Paid During the Year		
Post-1990 Benefits Paid During the Year	1,714	1,591
Prior 2% DBS redirection contributions refunded	(19)	(19)
Total Adjustment to Benefits Paid [(1)]	1,695	1,572
Estimated Investment Earnings for the Year [(2)]	1,463	62
Total Allocated Market Value at End of Year	**$12,512**	**$10,119**
Ratio of Actuarial Value to Market Value [(3)]	100.450%	106.566%
Actuarial Value of Assets for Post-1990 Benefit Increases	**$12,568**	**$10,783**

(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 0.65% for 2011-12 and 13.94% for 2012-13.

(3) Developed from Table 5.

Table 10
Funding Sufficiency for 1990 Benefit Structure

($ Millions)	2013	2012
Actuarial Obligation		
Present Value of Projected Benefits		
Benefits Currently Being Paid	$101,128	$ 96,953
Benefits to Inactive Members	4,510	4,416
Benefits to Active Members	122,281	121,046
Total	$227,919	$222,415
Present Value of Future Normal Costs	(46,805)	(47,056)
Actuarial Obligation	$181,114	$175,359
Actuarial Value of Assets		
Actuarial Value of Assets *(Table 7)*	$148,614	$144,232
Plus, Asset Adjustment *(Table 9)*	12,568	10,783
Plus, Allocation to Health Benefits	0	0
Theoretical AVA for 1990 Benefits	$161,182	$155,015
Funded Status		
Actuarial Obligation	$181,114	$175,359
Actuarial Value of Assets	161,182	155,015
Unfunded Actuarial Obligation (Surplus)	$ 19,932	$ 20,344
Funded Ratio	89.0%	88.4%
Amortization Period		
Revenue for 1990 Benefits	16.000%	16.000%
Normal Cost Rate for 1990 Benefits	(15.393)	(15.444)
EC 22955(b)	1.367	1.334
Revenue Available for Amortization	1.974%	1.890%
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	2014	$19,932	$4,282	$272	$4,120	$434	$1,479	$253	$21,230
2	2015	21,230	4,442	324	4,273	493	1,574	182	22,493
3	2016	22,493	4,607	403	4,432	578	1,666	130	23,711
4	2017	23,711	4,779	418	4,598	599	1,756	93	24,961
5	2018	24,961	4,957	433	4,769	621	1,849	67	26,256
6	2019	26,256	5,141	450	4,947	644	1,945	48	27,605
7	2020	27,605	5,334	466	5,131	669	2,046	34	29,016
8	2021	29,016	5,532	484	5,322	694	2,151	25	30,498
9	2022	30,498	5,738	502	5,521	719	2,261	18	32,058
10	2023	32,058	5,952	520	5,726	746	2,377	13	33,702
11	2024	33,702	6,174	540	5,940	774	2,499	9	35,436
12	2025	35,436	6,404	560	6,161	803	2,628	6	37,267
13	2026	37,267	6,642	581	6,390	833	2,764	5	39,203
14	2027	39,203	6,890	602	6,628	864	2,908	3	41,250
15	2028	41,250	7,146	625	6,875	896	3,061	2	43,417
16	2029	43,417	7,413	648	7,131	930	3,222	2	45,711
17	2030	45,711	7,689	672	7,397	964	3,393	1	48,141
18	2031	48,141	7,975	697	7,672	1,000	3,574	1	50,716
19	2032	50,716	8,271	723	7,957	1,037	3,766	1	53,446
20	2033	53,446	8,579	750	8,254	1,075	3,969	0	56,340
21	2034	56,340	8,898	778	8,561	1,115	4,184	0	59,409
22	2035	59,409	9,229	807	8,879	1,157	4,413	0	62,665
23	2036	62,665	9,573	837	9,210	1,200	4,656	0	66,121
24	2037	66,121	9,930	868	9,553	1,245	4,913	0	69,789
25	2038	69,789	10,300	900	9,908	1,292	5,187	0	73,684
26	2039	73,684	10,683	934	10,278	1,339	5,477	0	77,822
27	2040	77,822	11,081	969	10,661	1,389	5,786	0	82,219
28	2041	82,219	11,494	1,005	11,058	1,441	6,113	0	86,891
29	2042	86,891	11,923	1,042	11,471	1,494	6,462	0	91,859
30	2043	91,859	12,368	1,081	11,899	1,550	6,832	0	97,141

(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	FYB2013 Rate	Equivalent 30-yr 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	1.880
State – 1990 Benefit Structure	1.024	1.367
Equivalent Level Contribution Rate over 30 Years		**19.497%**

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 2013-14 will be equal to 2.017% of the 2011-12 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 1.880% 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 increases, is 1.367%.

The calculation of the equivalent rates in **Table 13** results in a combined equivalent contribution of 19.497% 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.

	2013 Valuation	2012 Valuation
Normal Cost Rate	18.259%	18.276%
30-Year Amortization Rate	14.620*	15.816*
Total Level Rate over a 30-Year Period	32.879%	34.092%
Projected Revenue	19.497%	19.472%
Estimated Additional Revenue Needed	13.382%*	14.620%*

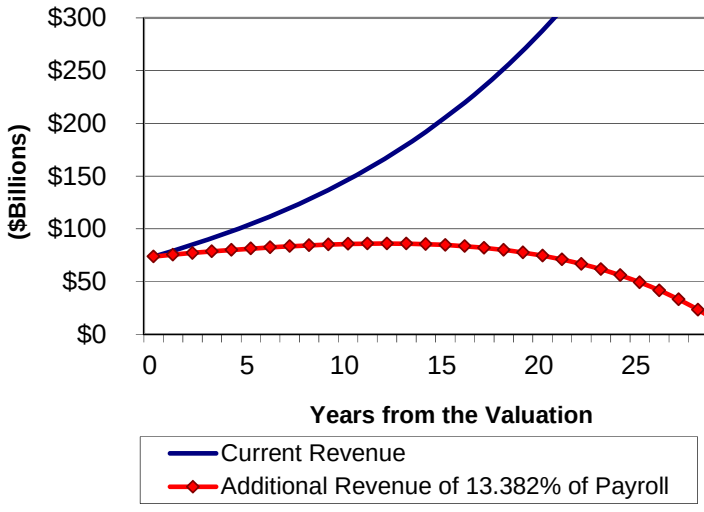
* *The additional revenue needed reflects the expected future recognition of asset losses currently being deferred in the June 30, 2013 Actuarial Value of Assets.*

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 13.382% 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	1.880
EC 22955 (b)	State [4]	*varies by year*	1.367
Equivalent Level Contribution Rate over 30-Year Period			**19.497%**

(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.
2014	$26,763	$2,141	$0	$2,208	$536	$272	$5,157
2015	27,760	2,221	0	2,290	513	324	5,348
2016	28,795	2,304	0	2,376	540	403	5,623
2017	29,868	2,389	0	2,464	560	418	5,831
2018	30,981	2,478	0	2,556	581	433	6,048
2019	32,136	2,571	0	2,651	602	450	6,274
2020	33,333	2,667	0	2,750	625	466	6,508
2021	34,576	2,766	0	2,852	648	484	6,750
2022	35,864	2,869	0	2,959	672	502	7,002
2023	37,200	2,976	0	3,069	697	520	7,262
2024	38,586	3,087	0	3,183	723	540	7,533
2025	40,024	3,202	0	3,302	750	560	7,814
2026	41,515	3,321	0	3,425	778	581	8,105
2027	43,061	3,445	0	3,553	807	602	8,407
2028	44,665	3,573	0	3,685	837	625	8,720
2029	46,328	3,706	0	3,822	869	648	9,045
2030	48,053	3,844	0	3,964	901	672	9,381
2031	49,841	3,987	0	4,112	934	697	9,730
2032	51,696	4,136	0	4,265	969	723	10,093
2033	53,619	4,290	0	4,424	1,005	750	10,469
2034	55,614	4,449	0	4,588	1,043	778	10,858
2035	57,684	4,615	0	4,759	1,081	807	11,262
2036	59,831	4,786	0	4,936	1,122	837	11,681
2037	62,059	4,965	0	5,120	1,163	868	12,116
2038	64,370	5,150	0	5,311	1,207	900	12,568
2039	66,768	5,341	0	5,508	1,252	934	13,035
2040	69,256	5,541	0	5,714	1,298	969	13,522
2041	71,839	5,747	0	5,927	1,347	1,005	14,026
2042	74,519	5,961	0	6,148	1,397	1,042	14,548
2043	77,300	6,184	0	6,377	1,449	1,081	15,091
PV [(1)]	$483,564	$38,685	$0	$39,894	$9,093	$6,608	$94,280
Level Rate [(2)]		**8.000%**	**-**	**8.250%**	**1.880%**	**1.367%**	**19.497%**

(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]
(Reflecting Currently Scheduled Contributions)[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	2014	$73,667	$5,158	$4,887	$271	$5,515	$253	$79,164
2	2015	79,164	5,349	5,051	298	5,926	182	84,974
3	2016	84,974	5,622	5,222	400	6,358	130	91,062
4	2017	91,062	5,831	5,398	433	6,814	93	97,536
5	2018	97,536	6,049	5,581	468	7,298	67	104,433
6	2019	104,433	6,274	5,770	504	7,814	48	111,791
7	2020	111,791	6,508	5,965	543	8,364	34	119,646
8	2021	119,646	6,750	6,166	584	8,952	25	128,039
9	2022	128,039	7,002	6,374	628	9,580	18	137,009
10	2023	137,009	7,263	6,588	675	10,251	13	146,598
11	2024	146,598	7,533	6,809	724	10,968	9	156,851
12	2025	156,851	7,814	7,037	777	11,735	6	167,815
13	2026	167,815	8,105	7,273	832	12,556	5	179,544
14	2027	179,544	8,407	7,516	891	13,433	3	192,089
15	2028	192,089	8,720	7,766	954	14,372	2	205,509
16	2029	205,509	9,045	8,023	1,022	15,376	2	219,865
17	2030	219,865	9,382	8,287	1,095	16,450	1	235,221
18	2031	235,221	9,731	8,559	1,172	17,599	1	251,649
19	2032	251,649	10,093	8,838	1,255	18,828	1	269,223
20	2033	269,223	10,468	9,126	1,342	20,142	0	288,023
21	2034	288,023	10,858	9,423	1,435	21,549	0	308,137
22	2035	308,137	11,262	9,732	1,530	23,054	0	329,661
23	2036	329,661	11,681	10,051	1,630	24,665	0	352,696
24	2037	352,696	12,116	10,382	1,734	26,389	0	377,351
25	2038	377,351	12,567	10,725	1,842	28,234	0	403,743
26	2039	403,743	13,036	11,082	1,954	30,209	0	431,998
27	2040	431,998	13,521	11,453	2,068	32,324	0	462,254
28	2041	462,254	14,025	11,840	2,185	34,589	0	494,658
29	2042	494,658	14,548	12,244	2,304	37,014	0	529,368
30	2043	529,368	15,091	12,665	2,426	39,613	0	566,555

(1) Based on the actuarial value of assets with projected recognition of deferred known asset losses as of June 30, 2013.

(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, 2013	June, 2012
Funded Status ***(Table 7)***		
Actuarial Obligation	$ 222,281	$ 215,189
Actuarial Value of Assets	148,614	144,232
Unfunded Actuarial Obligation	$ 73,667	$ 70,957
Funded Ratio	66.9%	67.0%
Level Contributions over 30 Years ***(Table 12)***	19.497%	19.472%
Amortization Period based on Current Revenues		
Total Level Rate over the Amortization Period	19.497%	19.472%
Normal Cost Rate(1)	18.259	18.276
Amortization Rate	1.238%	1.196%
Amortization Period (Based on current revenue projections)	*Does not amortize*	*Does not amortize*
Calculated Contribution Rate for 30-Year Funding Period		
Normal Cost Rate	18.259%	18.276%
Amortization Rate	14.620	15.816
Total Level Rate over the Amortization Period	32.879%	34.092%
Estimated Additional Revenue Needed *(Based on current valuation assumptions)*	13.382%	14.620%

(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	2014	$73,667	$8,739	$4,887	$3,852	$5,383	$253	$75,451
2	2015	75,451	9,064	5,051	4,013	5,511	182	77,131
3	2016	77,131	9,475	5,222	4,253	5,628	130	78,636
4	2017	78,636	9,828	5,398	4,430	5,735	93	80,034
5	2018	80,034	10,195	5,581	4,614	5,833	67	81,320
6	2019	81,320	10,575	5,770	4,805	5,922	48	82,485
7	2020	82,485	10,969	5,965	5,004	6,002	34	83,517
8	2021	83,517	11,377	6,166	5,211	6,072	25	84,403
9	2022	84,403	11,801	6,374	5,427	6,130	18	85,124
10	2023	85,124	12,241	6,588	5,653	6,176	13	85,660
11	2024	85,660	12,697	6,809	5,888	6,208	9	85,989
12	2025	85,989	13,170	7,037	6,133	6,223	6	86,085
13	2026	86,085	13,661	7,273	6,388	6,221	5	85,923
14	2027	85,923	14,170	7,516	6,654	6,199	3	85,471
15	2028	85,471	14,697	7,766	6,931	6,155	2	84,697
16	2029	84,697	15,245	8,023	7,222	6,086	2	83,563
17	2030	83,563	15,812	8,287	7,525	5,990	1	82,029
18	2031	82,029	16,401	8,559	7,842	5,864	1	80,052
19	2032	80,052	17,011	8,838	8,173	5,703	1	77,583
20	2033	77,583	17,644	9,126	8,518	5,505	0	74,570
21	2034	74,570	18,300	9,423	8,877	5,266	0	70,959
22	2035	70,959	18,982	9,732	9,250	4,982	0	66,691
23	2036	66,691	19,688	10,051	9,637	4,647	0	61,701
24	2037	61,701	20,421	10,382	10,039	4,258	0	55,920
25	2038	55,920	21,182	10,725	10,457	3,809	0	49,272
26	2039	49,272	21,971	11,082	10,889	3,295	0	41,678
27	2040	41,678	22,789	11,453	11,336	2,709	0	33,051
28	2041	33,051	23,639	11,840	11,799	2,045	0	23,297
29	2042	23,297	24,521	12,244	12,277	1,295	0	12,315
30	2043	12,315	25,436	12,665	12,769	454	0	0

(1) Based on the actuarial value of assets.

(2) An additional contribution of 13.382% 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.

Member Contributions

Contribution Rate:

2% at 60 Members: 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.

The redirection of member contributions does not apply to the 1990 Benefit Structure.

2% at 62 Members: Equal to one-half of the Normal Cost rate determined in the valuation rounded to the nearest quarter percent. Member rates only change when the Normal Cost rate changes by 1.0% of pay as compared to the initial Normal Cost rate (or at the time of the last adjustment). Currently, the member contribution rate is equal to 8.0% of creditable compensation.

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:

2% at 60 Members: Age 60 with five years of credited service.

2% at 62 Members: Age 62 with five years of credited service.

Allowance:

Two percent of final compensation for each year of credited service.

Final Compensation:

2% at 60 Members: 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.

12-month highest average compensation does not apply to the 1990 Benefit Structure.

2% at 62 Members: Final compensation is based on the highest three consecutive years of salary earnable. Compensation is limited to approximately 120% of the Social Security Wage Base. The limit for 2013 is $136,440 (after applying the 120% factor) and is adjusted annually based on changes to the Consumer Price Index for All Urban Consumers. The 2% at 62 members are not eligible for the one-year final compensation benefit enhancement.

Normal Retirement (continued)

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. Unused sick leave service credit does not apply to the 1990 Benefit Structure.
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%. Career factor does not apply to 2% at 62 members or 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. Longevity Bonus does not apply to 2% at 62 members or 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:	2% at 60 Members: Age 55 with five years of credited service, or age 50 with 30 years of credited service. 2% at 62 Members: Age 55 with five years of credited service.
Benefit Reduction:	2% at 60 Members: 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. 2% at 62 Members: A 1/2% reduction in the normal retirement allowance for each full month or partial month the member is younger than age 62

Late Retirement

Allowance:	2% at 60 Members: 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%. 2% at 62 Members: Members continue to earn additional service credit after age 62. The 2% age factor increases by 0.033% for each quarter year of age that the member is over age 62, up to a maximum of 2.4%. 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 or 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 (including 2% at 62 members)

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.

* *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

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.
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%. 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%. 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 (including 2% at 62 members)

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. or 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's and spouse's (or domestic partner's) ages at the time the benefit begins. 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. 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. For 2% at 60 members, the Normal Cost is based on the Coverage B benefit structure. For 2% at 62 members, the Normal Cost is based on their benefit structure. 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 for members hired after the valuation date are 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 the valuation date 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 (including 2% @ 62)	
	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 275%. 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 Age > 70: RP2000 Male White Collar +7 Projected to 2025 at age 70 smoothed to +1 age 85 (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 Age > 70: RP2000 Female White Collar +6 Projected to 2025 at age 70 smoothed to +2 at age 80 (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, 2013	June 30, 2012
Number of Members		
Active Members [1]	416,643	421,499
Inactive Members [1]	182,576	178,655
Retirees and Beneficiaries		
Service Retirees	236,487	230,278
Disabled Retirees	9,374	9,036
Survivors	23,413	22,724
Total Benefit Recipients	269,274	262,038
Total Membership in Valuation	868,493	862,192
Active Member Statistics		
Earned Salaries	$ 25,479 million	$ 25,388 million
Average Salary	$ 61,153	$ 60,233
Average Age	45.6 years	45.5 years
Average Service	12.2 years	11.9 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, 2013	June 30, 2012
Average Age		
Service Retiree	72.6	72.4
Disabled Retiree	65.0	64.9
Survivors	76.9	76.8
All Benefit Recipients	72.6	72.4
Average Monthly Benefit		
Service Retirees	$ 3,609	$ 3,517
Disabled Retirees	2,491	2,425
Survivors	2,172	2,091
All Benefit Recipients	$ 3,464	$ 3,375

(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, 2013	June 30, 2012
Average Age	47.6	47.2
Average Account Balance	$ 11,771	$ 11,818

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

	Years of Service				
Age	**0-5**	**5-10**	**10-15**	**15-20**	**20-25**
Less than 25	858	-	-	-	-
25 to 30	5,424	802	-	-	-
30 to 35	5,415	6,232	962	1	-
35 to 40	3,595	5,419	6,703	993	2
40 to 45	2,776	3,651	6,485	6,174	379
45 to 50	2,191	2,376	3,767	4,900	3,051
50 to 55	1,883	1,847	2,818	3,109	3,229
55 to 60	1,639	1,708	2,295	2,331	2,392
60 to 65	1,290	1,237	1,700	1,680	1,464
65 to 70	749	618	669	535	404
70 and over	370	283	202	149	116
Age Unknown	-	-	-	-	-
Total	26,190	24,173	25,601	19,872	11,037

	Years of Service					
Age	**25-30**	**30-35**	**35-40**	**40-45**	**Over 45**	**Total**
Less than 25	-	-	-	-	-	858
25 to 30	-	-	-	-	-	6,226
30 to 35	-	-	-	-	-	12,610
35 to 40	-	-	-	-	-	16,712
40 to 45	3	-	-	-	-	19,468
45 to 50	220	1	-	-	-	16,506
50 to 55	2,424	181	-	-	-	15,491
55 to 60	2,516	1,923	302	5	-	15,111
60 to 65	1,321	893	720	36	-	10,341
65 to 70	309	179	148	86	9	3,706
70 and over	87	49	32	46	33	1,367
Age Unknown	-	-	-	-	-	-
Total	6,880	3,226	1,202	173	42	118,396

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

	Years of Service				
Age	**0-5**	**5-10**	**10-15**	**15-20**	**20-25**
Less than 25	3,611	1	-	-	-
25 to 30	18,323	3,651	1	-	-
30 to 35	13,465	21,628	3,355	1	-
35 to 40	8,028	14,324	19,328	2,439	3
40 to 45	6,850	9,224	14,415	13,607	917
45 to 50	5,557	6,478	8,635	9,335	6,806
50 to 55	4,695	5,720	7,513	7,593	6,687
55 to 60	3,351	4,327	6,434	7,049	6,029
60 to 65	1,985	2,464	4,040	4,724	4,118
65 to 70	836	872	1,196	1,181	1,055
70 and over	347	305	275	240	202
Age Unknown	-	-	-	-	-
Total	67,048	68,994	65,192	46,169	25,817

	Years of Service					
Age	**25-30**	**30-35**	**35-40**	**40-45**	**Over 45**	**Total**
Less than 25	-	-	-	-	-	3,612
25 to 30	-	-	-	-	-	21,975
30 to 35	-	-	-	-	-	38,449
35 to 40	-	-	-	-	-	44,122
40 to 45	2	-	-	-	-	45,015
45 to 50	792	4	-	-	-	37,607
50 to 55	5,731	532	7	-	-	38,478
55 to 60	5,360	4,367	591	3	-	37,511
60 to 65	2,931	1,797	1,178	67	1	23,305
65 to 70	698	290	164	116	10	6,418
70 and over	152	88	66	39	41	1,755
Age Unknown	-	-	-	-	-	-
Total	15,666	7,078	2,006	225	52	298,247

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

	Years of Service				
Age	**0-5**	**5-10**	**10-15**	**15-20**	**20-25**
Less than 25	4,469	1	-	-	-
25 to 30	23,747	4,453	1	-	-
30 to 35	18,880	27,860	4,317	2	-
35 to 40	11,623	19,743	26,031	3,432	5
40 to 45	9,626	12,875	20,900	19,781	1,296
45 to 50	7,748	8,854	12,402	14,235	9,857
50 to 55	6,578	7,567	10,331	10,702	9,916
55 to 60	4,990	6,035	8,729	9,380	8,421
60 to 65	3,275	3,701	5,740	6,404	5,582
65 to 70	1,585	1,490	1,865	1,716	1,459
70 and over	717	588	477	389	318
Age Unknown	-	-	-	-	-
Total	93,238	93,167	90,793	66,041	36,854

	Years of Service					
Age	**25-30**	**30-35**	**35-40**	**40-45**	**Over 45**	**Total**
Less than 25	-	-	-	-	-	4,470
25 to 30	-	-	-	-	-	28,201
30 to 35	-	-	-	-	-	51,059
35 to 40	-	-	-	-	-	60,834
40 to 45	5	-	-	-	-	64,483
45 to 50	1,012	5	-	-	-	54,113
50 to 55	8,155	713	7	-	-	53,969
55 to 60	7,876	6,290	893	8	-	52,622
60 to 65	4,252	2,690	1,898	103	1	33,646
65 to 70	1,007	469	312	202	19	10,124
70 and over	239	137	98	85	74	3,122
Age Unknown	-	-	-	-	-	-
Total	22,546	10,304	3,208	398	94	416,643

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
2013	35,883	182,576	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
2013	11,771	47.6	2.8	9.4

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
2013	236,487	33.6	66.4

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
2013	61.1	26.1	5,385	3,609

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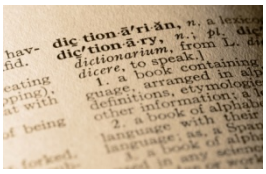
Appendix D Glossary


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, etymologic
other information; a b
2. a book of alphab
language with their
language; as, a Span
1. a book of alph

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.
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, 2013.